



2040 METROPOLITAN TRANSPORTATION PLAN

Winchester-Frederick County Metropolitan Planning Organization
WINCHESTER, VIRGINIA | MAY 2017

Disclaimer

This document was prepared on behalf of the WinFred Metropolitan Planning Organization by the Northern Shenandoah Valley Regional Commission staff through a cooperative process involving the City of Winchester, County of Frederick, Town of Stephens City, Virginia Department of Transportation, Virginia Department of Rail and Public Transportation, Federal Highway Administration, and the Federal Transit Administration.

The preparation of this plan was financially aided through grants from the Federal Highway Administration, Federal Transit Administration, Virginia Department of Transportation and the Virginia Department of Rail and Public Transportation.

The contents of this report reflect the views of the WinFred Metropolitan Planning Organization and the Northern Shenandoah Valley Regional Commission who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration (FHWA) and the Commonwealth Transportation Board. This report does not constitute a standard, specification, or regulation. FHWA 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 improvements 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-Discrimination Statement

The WinFred MPO ensures nondiscrimination and equal employment in all programs and activities in accordance with Title VI and Title VII of the Civil Rights Act of 1964. If you have questions or concerns about your civil rights in regard to this project or special assistance for persons with disabilities or limited English proficiency, please contact the WinFred MPO. Please contact the WinFred MPO at 540-636-8800 if you need assistance accessing this document or any related materials.

Copyright 2017 by the Commonwealth of Virginia

Winchester-Frederick County Metropolitan Planning Organization

Policy Board (as of July 1, 2016)

Officers:

Chair—John Willingham, City of Winchester

Vice Chair—Charles DeHaven, Jr., Frederick County

Secretary/Treasurer—Brandon Davis, Executive Director NSVRC (non-voting)

Voting Members:

Charles DeHaven, Jr., Frederick County

Judith McCann-Slaughter, Frederick County

Brenda Garton, Frederick County

Michael Majher, Town of Stephens City

Eden Freeman, City of Winchester

John Hill, City of Winchester

John Willingham, City of Winchester

Randy Kiser, Virginia Department of Transportation

Alternate Voting Members:

Tim Youmans and Perry Eisenach, City of Winchester

Kris Tierney, Frederick County

Terry R. Short, Jr., Virginia Department of Transportation

Non-Voting Members:

Mack Frost, Federal Highway Administration

Tony Cho, Federal Transit Administration

Tim Roseboom, Virginia Dept. of Rail & Public Transportation

Rusty Harrington, Dept. of Aviation

Technical Advisory Committee (TAC)

Patrick Barker, Frederick County

John Bishop, Frederick County – *Vice Chair*

Mike Ruddy, Frederick County

Kris Tierney, Frederick County

Mike Majher, Town of Stephens City

Perry Eisenach, City of Winchester

Tom Hoy, City of Winchester

Tim Youmans, City of Winchester -- *Chair*

Terry R. Short, Jr., Virginia Department of Transportation

Tim Roseboom, Virginia Dept. of Rail & Public Transportation

Serena ‘Renny’ Manuel, Winchester Airport

Renee Wells, Winchester Transit

Metropolitan Transportation Plan Project Steering Committee

John Bishop, Frederick County

Charles DeHaven, Jr., Frederick County

John Hill, City of Winchester

Mike Majher, Town of Stephens City

Terry R. Short, Jr., Virginia Department of Transportation

Tim Youmans, City of Winchester

Administrative & Technical Support

Provided by Northern Shenandoah Valley Regional Commission

400 Kendrick Lane, Suite E, Front Royal, VA 22630

(540) 636-8800 | info@nsvregion.org | www.winfredmpo.org

Brandon Davis, Executive Director

John Madera, AICP, Principal Planner

Karen Taylor, Senior Project and Operations Manager

Table of Contents

Introduction	1
1 Policy, goals, objectives	6
1.1 Vision (Policy).....	6
1.2 Goals and objectives	6
2 Population and employment	8
3 The regional transportation network	9
3.1 Roadways.....	9
3.2 Public transportation facilities	14
3.3 Non-motorized transportation facilities	16
3.4 Intermodal connectors.....	20
4 Performance measures and targets.....	23
5 System performance report.....	26
7 Operational and management strategies	28
8 Transportation and transit enhancement activities	29
9 Capital investment and other strategies.....	30
9.1 State plans.....	30
9.2 Regional modal plans	34
9.3 Locality comprehensive plans	36
9.4 WinFred MPO strategies.....	42
9.5 Performance-based strategies	43
10 Financial plan	44
10.1 Highway funding	44
10.2 Transit funding	46
10.3 Freight rail funding.....	47
10.4 Bicycle and pedestrian funding.....	48
11 Constrained Long-Range Plan	49
12 Environmental mitigation activities	53
13 Environmental justice analysis.....	56
14 Public involvement.....	59
Appendix A: Vision Plan	61
Appendix B: Public involvement summary	67

List of Tables

Table 1: Roadway Functional Classification roles	12
Table 2: Centerline miles by roadway functional classification within WinFred MPO	12
Table 3: Park and Ride lots, Northern Shenandoah Valley	21
Table 4: National Performance Measures	24
Table 5: VMTP Tier 1 Draft Recommendations (Draft, March 2017)	32
Table 6: Summary of future roadway allocations for the WinFred MPO	44
Table 7: Programmed highway projects	45
Table 8: DRPT FY 2018-2022 Capital Program, Winchester Transit	46
Table 9: Rail Preservation Program allocations, FY 2017-2022, Winchester & Western Railroad	48
Table 10: WinFred 2040 Constrained Long Range Plan	50
Table 11: Environmental Mitigation Options for Transportation Projects	54
Table 12: Minority and low-income populations, 2015	56

List of Figures

Figure 1: WinFred MPO Planning Area	5
Figure 2: Population and employment, current and projected	8
Figure 3 The National Highway System, WinFred MPO	11
Figure 4: Roadways by Functional Classification	13
Figure 5: Bus routes	15
Figure 6: Winchester Green Circle Trail	19
Figure 7: Ten highest priority bicycle and pedestrian projects	35
Figure 8: Current Needs Projects, Frederick County	41
Figure 9: WinFred 2040 Constrained Long Range Plan	51
Figure 10: CLRP projects and low income and minority populations by Census block group	58
Figure 11: Flyer for public information open house	59

Glossary of acronyms

CLRP – Constrained Long Range Plan, a fiscally-constrained list of projects drawn from the Vision Plan element of the MTP. All CLRP projects must have an estimated cost and a funding source identified.

DRPT – Virginia Department of Rail and Public Transportation, the agency under the Virginia Secretary of Transportation which provides technical and financial assistance to Virginia's public transit.

FHWA – Federal Highway Administration, a branch of the US Department of Transportation that administers the federal-aid Highway Program, providing financial assistance to states to construct and improve highways, urban and rural roads, and bridges. FHWA administers federal laws and regulations related to metropolitan transportation planning.

FTA – Federal Transit Administration, a branch of the US Department of Transportation responsible for administering federal assistance for public transportation.

LRTP – Long Range Transportation Plan, also called the Metropolitan Transportation Plan (MTP).

MPA – Metropolitan Planning Area, the geographic area in which the metropolitan transportation planning process required by federal law must be carried out. The MPA must cover the entire urbanized area (UZA) plus adjacent areas expected to become developed within 20 years.

MPO – Metropolitan Planning Organization, a regional policy body required for urbanized areas with populations over 50,000, and designated by local officials and the governor of the state, responsible in cooperation with the state and other transportation providers for carrying out the metropolitan transportation planning requirements of federal highway and transit legislation.

MTP – Metropolitan Transportation Plan, sometimes called the LRTP, a regional plan developed and approved by the MPO serving as the defining vision for the region's transportation systems and services that includes all transportation projects and programs that the MPO realistically anticipates can be implemented over the next 20 years. MTPs must include a CLRP; and may include a Vision Plan, a list of all projects which the MPO desires to be implemented. Transportation projects must be included in the MTP and the TIP to receive federal funding.

TAC – Technical Advisory Committee, an advisory body to the MPO's Policy Board. The TAC works with MPO staff to formulate the UPWP and MTP, and provides technical review and assistance on MPO planning studies as specified in the UPWP.

TIP – Transportation Improvement Program, a list of projects and programs that will be implemented over the next six years. Transportation projects must be included in the CLRP and the TIP to receive federal funding.

UPWP – Unified Planning Work Program, an annual work program and budget specifying all planning activities or tasks to be undertaken by the MPO during the fiscal year which begins July 1st and ends the following June 30th.

UZA -- Urbanized Area, an area that contains a city of 50,000 or more population plus adjacent developed unincorporated areas as defined by the U.S. Census.

VDOT – Virginia Department of Transportation, the state agency responsible for statewide transportation facility planning, construction, and maintenance. VDOT is separate from DRPT.

Introduction

Metropolitan Transportation Planning and the MPO

The activity of transportation is essential to the economic and social well-being of the nation. It is one of two primary means (communication being the other) by which individuals connect with society. It is so important that federal law has declared the planning for it to be in the national interest; and that the federal government supplies a large share of the funding for transportation infrastructure (through the states), as it has for decades.

Metropolitan transportation planning is the process of examining travel and transportation issues and identifying infrastructure and service needs in a metropolitan area. It includes an examination of population and travel patterns and trends, and an analysis of alternatives to accommodate projected future demands safely and efficiently while minimizing adverse impacts to communities and the environment. For metropolitan areas containing an urbanized core (as defined by the US Census Bureau) of 50,000 residents or more, Federal law assigns responsibility for transportation planning to a designated Metropolitan Planning Organization (MPO) comprised of local elected officials as well as state and federal transportation officials.

The Winchester-Frederick County (WinFred) MPO is responsible for conducting a continuing, comprehensive and coordinated (3-C) transportation planning process for the Winchester metropolitan area in accordance with Section 134, Title 23, and Section 5303, Title 49, United States Code, and the joint metropolitan planning regulations of the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA).

The MPO was established in 2003 through a Memorandum of Understanding (MOU) between the Secretary of Transportation for the Commonwealth of Virginia and the localities in the urbanized area including the City of Winchester, the Town of Stephens City, and Frederick County.

The MPO is governed by a Policy Board comprised of elected officials from each locality and representatives from the Virginia departments of transportation (VDOT) and rail and public transportation (DRPT), and FHWA. See page ii for the board roster. Typically meeting monthly, the Policy Board is responsible for making all of the official decisions of the MPO.

The Policy Board is advised on technical matters by a Technical Advisory Committee (TAC) comprised of planners, engineers and other transportation experts employed by the member localities and state and federal partners. See page ii for the committee roster. The TAC typically meets monthly.

Members of the public are welcome to attend meetings of the Policy Board and TAC.

The Northern Shenandoah Valley Regional Commission (NSVRC) staffs and manages the MPO, providing project management, technical, clerical and administrative support. The Commission's Executive Director serves as the MPO's Secretary-Treasurer.

The Policy Board directs the work of the MPO staff through a Unified Planning Work Program (UPWP) adopted annually.

Federal transportation planning framework

The WinFred MPO must follow the federally-mandated transportation planning process culminating in the production of three key documents:

1. The **Unified Planning Work Program (UPWP)** specifies MPO planning activities for the coming year; updated annually.
2. The **Transportation Improvement Program (TIP)** identifies transportation projects to be funded within the next six years; updated every four years.
3. The **Metropolitan Transportation Plan (MTP)** defines long-range transportation needs and identifies a fiscally-constrained list of projects to be eligible for inclusion in the TIP. Through the MTP, the MPO establishes its priorities for the investment of federal transportation dollars. Reviewed and updated every five years to confirm its validity and its consistency with the most current forecasts and trends in population, employment, land use, travel, congestion and economic activity, the MTP must cover at least a 20-year planning horizon.

Purpose of this plan

As WinFred MPO's Metropolitan Transportation Plan for the year 2040, this document sets forth the goals, objectives, strategies and actions required to develop and maintain an efficient, equitable, multi-modal system for the transportation of people and goods throughout greater Winchester in a manner that will enhance the economic, social, and environmental qualities of the community. This MTP supersedes the *WinFred MPO 2035 Transportation Plan Update* adopted May 2012.

This plan addresses 10 federally-mandated planning factors through the consideration of long- and short-range strategies and actions which

1. Support the economic vitality of the United States, the States, nonmetropolitan areas, and metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency;
2. Increase the safety of the transportation system for motorized and non-motorized users;
3. Increase the security of the transportation system for motorized and non-motorized users;
4. Increase the accessibility and mobility of people and freight;
5. 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;
6. Enhance the integration and connectivity of the transportation system, across and between modes throughout the State, for people and freight;
7. Promote efficient system management and operation;
8. Emphasize the preservation of the existing transportation system;

9. Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. Enhance travel and tourism.

These factors are addressed throughout the plan, beginning with the plan goals and objectives, and inventory of existing conditions. This plan comprehensively identifies strategies in current and relevant state, regional and local plans including plans for goods movement, rail transportation, public transportation, bicycle and pedestrian mobility, and travel demand management.

Required elements

In accordance with Federal law, this plan contains the following elements:

- **Identification of transportation facilities** that should function as an integrated metropolitan transportation system;
- **Performance measures and targets;**
- **A system performance report;**
- A discussion of potential **environmental mitigation activities;**
- A **financial plan** that demonstrates how the adopted plan can be implemented;
- **Operational and management strategies** to improve the performance of existing facilities;
- **Capital investment and other strategies** to preserve the system and provide for future needs; and
- A discussion of **transportation and transit enhancement activities** including public and private intercity bus service.

Federal law requires states and MPOs to take a performance-based approach to transportation planning and decisionmaking which includes the establishment of goals, measures of progress, and targets (outcomes) for the performance of the transportation system, and the periodic tracking of progress toward those outcomes.

State and MPO goals must support national transportation goals regarding safety, state of repair, congestion reduction, reliability, freight movement and economic vitality, environmental sustainability, and expedited project delivery. States must establish goals and targets by June 30, 2017; MPOs must approve their own, which must align with the state's, within 180 days following the approval of the state's performance measures.

Central to the plan is a list of future transportation facilities and modifications recommended to be built with available funding. This list, which may include transit, pedestrian and bicycle facilities in addition to new roads and roadway expansions, is called the "Constrained Long Range Plan" (CLRP) because the total cost of the projects is constrained by expected available funds. VDOT estimates the future cost of each proposed project and the amount of funds expected to be available to implement those projects.

Metropolitan Planning Area

Transportation planning processes are required to be organized and directed for all urbanized areas (UZAs) having a population of 50,000 or greater, as delineated by the U.S. Census Bureau. MPOs are established for a metropolitan planning area (MPA) that must contain, at a minimum, the Census Bureau delineated UZA and adjacent areas expected to become urbanized in the next 20 years. An MPO, its planning boundaries and membership and voting structure are established and designated by agreement between local officials and the Governor (23 CFR 450.310).

The WinFred MPO planning area consists of the City of Winchester, the Town of Stephens City, the Urbanized Area of Frederick County, and the area of Frederick County projected to be urbanized by the year 2040 (see Figure 1 on following page).

As reported by FHWA for 2010, the WinFred MPO Urbanized Area population was 78,440 and it encompasses a land area of approximately 103 sq. miles.

Figure 1: WinFred MPO Planning Area



1 Policy, goals, objectives

The transportation planning process is more than merely listing future highway and transit projects. Any successful planning effort rests on a foundation of a clearly-stated vision, goals and objectives. Together, the vision, goals and objectives are a description and declaration of the desired future characteristics of the transportation system – and serve to guide in the identification of strategies and definition of projects. They address the operational outcomes of the planning process *which are meaningful to users* – the services delivered and their desired quality – rather than outputs, for example the funds expended, miles of roadway built, or projects completed.

The following vision, goals, and objectives serve to guide the development of the 2040 Long-Range Transportation Plan. The goals are identical to those of the state as set forth in the statewide transportation plan, VTrans 2040, adopted by the Commonwealth Transportation Board in December 2015. They are compatible with federal transportation policy, and align with locality goals.

1.1 Vision (Policy)

It is the policy of the WinFred MPO and its member jurisdictions to strive for a multi-modal transportation system that is planned, designed, operated and maintained to provide safe, efficient, fiscally-sustainable access to economic and community life for all, regardless of one's ability, desire or opportunity to drive, while preserving and enhancing environmental quality and community character.

1.2 Goals and objectives

Goal: Economic Competitiveness and Prosperity

Objective: Reduce the amount of travel that takes place in severe congestion

Objective: Reduce the number and severity of freight bottlenecks

Objective: Improve reliability on key corridors for all modes

Goal: Accessible and Connected Places

Objective: Reduce average peak-period travel times

Objective: Reduce average daily trip lengths

Objective: Increase accessibility to jobs via transit, walking and driving

Goal: Safety for All Users

Objective: Reduce the number and rate of motorized fatalities and severe injuries

Objective: Reduce the number of non-motorized fatalities and severe injuries

Goal: Proactive System Management

Objective: Improve the condition of all bridges based on deck area

Objective: Increase the lane miles of pavement in good or fair condition

Objective: Increase percent of transit vehicles and facilities in good or fair condition

Goal: Healthy communities and Sustainable Transportation Communities

Objective: Reduce per-capita vehicle miles traveled

Objective: Reduce transportation-related emissions

Objective: Increase the number of bicycling and walking trips

2 Population and employment

Growth in population and employment will create new demands on the transportation system. During the 2000s the WinFred MPO planning area was among the fastest growing areas in Virginia.

As for the future, forecasts of population and employment vary among reputable sources. The estimates and projections selected as planning assumptions for this MTP, and their sources, are described below.

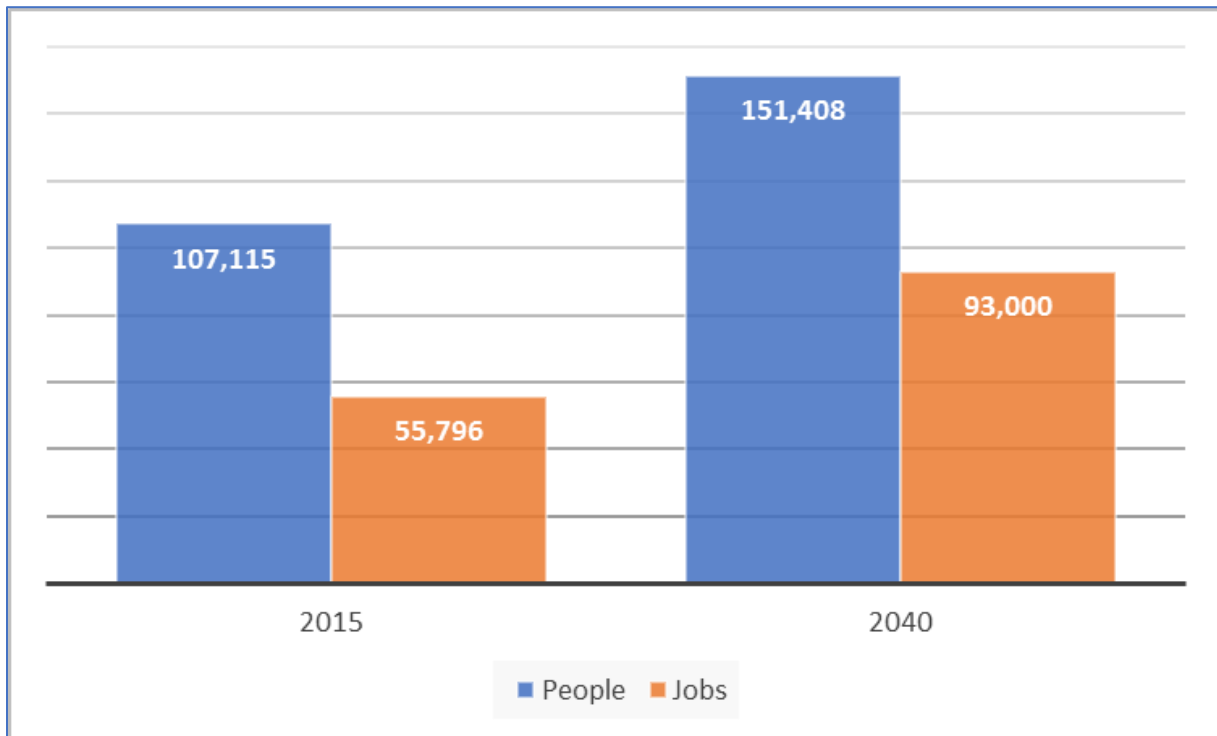
Base Year (2015) population: 107,115 (population in households only; excludes population in group quarters). Source: American Community Survey 2014 5-year estimates expanded to 2015 by projecting 2010-2014 growth rate.

Horizon Year (2040) population (in households only): **151,408**. Source: Woods & Poole Economics combined projections for Winchester and Frederick County. Derived by multiplying projected households by projected number of persons per household.

Base Year employment: 55,796 (Non-farm wage and salary employment only; excludes self-employed). Validation: American Community Survey 2014 5-year estimate expanded to 2015 by projecting 2010-2014 growth rate; Bureau of Economic Analysis, 2000-2014, smoothed and expanded to 2015.

Horizon Year employment: 93,000. Source: Woods & Poole 2040 projection adjusted to remove farm- and self-employment.

Figure 2: Population and employment, current and projected



3 The regional transportation network

This chapter identifies and describes existing transportation facilities that should function as an integrated metropolitan transportation system, with emphasis on facilities that serve important national and regional functions.

3.1 Roadways

The major highway routes serving the WinFred Metropolitan Planning Area (MPA) include Interstate 81, US routes 11, 17, 50 and 522, and Virginia routes 7, 37 and 277. Each of these routes is briefly described below.

Interstate 81 is a north-south limited-access highway running 855 miles from the Canadian border in New York State to Interstate 40 in eastern Tennessee, largely following the Appalachian Mountains. Lying to the west of the east coast urban centers, the route is heavily used by truckers as a bypass to the more heavily congested Interstate 95; trucks comprise about one quarter of vehicle traffic on I-81 through the MPA. The nearest cities along the interstate are Hagerstown, Maryland, 43 miles north; and Harrisonburg, Virginia, 71 miles south. Just south of the MPA, I-81 connects with I-66 to Northern Virginia and Washington, D.C. Locally the highway opened in 1964. Eight interchanges (exits 302, 307, 310, 313, 315, 317, 321 and 323) provide access within the MPA.

US 11, a north-south primary route stretching from the Canadian border in New York state to the Louisiana Gulf Coast, closely parallels I-81 along the Interstate's length. Within the MPA the route runs through downtown Winchester and the MPA's principal industrial areas north and south of the City; and intersects I-81 on Winchester's north side. Outside of the City of Winchester, the road is typically one lane by direction with a two-way left turn lane in the middle. North of the City the road is called Martinsburg Pike; south, Valley Pike. Within the City, US 11 follows portions of Valley Avenue, Cameron Street and Loudoun Street.

US 50 is an east-west primary route spanning the continent from the Atlantic Ocean at Ocean City, Maryland, to California's Central Valley. Mostly a four-lane divided highway outside of Winchester, the highway connects the MPA with Hampshire County, West Virginia as Northwestern Pike; to the east it runs concurrently with US 17 as Millwood Pike. Through the City the route follows Millwood Avenue and portions of Cork, Braddock, West Boscawen and Amherst streets.

US 522 is a 300-mile north-south primary route through Virginia, West Virginia, Maryland and Pennsylvania, connecting Winchester with Front Royal and Berkeley Springs. Within the County the road is mostly a four-lane divided highway. Known as North Frederick Pike, the section northwest of the City is part of the National Highway System, linking the MPA with Pittsburgh and the Midwest. As Front Royal Pike south of the City, the route provides direct access to the Virginia Inland Port. Within the City of Winchester, US 522 follows portions of Fairmont Avenue, Commercial Street, Cameron Street and Millwood Avenue.

US 17 has its northern terminus in downtown Winchester; its southern end lies in Punta Gorda, Florida. Southeast of the City the route runs concurrently with US 50 as a four-lane divided highway known as Millwood Pike. Within the City the route follows Millwood Avenue and South Cameron Street, ending at Cork Street.

VA 7 runs from downtown Winchester southeast through the Northern Virginia suburbs to Alexandria. Part of the National Highway System, the route follows Piccadilly Street, National Avenue and Berryville Avenue before entering the County as the four-lane, divided Berryville Pike.

VA 37 is a four-lane limited access highway serving as a western bypass of Winchester for through-travel between points south from I-81 to West Virginia, Maryland and Pennsylvania via US Routes 50 and 522. The highway provides direct access to Winchester Medical Center, the region's trauma center and largest employer.

VA 277, Fairfax Pike, connects US 11 and I-81 in Stephens City with US 522 and US 340 at Double Tollgate in Clarke County through a rapidly developing area of Frederick County.

National Highway System

The National Highway System (NHS) consists of roadways important to the nation's economy, defense, and mobility. Developed by the U.S. Department of Transportation (DOT) in cooperation with the states, local officials, and MPOs, the NHS includes the following subsystems of roadways (note that a specific highway route may be on more than one subsystem):

- **Interstates:** The Eisenhower Interstate System of highways.
- **Other Principal Arterials:** Highways which provide access between an arterial and a major port, airport, public transportation facility, or other intermodal transportation facility.
- **Strategic Highway Network (STRAHNET):** A network of highways which are important to the nation's strategic defense policy and which provide defense access, continuity and emergency capabilities for defense purposes.
- **Major Strategic Highway Network Connectors:** Highways which provide access between major military installations and highways which are part of the STRAHNET.
- **Intermodal Connectors:** These highways provide access between major intermodal facilities and the other four subsystems making up the National Highway System.

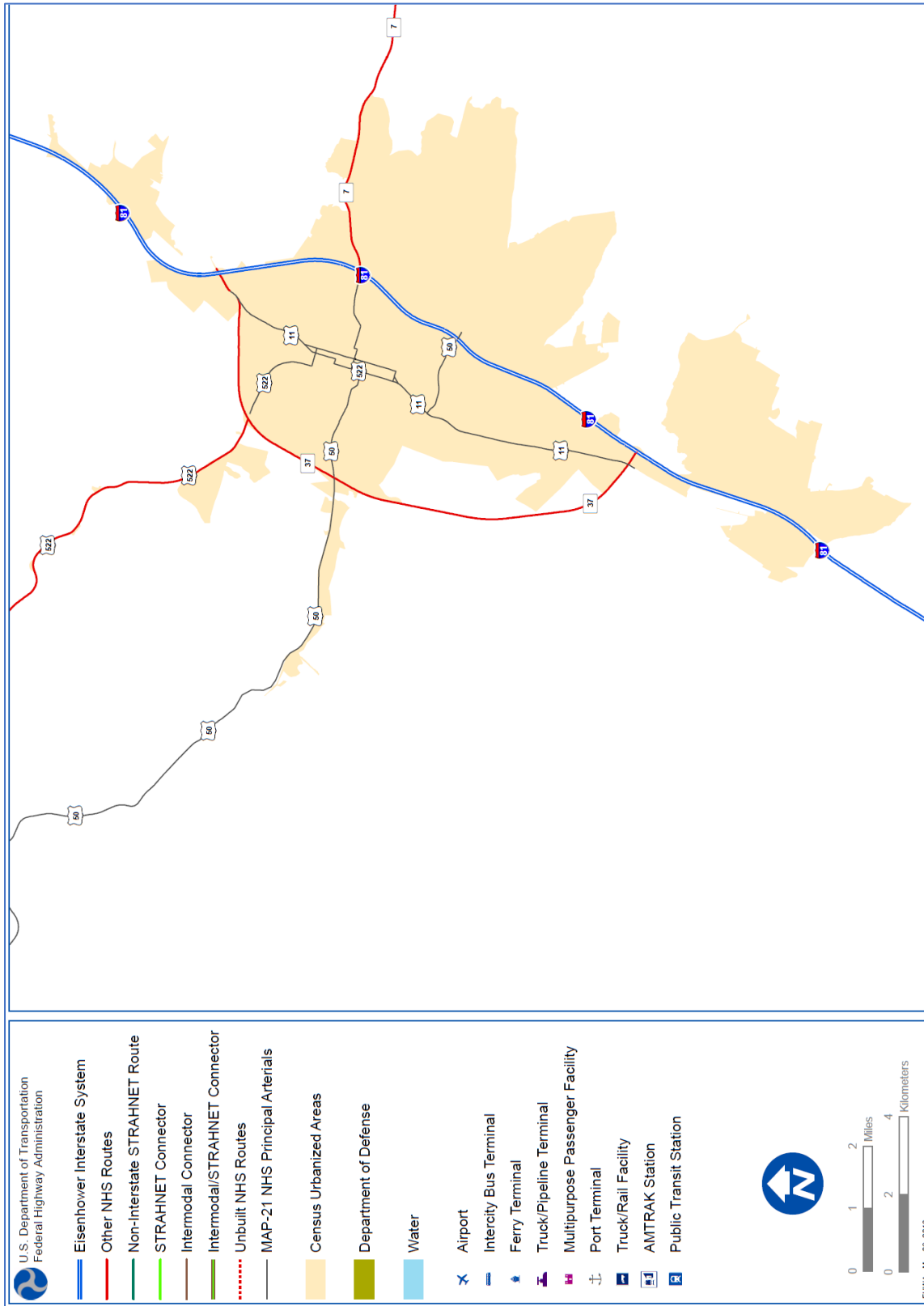
A map of the NHS within the MPA is presented as Figure 3 on the following page.

National Highway Freight Network

The *Fixing America's Surface Transportation Act* (FAST Act) of 2015 established a National Highway Freight Network (NHFN) to strategically direct Federal resources and policies toward improved performance of highway portions of the U.S. freight transportation system.

A network of highways most critical to the U.S. freight transportation system as determined by measurable and objective national data the NHFN designates as the Primary Highway Freight System (PHFS). I-81 is part of the PHFS along its length within the planning area and the state; I-66, just south of the planning area, is so designated between its junctions with I-81 and I-495.

Figure 3 The National Highway System, WinFred MPO



Functional classification of roadways

Functional classification is the process by which streets and highways are grouped into classes according to the character of traffic service – local versus long-distance - they are intended to provide. There are four primary functional classifications: Interstates and other freeways, arterials, collectors, and local streets. Arterials and collectors are further stratified into major and minor sub-categories. Table 1 below describes the levels of mobility and land access afforded by the four primary classifications. Table 2 displays the total centerline mileage within the planning area for each functional classification. Figure 4 on the following page illustrates the regional road network by functional classification.

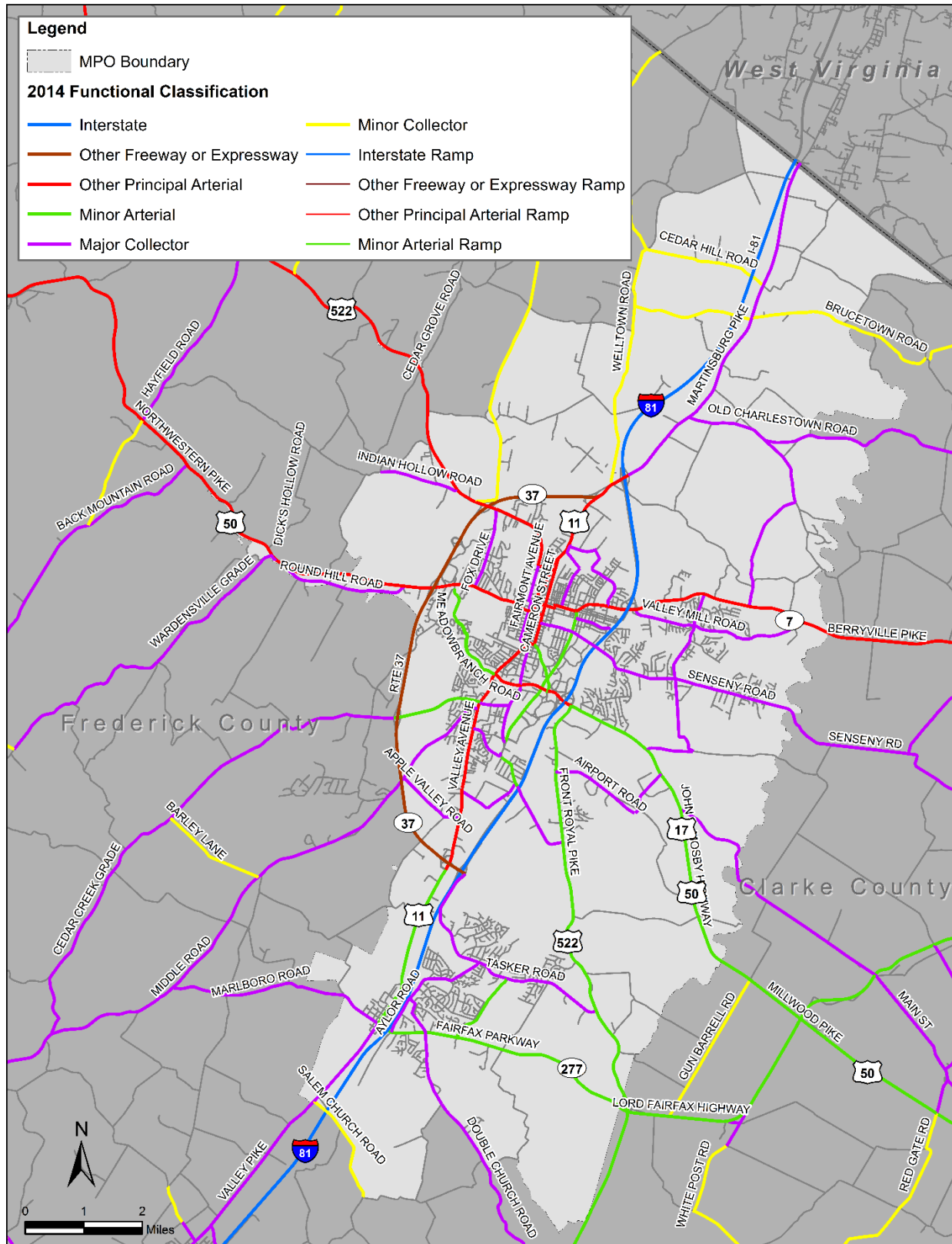
Table 1: Roadway Functional Classification roles

Roadway Functional Classification	Mobility	Land Access
Interstates & other freeways	Very high	None
Arterials	High	Low
Collectors	Moderate	Moderate
Local streets	Low	High

Table 2: Centerline miles by roadway functional classification within WinFred MPO

Roadway Functional Classification	Centerline miles	Percent of total
Interstate	18.8	3.3%
Other Freeway or Expressway	9.1	1.6%
Other Freeway or Expressway Ramp	1.7	0.3%
Other Principal Arterial	28.0	4.9%
Minor Arterial	27.7	4.8%
Major Collector	59.0	10.3%
Minor Collector	12.1	2.1%
Local	418.5	72.8%
TOTAL	574.8	

Figure 4: Roadways by Functional Classification



3.2 Public transportation facilities

Winchester Transit (WinTran) operates fixed-route bus and paratransit service throughout the City of Winchester. Designated bus stops are located at intersections throughout the City and all buses are equipped with wheelchair lifts for individuals with mobility impairments, and with front-mounted bicycle racks which can accommodate two bikes at a time.

WinTran's buses serve residential areas, shopping and commercial developments, medical facilities, and the downtown core of the city along eight loop routes between 6:00 a.m. and 8:00 p.m. on weekdays and between 9:00 a.m. and 5:00 p.m. on Saturdays. Five of the eight routes operate on 70-minute headways in a "pulse" system in which all lines converge at a central point (Boscawen Street between Kent and Cameron streets) at the same time to facilitate transfers without waiting, which are free. Two bus routes provide limited service into the County, operating on 140-minute headways on weekdays between 6:00 a.m. and 6:00 p.m. Three routes are in operation at any given time. WinTran's trolley service operates Mondays, Wednesdays and Fridays 8 a.m. to 6 p.m. and on Saturday 10 a.m. to 4 p.m. to take passengers primarily to dining and shopping attractions in Winchester.

WinTran's eight routes include:

- Berryville Avenue;
- Valley Avenue;
- Northside -- Westminster Canterbury branch
- Northside -- Salvation Army branch;
- Apple Blossom Mall;
- Amherst Street;
- South Loudoun; and
- Trolley

A map of these routes is presented as Figure 5 on the following page.

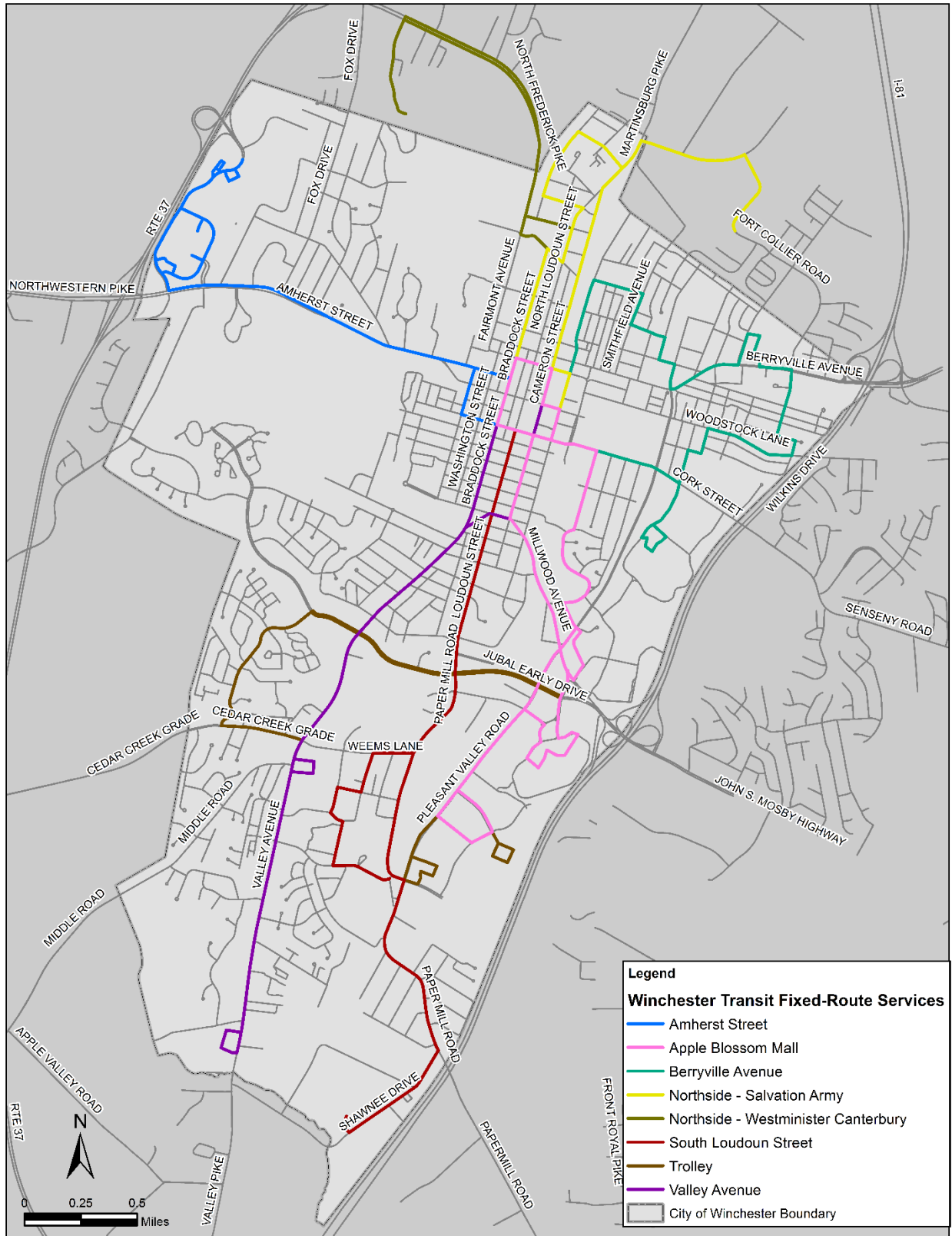
On-demand paratransit service also is offered for those individuals with a temporary or permanent disability that would not allow them to take advantage of regular route service. Fare for all services is \$1 for adults; books of 20 tickets may be purchased for \$17 from any driver.

In 2014 WinTran commissioned a performance review of the bus system, evaluating employment and population coverage and cost of several route and schedule alternatives. Recommended improvements include:

1. bi-directional service on each route;
2. shortened headways; and
3. a restructured Trolley service focused on Downtown with six-day service and reduced headways.

2040 METROPOLITAN TRANSPORTATION PLAN

Figure 5: Bus routes



Human services transportation

Well Tran is a demand-response service sponsored by the Shenandoah Area Agency on Aging (SAAA), providing transportation for seniors and adults with disabilities for medical/dental (nonemergency), shopping, and other trips. Service is available weekdays 8 a.m. - 5 p.m.; riders must call at least three working days in advance. Individuals eligible for Medicaid transportation are not eligible for medical rides with Well Tran, but are eligible for transportation for other purposes. There is a charge for this service, but discounts are provided according to income.

SAAA Senior Center Transportation provides transportation for seniors to and from its seven active living centers in the region.

Northwestern Community Services Board provides curb-to-curb and door-to-door transportation services to adults and children affected by emotional/behavioral disorders, mental illness, substance abuse, or developmental disabilities for specific individual appointments and some recreational, evening, and weekend trips.

Heart Havens provides transportation for adults with disabilities from its group home in Winchester.

Faith in Action provides transportation services for senior, frail, and chronically ill residents through an interagency coalition of volunteers from local congregations. Trips are provided primarily to medical facilities and shopping centers using volunteers' personal vehicles (approximately 50).

Grafton provides transportation for participants in the nonprofit's programs for children and adults with autism, intellectual and cognitive disabilities, psychiatric conditions, and developmental disorders.

Logisticare provides transportation to medical appointments for Medicaid and Medicare eligible recipients throughout Virginia.

NW Works provides transportation for its clients (adults with disabilities) from its center in Winchester to work sites.

Access Independence provides travel training for clients to use Well Tran and Winchester Transit; and coordinates transportation for clients through SAAA and Logisticare.

3.3 Non-motorized transportation facilities

The types of infrastructure which facilitate trips by foot or bicycle include:

Sidewalks. Typically built by developers and maintained by property owners, sidewalks may also be installed by localities or VDOT where there are gaps in the network. Although sidewalks are intended for pedestrian use only, bicyclists often use them if they perceive that bicycling on the adjacent roadway is unsafe. As stated in its 2013 Sidewalk Master Plan, the City of Winchester maintains approximately 605,000 linear feet (115 miles) of sidewalks. A sidewalk inventory for Stephens City was performed as part of the 2014 MPO Bicycle and Pedestrian Master Plan update.

Crosswalks. Crosswalks exist wherever a pedestrian path intersects with a roadway, regardless of whether the crosswalk is marked. Signs, pavement markings, pedestrian signals and properly designed accessibility features facilitate safe crossing. The 2014 Bicycle and Pedestrian Master Plan Update

included evaluations of 31 intersections for operations and conditions from the pedestrian and bicyclist perspectives.

Multi-use trails, shared by bicyclists and pedestrians, are wider (typically 10') and straighter than sidewalks to accommodate bicyclists' higher speeds. Driveway intersections are few or none. Pavement is typically asphalt, and may be marked with a centerline and edge lines. Paths may be located within the right of way of an adjacent road or on an independent alignment.

- In the County, trails exist adjacent to some commercial and residential developments, built by developers at the County's request; a network of paths will form as gaps are closed with new development.
- The City's multi-use trails include the 0.7-mile Abrams Creek Trail, portions of the Green Circle Trail, and a path on the north side of East Cork Street fronting Daniel Morgan Middle School between Rifleman Lane and Purcell Avenue.

Bikeways are facilities designed and designated for bicycling within roadways, channelizing or separating bike from motor traffic, or guiding bicyclists along a route which avoids motor traffic. These include **bike lanes**: standard 4-6' lane in each direction, depending on conditions; buffered (by a gore or striped zone); or separated (by flexible posts, curbs, planters or parking lane). In locations where the road is not wide enough to accommodate bike lanes, shared lane markings may be employed to inform bicyclists and motorists that bicyclists are intended road users.

- Portions of Valley Avenue (US 11) have standard bike lanes.

Below is a comprehensive list of bicycle and pedestrian accommodations developed by VDOT:

BICYCLE ACCOMMODATIONS

- Paving unpaved roads
- Providing paved shoulders that have been striped and are at least 2 feet in width, preferably 4 feet in width
- Paving wide outside lanes, at least 14 feet in width
- Designating bicycle lanes, at least 4 feet in width of rideable surface
- Providing shared use paths 10 feet wide
- Providing striping for bicycle lanes and shoulders
- Maintenance activities that include shoulder widening
- Providing Sharrow (shared lane markings)
- Providing signage indicating bicycle facilities/ use (Share the Road, Bicycle Route, USBRs)
- Bicycle racks (fixed and bus racks) and lockers
- Installing bicycle height railings 54" high
- Providing lighting along bicycle facilities.
- Replacement of drainage grates with bicycle friendly grates and adjustment of grade for utility covers.
- Removal of obstructions from bicycle facilities

2040 METROPOLITAN TRANSPORTATION PLAN

- Providing fencing on structures
- Maintenance activities that include debris and snow removal from shoulders and bicycle facilities

PEDESTRIAN ACCOMMODATIONS

- Providing a paved shoulder at least 4 feet wide for occasional use in rural settings only
- Providing asphalt or concrete sidewalks at least 5 feet in width
- Providing shared use paths 10 feet wide
- Providing curb cuts and ramps that meet ADA standards
- Providing pedestrian refuge islands (6 feet wide, minimum) at intersections and roundabouts
- Providing median island cut-throughs
- Providing appropriately striped crosswalks
- Providing pedestrian signals- walk/ don't walk, countdown, and push buttons
- Providing "bulb-outs" at intersections and other traffic calming methods
- Providing warning flashers or Rectangular Rapid Flashing Beacons (RRFBs) at crosswalks
- Providing Pedestrian Hybrid Beacons
- Providing signage (yield to pedestrian in crosswalk, pedestrian crossing warning signs, etc.)
- Providing pedestrian railing 54" high
- Providing fencing on structures
- Providing pedestrian shelters (at transit stops, park and ride lots)
- Providing lighting along pedestrian facilities
- Removal of obstructions from sidewalks
- Replacement of drainage grates with ADA acceptable grates and adjustment of grade for utility

Bus shelters and amenities are considered pedestrian facilities. In 2013 the Northern Shenandoah Valley Regional Commission inventoried amenities and conditions at each of the 156 WinTran bus stops. Nine had shelters including two shelters at the downtown Boscawen Street transfer center.

The **Winchester Green Circle** is a 6.3-mile bicycling and walking circuit linking neighborhoods and points of interest including Wilkins Lake, Shenandoah University, the Apple Blossom Mall, Abrams Creek Wetlands Preserve, Museum of the Shenandoah Valley, Winchester Medical Center, Old Town Winchester, Shawnee Springs Preserve and Jim Barnett Park. The route consists of multi-use trail, on-street bike route, and sidewalk. The route is illustrated in Figure 6 on the following page.

Figure 6: Winchester Green Circle Trail



3.4 Intermodal connectors

There are no designated NHS intermodal connectors within the planning area; however, the state has designated intermodal corridors, described below, which bear on project programming. Also described in this section are park and ride lots; railroads (freight and passenger); a freight intermodal facility; and the region's airport.

Corridors of Statewide Significance

Virginia House Bill 2019, adopted in 2009, required the Virginia Multimodal Transportation Plan (VMTP) 2025 to set forth an assessment of needs for all "Corridors of Statewide Significance" (CoSS) considering all modes of travel. The CoSS was officially defined as "An integrated, multimodal network of transportation facilities that connect major centers of activity within and through the Commonwealth and promote the movement of people and goods essential to the economic prosperity of the state."

Corridors identified as CoSS incorporate, accommodate or provide:

- Multiple modes and/or an extended freight corridor,
- Connection among regions, states and/or major activity centers,
- High volume of travel, and
- Unique statewide function and/or fulfillment of statewide goal.

The CoSS are broadly drawn and include highways, rail lines, transit services, port facilities, and airports. Parallel roadway facilities are also included in addition to the main Interstate or U.S. Highway (e.g., U.S. 11 along the I- 81 corridor). Three of the 11 CoSS serve the MPA:

Crescent Corridor: Connecting Tennessee to Maryland, Pennsylvania, and New York along the Appalachian Mountains and Shenandoah Valley, this is a vital East Coast freight corridor connecting smaller cities including Roanoke, Bristol, Winchester and Harrisonburg. In addition to Interstate 81, this corridor includes the parallel U.S. Highway 11, Norfolk Southern Crescent Corridor rail lines, and the Virginia Inland Port. The Crescent Corridor also provides access to many smaller airports with some commercial service, as well as several general aviation facilities.

Northern Virginia Connector: Connecting Washington D.C. and I-81, this corridor is an important commuter route. This corridor includes Interstate 66 and parallel routes including U.S. Route 29 within Northern Virginia, U.S. Route 50, Virginia Route 55 west of Gainesville, and Virginia Route 7; and Norfolk Southern rail lines. The corridor includes numerous commuter park and ride facilities, Northern Virginia's extensive public transit network, and Amtrak passenger rail service; and provides access to the Virginia Inland Port, Dulles International Airport and reliever airports and general aviation facilities.

Coastal Corridor: This corridor is primarily defined by U.S. 17, connecting Winchester with Fredericksburg and the Tidewater region; and provides access to passenger rail service.

Park and Ride facilities

There are currently no park and ride facilities within the planning area. However, several such facilities are located nearby:

Table 3: Park and Ride lots, Northern Shenandoah Valley

County	Location	Spaces
Clarke	Waterloo (US 340 at U.S. 50)	170
	Double Tollgate (US 522/340 and Ray of Hope Lane)	26
	Bluemont (Route 7 & Route 601-Blueridge Mountain Road)	40
Page	Luray (US 340 Business and Route 211 Bypass)	107
	Stanley (Valley Exxon, US 340 Business and Route 713-Vista View Drive)	175
	Stanley (Riverside Mini-Mart, US 340 and Route 650-River Road)	16
Shenandoah	Strasburg (Route 629-Oranda Road & US 11)	46
	Toms Brook (I-81 and Route 651-Mount Olive Road)	10
Warren	Front Royal (US 522 and Route 637-Riverton Road)	279
	Linden (Route 55 and Route 647-Dismal Hollow Road)	193
	Linden (Chevron Station, Routes 55 and 79)	88

Freight railroads and intermodal transfer facilities

CSX Transportation operates a line through the center of Winchester, connecting the planning area with the railroad’s National Gateway main line currently being upgraded for double-stack service to the Midwest; and with Norfolk Southern Railway’s Shenandoah and Piedmont main lines, part of its Crescent Corridor which provides direct intermodal service to the ports of New York/New Jersey, New Orleans, and Virginia at Hampton Roads.

Norfolk Southern is currently expanding capacity on the Crescent Corridor to serve the intermodal (truck-rail-port) market. The Commonwealth of Virginia has funded parts of this capital program to divert a portion of I-81 truck traffic to rail.

The Port of Virginia owns and operates an intermodal transfer terminal, the **Virginia Inland Port (VIP)**, located on US 522 approximately five miles southeast of the planning area. As a U.S. Customs-designated port of entry, VIP serves as an inland extension of the Port of Virginia, providing direct service between northwest Virginia and overseas markets. The facility is located near the Town of Front Royal on Norfolk Southern’s main line.

The planning area is also served by the **Winchester & Western Railroad (WW)**, Virginia’s oldest operating shortline, beginning operations in 1917. The 54-mile FRA Class III railroad, with 29 miles of track in the planning area, operates between Gore and Winchester and from Winchester to Hagerstown, Maryland, connecting with the Class I CSX and Norfolk Southern railroads. Locally, WW moves sand, paper, plastics, and food products, and transloads bulk materials from truck.

Aviation

The Win-Fred MPO is served by the **Winchester Regional Airport**, which is in Frederick County on Airport Road (west of the City of Winchester on US 17/50). This regional airport is a general aviation airport and is not certified to handle commercial aircraft. The airport currently has two runways, each

2040 METROPOLITAN TRANSPORTATION PLAN

with a length of 5,500 feet. Runway 32 is a precision instrument runway, while runway 14 is a non-precision instrument runway. As of 2011, there are currently 133 aircraft based at this airport, and the airport averages 20-50 flights per day depending on weather conditions and 7,300-18,250 flights per year. In 2010, there were 44,924 general aviation operations at the airport.

4 Performance measures and targets

In the interest of increasing the accountability and transparency of the Federal-aid highway program, Federal policy requires that MPOs evaluate progress toward the attainment of national transportation system performance goals using quantitative (numerical) measures. The **national goals** are:

1. **Safety** – To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
2. **Infrastructure condition** – To maintain the highway infrastructure asset system in a state of good repair.
3. **Congestion reduction** – To achieve a significant reduction in congestion on the National Highway System.
4. **System reliability** – To improve the efficiency of the surface transportation system.
5. **Freight movement and economic vitality** – To improve the National Highway Freight Network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
6. **Environmental sustainability** – To enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. **Reduced project delivery delays** – To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies’ work practices.

The movement toward greater transparency and accountability in transportation funding is also evident at the state level, with the passage in 2014 of Virginia House Bill 2 and its implementation, known as Smart Scale, establishing a system for quantitatively evaluating proposed projects based on their likely contribution toward the attainment of **state transportation performance goals**:

A. Economic Competitiveness and Prosperity

- A1. Reduce the amount of travel that takes place in severe congestion
- A2. Reduce the number and severity of freight bottlenecks
- A3. Improve reliability on key corridors for all modes

B. Accessible and Connected Places

- B1. Reduce average peak-period travel times
- B2. Reduce average daily trip lengths
- B3. Increase accessibility to jobs via transit, walking and driving

C. Safety for All Users

- C1. Reduce the number and rate of motorized fatalities and severe injuries
- C2. Reduce the number of non-motorized fatalities and severe injuries

D. Proactive System Management

- D1. Improve the condition of all bridges based on deck area
- D2. Increase the lane miles of pavement in good or fair condition
- D3. Increase percent of transit vehicles and facilities in good or fair condition

E. Healthy communities and Sustainable Transportation Communities

- E1. Reduce per-capita vehicle miles traveled
- E2. Reduce transportation-related emissions
- E3. Increase the number of bicycling and walking trips

Tracking performance is useful insofar as it serves to guide investment decisions. The practice of linking investment decisions with measurable progress toward strategic goals is called Performance-Based Planning and Programming (PBPP). This plan marks the introduction of PBPP into the WinFred MPO planning process.

The questions of what, exactly, to measure, how to measure it, and what level of performance (target) constitutes success, are yet to be resolved. Measures and targets will be established cooperatively between the state and MPO in the short term.

Table 4 below lists the national performance measures applicable to the WinFred MPO and in effect as of the date of adoption of this plan.

Table 4: National Performance Measures

Rulemaking	23 CFR Part 490 Section	Final Performance Measures	Measure Applicability
Safety	490 207(a)(1)	Number of fatalities	All public roads
	490 207(a)(2)	Rate of fatalities	All public roads
	490 207(a)(3)	Number of serious injuries	All public roads
	490 207(a)(4)	Rate of serious injuries	All public roads
	490 207(a)(5)	Number of non-motorized fatalities and non-motorized serious injuries	All public roads
Infrastructure	490 307(a)(1)	Percentage of pavements in Good condition	The Interstate System
	490 307(a)(2)	Percentage of pavements in Poor condition	The Interstate System
	490 307(a)(3)	Percentage of pavements in Good condition	The non-Interstate NHS
	490 307(a)(4)	Percentage of pavements in Poor condition	The non-Interstate NHS
	490 307(c)(1)	Percentage of bridges in Good condition	NHS
	491 307(c)(2)	Percentage of bridges in Poor condition	NHS
System Performance	490 507(a)(1)	Percent of person-miles traveled that are reliable	The Interstate System
	490 507(a)(2)	Percent of person-miles traveled that are reliable	The non-Interstate NHS
	490 507(b)	Percent change in tailpipe CO2 emissions compared to the calendar year 2017 level	NHS
	490 607	Truck Travel Time Reliability (TTTR) Index	The Interstate System

In times of scarce resources for funding transportation projects, every dollar counts. The WinFred MPO has developed a strategy to evaluate projects using an objective, data-driven process as an ongoing product of the annual Unified Planning Work Program (UPWP) to ensure that the region meets its transportation system needs over the next 25 years. The result of this effort will be the planned amendment to this plan during the FY17-18 UPWP timeframe.

2040 METROPOLITAN TRANSPORTATION PLAN

The strategy to evaluate projects in this manner is connected to recent federal rulemaking and pending state guidance related to performance management measures, and affords the MPO adequate time to provide both the organization, and the public with sufficient opportunity to develop and implement comprehensive, locally-driven performance criteria for WinFred MPO consistent with federal and state guidance. For instance, the FHWA issued the Final Rule on Statewide and Nonmetropolitan Transportation Planning and Metropolitan Planning in the Federal Register to implement the changes to the planning process established by MAP-21 in 2012 and revised by the FAST Act in May 2016, and a subsequent Final Rule on Asset Management Plans in October 2016. Lastly, VDOT performance management measures are not expected to be published until the fall of 2017. The WinFred MPO is committed to ensuring that the strategy will meet both federal and state guidance.

5 System performance report

Below is a report on the performance of the transportation system of the WinFred MPO. This report is presented for illustration only, as no performance measures or targets have been officially adopted. While the measures used in this report align with those proposed at the state and federal levels, they should be regarded as tentative, and will be refined when final statewide and federal performance measures are defined.

The safety, infrastructure and system performance measures correspond with adopted national performance measures; the data was compiled by VDOT. The accessibility, health and sustainability measures correspond to goals of the statewide 2040 transportation plan; the associated data was compiled during the *Virginia Multimodal Transportation Plan (VMTP) 2025 Needs Assessment*, an assessment of the metropolitan transportation needs to the year 2025 conducted in 2015 as part of the VTrans2040 planning effort.

This report is a “snapshot” of conditions as of the date of plan adoption. Trends are not presented. These data may serve as a benchmark against which subsequent plans might be evaluated.

Safety

Number of fatalities and serious injuries, motorized and non-motorized: During the six years 2011 through 2016, a total of 7,072 crashes occurred within the planning area, 42 of which resulted in 48 fatalities (5 of which were pedestrians), and 300 producing serious injuries, 17 involving pedestrians and one involving a bicyclist.

Infrastructure

Condition of bridges and pavement: Of the region’s 153 bridges, four are structurally deficient, including two on the NHS. Of the region’s 123.5 miles of NHS roadway outside of the City of Winchester, 12.6 miles (10 percent) are in poor or very poor pavement condition, and 103.4 miles (84 percent) are in good or excellent condition. Data on roads with the City has not been collected.

System Performance

Travel time reliability measures the frequency by which trips along a specified corridor are significantly delayed. Overall during the weekday AM peak period in 2014, travel time was very reliable for the corridors for which data were available. A portion of US 522 south of the city has a slightly higher travel time reliability index compared with the other corridors analyzed, however, it equates to a few minutes of additional travel time.

Economic Competitiveness and Prosperity

Amount of travel that takes place in severe congestion: Percent of time congested was calculated for evening peak times in 2014. Most corridors were congested less than 1 percent of the time. A few intersections along US 50/VA 7 and US 522 experience slight congestion.

Accessibility, Health, Sustainability

Percent of commuters using alternatives to driving alone: In the WinFred Region, most commuters drive alone to work. While there is some variation between jurisdictions, between 70 and 82 percent of commuters drive most of the time. For all jurisdictions, carpooling is the second most popular option, accounting for 11 percent in Frederick County and 15 percent for the City of Winchester. The region's transit commuters reside largely within the City, comprising approximately 1 percent of the City's commuters.

Travel times, peak period: The mean (average) travel time to work was 30 minutes for County residents and 23 minutes for City residents.

Accessibility to jobs via driving: Number of jobs accessible within a 30-minute drive: 89,363. (2015 Auto Accessibility Report: Virginia. July 7, 2016: Prepared for the state of Virginia by Accessibility Observatory at the University of Minnesota).

Accessibility to jobs via transit: Number of jobs accessible within 30 minutes by bus: 2,489; within 60 minutes: 9,226.

Bicycling and walking trips: Bicycling and walking are used by less than one percent of commuters except in the City of Winchester, where pedestrian commuters top 7 percent.

7 Operational and management strategies

Operations Management and Intelligent Transportation Systems (ITS) are key elements in the overall design of MPO and regional transportation systems. Operations and Management planning may include traffic safety and flow, coordination between highway and transit operations, coordination among public safety and transportation agencies, traffic signalization, corridor management strategies, and planning for non-recurring events.

The Win-Fred MPO considers these types of operational and management strategies during development of the TIP, UPWP and MTP in order to improve the performance of existing transportation facilities, to relieve vehicular congestion, and maximize the safety and mobility of people and goods. The Win-Fred MPO will work with VDOT and local jurisdictions to improve and enhance the regional ITS architecture in accordance with federal law and regulations.

VDOT operates a Transportation Operations Center located in Staunton which monitors traffic conditions in the planning area via cameras and other technology, provides traveler information on road conditions and coordinates congestion management and incident response.

Transportation Demand Management

Transportation Demand Management (TDM) is the practice of reducing demand for peak period vehicle trips through various means such as the promotion of transit, carpooling and alternative work hours, to reduce peak period (rush hour) traffic congestion, assist individuals seeking transportation options to their workplaces and other destinations, and to reduce environmental impacts caused by vehicle emissions, roadway expansion, and other transportation-related factors.

The Northern Shenandoah Valley Regional Commission provides TDM services through its RideSmart program for the City of Winchester and the counties of Clarke, Frederick, Page, Shenandoah and Warren. The TDM Plan serves as RideSmart's operational plan for 2015 through 2021. Informed by a regional survey of commuters conducted in 2014, the plan outlines a strategic framework (goals and objectives) for the agency as well as program enhancements and financial resources needed to implement the plan.

This plan is consistent with long-range plans prepared by local and regional planning organizations, VDOT, and DRPT; and provides all information necessary to include the TDM program in the Six- Year Improvement Program, Statewide Transportation Improvement Program, Transportation Improvement Program, and Constrained Long- Range Plan.

Transit operations

Winchester Transit System Performance Review and Recommendations. In 2014 a review of WinTran transit service was undertaken to identify ways to improve its three-bus operation within the range of current resources, and recommend changes to the WinTran system based on an evaluation of the needs of the users. Routing patterns, headways and bus stop location and spacing were considered. Recommendations included focusing the Trolley service on downtown, providing frequent service along a shortened route, and modifications to other routes. System alternatives for three- and four-bus operations were identified and evaluated for service quality and coverage.

8 Transportation and transit enhancement activities

Virginia Statewide Intercity Bus Study (2014)

The federal transit Formula Grants for Rural Areas (Section 5311) program provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations of less than 50,000. Each state must spend no less than 15 percent of its annual apportionment for the development and support of intercity bus transportation, unless it can certify, after consultation with intercity bus service providers, that the intercity bus needs of the state are being adequately met.

Intercity bus is defined in federal guidance as regularly scheduled, fixed-route bus service, excluding commuter service, open to the public with limited stops between two or more urban areas not in close proximity, providing meaningful connection with the national intercity bus network through coordinated schedules, information and transfer locations.

In 2014 DRPT commissioned a study of Virginia's intercity bus needs in consultation with bus service providers and other stakeholders, identifying potential corridors for new service based on demographic comparison of high need areas currently lacking service, and survey input.

Sixteen corridors were developed to test potential demand and estimate costs. Three of these routes would serve Winchester: Washington, DC to Blacksburg via Rt. 7, Washington, DC to Martinsburg, WV via Rt. 7, and Washington, DC to Martinsburg, WV via I-66.

9 Capital investment and other strategies

By federal law the MTP must integrate, directly or by reference, the goals, objectives, performance measures and targets described in State transportation plans and processes, as well as plans developed by the public transportation provider, Winchester Transit. These plans are described in this chapter, as well as in chapters 7 and 8; also referenced in this chapter are the plans for human services and bicycle and pedestrian transportation, and the comprehensive plans of Frederick County, the City of Winchester and the Town of Stephens City.

9.1 State plans

Statewide Transportation Plan

Every four years, the Code of Virginia directs the Commonwealth Transportation Board, with assistance from the Office of Intermodal Planning and Investment (OIPI), to conduct a comprehensive review of transportation needs in a Statewide Transportation Plan – VTrans. The development of VTrans2040 was initiated in spring 2014.

Developed in two phases, the plan will consist of two companion documents: the VTrans2040 Vision and the 2025 Virginia Multimodal Transportation Plan (VMTP).

The VTrans2040 Vision, adopted by the Commonwealth Transportation Board in 2015, established a policy framework of guiding principles, vision, goals, and objectives for transportation in the Commonwealth. Its development was informed by detailed trend analyses and stakeholder input regarding transportation-related factors such as major economic generators, freight movement, household characteristics, land development patterns, transportation technology, and the natural environment.

The 2025 Virginia Multimodal Transportation Plan (VMTP) will, when completed in early 2017, present a statewide capital investment strategy for transportation based on capacity, operational and safety needs identified and prioritized through a statewide process involving stakeholders including the public. The plan will focus on the needs of the Corridors of Statewide Significance, the multimodal regional networks that support travel within metropolitan regions, and improvements to promote locally designated Urban Development Areas (UDAs).

Moving forward, only projects that address a need identified in VTrans2040 will be considered for funding under the statewide project prioritization process known as Smart Scale.

The VMPT will identify performance targets and priorities, and recommend projects to advance the VTrans2040 Vision. The draft Tier 1 (highest priority) recommendations are presented in Table 5 on page 32.

State Strategic Highway Safety Plan

Updated every five years, Virginia's Strategic Highway Safety Plan (SHSP) provides a comprehensive coordinated framework for reducing deaths and severe injuries on Virginia's public roads. Developed in consultation with Federal, state, local, and private-sector safety stakeholders, the SHSP establishes strategic statewide goals and identifies engineering, enforcement, education, and emergency response

strategies which promise the greatest reductions in death and injury, based on analyses of recent crashes.

The 2017 SHSP update emphasizes reducing roadway departure crashes, crashes involving pedestrians, and crashes at intersections.

Virginia Multimodal Freight Plan

The Virginia Multimodal Freight Plan, published in 2013 as an addendum to VTrans2035, is the Commonwealth's strategy to improve goods movement on its highway, rail, waterborne, and aviation system. The Freight Plan established the vision, goals, and priority actions to facilitate goods movement statewide, based on

- the major freight trends and issues in the Commonwealth;
- the Commonwealth's recent freight transportation planning efforts;
- Federal guidelines for statewide freight plans; and
- A study of freight transportation needs.

The plan describes the relationship between statewide transportation goals and freight-specific investment priorities and investment strategies to improve goods movement; and identifies Key Performance Indicators to track progress toward achieving the investment strategies, the investment priorities that they influence, and the overall system wide goals.

One of the plan's investment strategies directly relevant to the WinFred MPO calls for implementation of multimodal corridor improvements to improve freight movement along the I-81 corridor.

Virginia Statewide Rail Plan

The 2013 Statewide Rail Plan (VSRP) defines a vision for rail transportation, both passenger and freight, in the Commonwealth through 2040. The VSRP incorporates elements of a Resource Allocation Plan that details project selection and prioritization, funding, and implementation schedules.

Projects included in the plan which affect the WinFred MPO are:

-
- **Multiple sidings, passing and double tracks along the Norfolk Southern Crescent Corridor, to divert freight from trucks on I-81 to rail; and**
 - **Winchester & Western Railroad: Tie replacement and upgrade, yard and capacity improvements.**
-

Table 5: VMTP Tier 1 Draft Recommendations (Draft, March 2017)

Need ST.4: In WinFred MPO, the I-81 and US 11 corridors have safety, congestion, redundancy, mode choice, connectivity, and travel demand management needs.	KEY PROJECTS ADDRESSING THIS NEED	POTENTIAL GAPS	NEW PROJECT IDEAS
<p>FUNDED PROJECTS</p> <p>I-81/US 11 (Exit 317) study to identify and evaluate feasible modifications to the interchange to accommodate existing and projected future traffic volumes and growth.</p> <p>I-81 Exit 323 NB Acoel and SB Decel Lane Extension (Smart Scale, 2017-2022 SYIP)</p> <p>I-81 Exit 310 Interchange Modification (2017-2022 SYIP) (under construction)</p>	<p>UNFUNDED PIPELINE PROJECTS</p> <p>StauN1 - Develop access management plan and implement strategies and intersection spot improvements on Route 11 from southern city limits of Winchester to Kernstown.</p> <p>StauN2 - Winchester Transit is currently updating their TDP (2016). Seek funding and implement projects that increase transit frequency and coverage in the US 11 and US 50 corridors in the WinFred MPO.</p> <p>StauN3 - I-81/US 50/US 17 (Exit 313) Interchange Improvement (Smart Scale, Round 2)/I-81/VA 7 (Exit 315) I-81 Northbound Decel Lane Extension (Smart Scale, Round 2)/I-81/US 11/Redbud Road (Exit 317) Interchange/Intersection Improvement (Smart Scale, Round 2)</p> <p>StauN4 - US 11 North widening from Exit 317 to Old Charles Town Rd. (Smart Scale, Round 2)</p>	<p>Outside of implementing access management improvements, the only roadway strategies that address this need are two interchange improvements. Additional roadway improvements and integrated corridor management strategies are likely needed to address the full extent of this need. There is a need to identify specific transit solutions (resulting from the Winchester Transit TDP and elsewhere) and TDM strategies that maximize the capacity of the existing roadway in a cost-effective manner</p>	<p>StauN5 - RideSmart (the regional TDM provider) to conduct targeted marketing and outreach to large employers throughout Winchester and Frederick County to support expansion of regional TDM programs, including ridesharing, vanpools, and guaranteed ride home.</p> <p>StauN6 - Perform an evaluation/study of I-81 mainline capacity and operational needs from Exit 310 to Exit 317 (withing the MPO).</p> <p>StauN7 - US 11 corridor improvement program from Old Charles Town Road (RT 761) to Exit 323, including intersection improvements in Clear Brook</p>

Table 5: VMTP Draft Tier 1 recommendations (continued)

Need ST.5: Across the Staunton District and neighboring Districts, the I-81/US 11 corridors have safety, congestion, redundancy and reliability needs.	KEY PROJECTS ADDRESSING THIS NEED	POTENTIAL GAPS	NEW PROJECT IDEAS
	<p>StauA2- Enhanced ITS/ATMS on I-81 and US 11 throughout the Staunton District, particularly from US 60 (Exit 188) in Lexington to Exit 264 (New Market) and Exit 296 (Strasburg) to West Virginia State line. The ATMS should be designed to provide travel time information and route highlights when I-81 is congested or during incidents and enable signal coordination on US 11.</p> <p>StauA3 - I-81 corridor freight incident management for detection, response, and clearance.</p>	<p>There is a need for projects that address the lack of redundancy between I-81 and US 11 for travelers, targeted operational and TDM strategies that address safety and reliability, and assess the potential for additional roadway access and safety improvements.</p>	<p>StauN5 - RideSmart (the regional TDM provider) to conduct targeted marketing and outreach to large employers throughout Winchester and Frederick County to support expansion of regional TDM programs, including ridesharing, vanpools, and guaranteed ride home.</p> <p>StauN9- Implement program of spot improvement projects on US 17/US 50 and RT 7 that address access management, adding intersection operations and signal coordination to the scope (particularly on US 50/Jubal Early Drive from US 11 to Prince Frederick Drive).</p>
	<p>Need ST.8: In WinFred MPO, the US 50/US 17/VA 7 corridors have regional corridor congestion, mode choice, and travel demand management needs.</p> <p>KEY PROJECTS ADDRESSING THIS NEED</p> <p>UNFUNDED PIPELINE PROJECTS</p> <p>StauN2 - Provide funding/technical assistance for new and expanding WinTran service in US 11 and US 50.</p> <p>StauN3 - I-81/US 50/US 17 (Exit 313) Interchange Improvement (Smart Scale, Round 2); I-81/VA 7 (Exit 315) I-81 Northbound Decel Lane Extension (Smart Scale, Round 2); I-81/US 11/Redbud Road (Exit 317) Interchange/Intersection Improvement (Smart Scale, Round 2)</p> <p>StauN8 - Complete Green Circle Trail in Winchester, connect to county/other trails.</p> <p>Need ST.10: In WinFred MPO, the VA 37 Extension and VA 277 have corridor congestion, connectivity, and mode choice needs.</p> <p>KEY PROJECTS ADDRESSING THIS NEED</p> <p>FUNDED PROJECTS</p> <p>Route 277 Widening and Access Management (Smart Scale, 2017-2022 SYIP)</p> <p>RT 37 safety improvements (RT 11S to RT 11N) (2017-2022 SYIP)</p>	<p>There are no funded projects for this corridor. Unfunded LRTP Vision List projects include widening projects east and west of downtown Winchester, access management improvements across the US 50/US 17 corridor, access management plans for US 50/US 17 and VA 7, and park and ride facilities on VA 7. The regional bike-ped plan includes bicycle and pedestrian facilities through downtown Winchester.</p> <p>There is a need for greater understanding of the multi-modal transportation needs in these corridors per VDOT/DRPT, with the primary need for north/south service along the neighboring US-11 corridor. The extension of VA 37 is a critical need for the region.</p>	<p>NEW PROJECT IDEAS</p> <p>StauN13- Advance planning, preliminary engineering and ROW for the RT 37 Extension from I-81 to US 522 with interchange at US 522 (WinFred MPO LRTP)</p> <p>StauN15 - Study travel demand, congestion and mode choice needs in northeast Frederick County.</p>

DRAFT Updated March 10, 2017

9.2 Regional modal plans

WinTran Transit Development Plan

WinTran Transit Development Plan (TDP) Update for Fiscal Years 2012-2018 defines short-range strategies to match transit service to needs identified through a planning process involving technical evaluation of needs and current service, and consultation with stakeholders. The state Department of Rail and Public Transportation (DRPT) requires that public transit operators receiving State funding prepare, adopt and submit a TDP every six years.

The TDP recommends service extensions south on US 522 (Front Royal Pike) to Airport Business Center, east on VA 7 (Berryville Pike), to Winchester Gateway Shopping Center, Greenwood Road and Valley Mill Road; north on US 11 to Rutherford Crossing Shopping Center; west on US 50 (Northwestern Pike) to WalMart; and south on US 11 to Lord Fairfax Community College.

Coordinated Human Services Mobility Plan

The coordinated human services mobility (CHSM) plan identifies the transportation needs of individuals with disabilities, older adults, and people with low incomes; provides strategies for meeting those needs; and prioritizes transportation services for funding. Updated every five years, the CHSM Plan for the Northern Shenandoah Valley Planning District (Clarke, Frederick, Page, Shenandoah and Warren counties and the City of Winchester) was last updated in 2013 by DRPT.

The federal Section 5310 Program provides formula funding to states to assist transportation providers in meeting the transportation needs of older adults and people with disabilities when transportation service is unavailable, insufficient, or inappropriate to meeting these needs. States and local governments, private non-profit organizations, and operators of public transportation services may receive funding for services included in the CHSM Plan. Funds may be used to cover operating and capital expenses, including the purchase of vehicles.

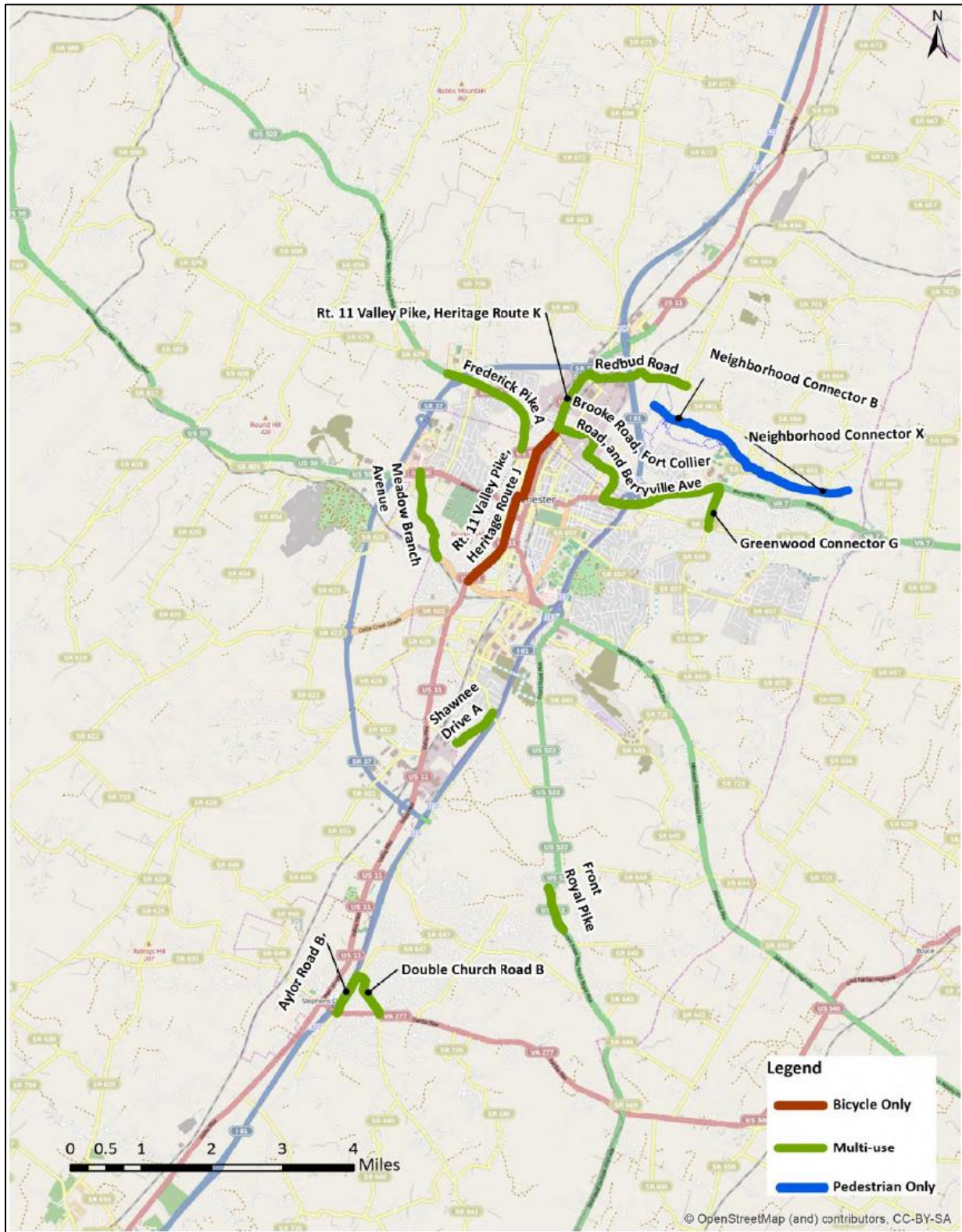
Bicycle & Pedestrian Master Plan

The MPO Bicycle and Pedestrian Master Plan, first completed in 2009, was updated in 2014. The update included a technical assessment of bicycling and walking conditions, network connectivity, and latent demand; and a multi-part public involvement process to collect community feedback and verify the analyses. The analyses and feedback were used to identify projects and prioritize them to make the largest possible improvement in bicycling and walking conditions at the least cost.

The plan's recommended strategy is to

-
- **Fund and construct the high value, lower cost projects as identified in the project rankings (Figure 7);**
 - **Intersperse the implementation of these projects with projects that add to the Green Circle Trail;**
 - **Conduct community outreach to most efficiently move forward high value projects important for medium- and longer-term bicycle and pedestrian connectivity goals; and**
 - **Implement highly-ranked projects through scheduled roadway maintenance and reconstruction.**
-

Figure 7: Ten highest priority bicycle and pedestrian projects



9.3 Locality comprehensive plans

To maximize coordination and consider the relationships between transportation and land use, the development of an MPO transportation plan must be respectful of the planning efforts of each of its members. The following compilation of local comprehensive plan objectives provide important context to the goals of each MPO locality.

City of Winchester (2011)

The City's Comprehensive Plan adopted in 2011 presents mobility strategies under twelve objectives to address the city's mobility goal which emphasizes safety, interconnectivity, walkability and reduced dependence on the automobile.

Transportation Objectives and Strategies, City of Winchester Comprehensive Plan

- 1) **Pursue limited construction of new thoroughfares and widening of existing thoroughfares as shown in the Win-Fred MPO Long Range Transportation Plan.**
 - a) Monitor state and federal funding streams and changing city needs to prioritize certain roadway projects from the MPO plan.
 - b) Advocate rail infrastructure projects to reduce freight traffic congestion on Interstate 81, consistent with City Council Resolution 2003-50.
- 2) **Employ a hierarchy of functional street categories including thoroughfare streets for major traffic movements through and within the community at higher speeds; collector streets to channel major traffic movements into and out of separate areas of the community at moderate speeds; and, local streets to provide access to individual properties at lower speeds.**
 - a) Working with the MPO, complete an updated survey of traffic patterns to classify city streets according to their intended function.
- 3) **Encourage the use of alternate modes of mobility including walking, bicycling, and public transportation by all sectors of the population to reduce the dependency upon private automobile use.**
 - a) Implement the recommendations of the MPO's 2007 Bike and Pedestrian Mobility Plan.
 - i) Complete the Green Circle Trail.
 - ii) Add miles of bike lane to arterial and collector roads
 - iii) Install bike racks, and encourage businesses to do the same.
 - b) Implement the recommendations of the MPO's 2009 Transit Services Plan.
 - i) Increase WinTran route frequency to more than once an hour.
 - ii) Extend WinTran out into Frederick County's most urbanized areas to serve the needs of both city and county residents and visitors.
 - iii) Add bike racks to WinTran buses.
- 4) **Encourage the growth and sustainability of the urbanized area of the City by providing adequate and convenient parking and a comprehensive system of sidewalks and walking paths.**

2040 METROPOLITAN TRANSPORTATION PLAN

- a) Address identified sidewalk deficiency by filling in gaps in the system.
 - b) Construct new sidewalk.
 - c) Maintain all sidewalks and respond quickly to complaints.
 - d) Identify and widen certain sidewalks to create outdoor social spaces.
 - e) Identify streets where new parallel parking spaces would benefit business and calm traffic.
 - f) Use the MPO plans to link Frederick County trail projects to city infrastructure.
 - g) Increase pedestrian connection points between the Old Town pedestrian mall and the George Washington and Braddock Street parking garages.
- 5) Alter conventional street standards especially in mixed use and planned residential developments by encouraging New Urbanistic layouts of interconnected grid streets.**
- a) Prioritize pedestrian-friendly street designs in neighborhood redevelopment projects.
 - b) Rewrite the current Zoning Ordinance, subdivision ordinance, and Engineering Standards so as to encourage New Urbanism, including elements of Traditional Neighborhood Design (TND).
- 6) Employ access management and consider use of roundabouts to provide for traffic calming and improved safety.**
- a) Study speed, flow, and accident data to identify streets most in need of calming.
 - b) Pilot different calming techniques including roundabouts, green medians, on-street parking, and pedestrian islands.
 - c) Continue efforts to reduce the number of driveway openings within close proximity of each other through use of driveway spacing standards and in conjunction with public street improvement projects.
 - d) Implement the recommendations of the MPO's multimodal corridor studies for Berryville and Millwood Avenues.
- 7) Investigate the needs for multimodal transfer facilities.**
- a) Construct covered bus shelters, especially at multimodal intersections near parking garages or the Green Circle Trail.
- 8) Work closely with Frederick County and Stephens City to extend public transportation between the City and destinations such as Lord Fairfax Community College, DMV, the Employment Commission/Job Training office, and the regional detention facilities as well as urbanizing areas of the County and Town.**
- a) Implement the operational changes and undertake the capital expenses needed to develop a truly regional transit service that allows City residents to access services currently situated beyond the limits of existing transit routes.
- 9) Promote Telecommuting as an alternative to commuting to work.**
- a) Adopt telework incentives for city staff where appropriate. b. Encourage and support telework among private firms.
- 10) Support the resumption of rail passenger service to Winchester.**

- a) Partner with Amtrak and the Maryland Area Rail Commuter system to study a spur service to Martinsburg, WV.

11) Increase safety on thoroughfare streets and bike and pedestrian trails where they cross railroad tracks and consider grade-separated crossings.

- a) Study improvements needed to rail crossings such as Featherbed Lane for safely accommodating an immediate alignment of the Green Circle Trail including a safe means for crossing the CSX railroad tracks.

12) Expand and improve general aviation, air cargo, and air passenger operations at the Winchester Regional Airport.

- a) Support MPO efforts to add hanger space, technology, and amenities at the airport.

Frederick County (2017)

The Frederick County 2035 Comprehensive Plan, adopted in 2017, includes goals and strategies for transportation, presented below. The County has identified its highest priority projects, or current needs, illustrated in Figure 8 on page 41.

Transportation Goals and Strategies, Frederick County Comprehensive Plan

Promote the development of new roadways and the redevelopment of existing roadways in a manner that makes them open, available, and safe to all modes of transportation.

- Match desired form of development to roadway classification to simplify the determination of which roadways receive which treatment. That is, different types of streets for different land uses. For example, while some roadways would require a separate bicycle and pedestrian trail in order to be more accessible to bicyclists and pedestrians. In rural areas, a wider shoulder section may be more appropriate.
- Work with new development and redevelopment to implement this policy and the overall transportation plan. This may require analysis and modification of the existing subdivision ordinance.
- Work cooperatively with the School Board to identify school locations that meet both school and County goals of public access and safe walkability.
- Seek outside funding sources to fill in gaps in order to attach separate segments and create a fully interconnected system.

Implement the roadway priorities of the County as outlined annually in the Capital Improvement Plan, the Interstate, Primary and Secondary Road Plans, and the Eastern Road Plan, and particularly Route 37 East.

- Work with new development and redevelopment to implement the Eastern Road Plan through construction and preservation of right-of- ways.
- Continue to work closely with VDOT, State and Federal representatives, and any other available revenue sources to increase transportation.
- In the absence of outside funding, continue to protect rights-of-way and move forward on planning transportation priorities.

2040 METROPOLITAN TRANSPORTATION PLAN

- Coordinate with VDOT to make sure the required percentage of maintenance funds to be spent on other accommodations is used on County priorities.
- Maintain the character of the rural roadways in the County while addressing safety issues as they may arise.

Improve upon existing transportation safety and service levels in the County.

- Coordinate with VDOT in the scoping and review of Traffic Impact Analyses (TIA).
- Analyze VDOT Access Management standards and, when needed, adopt County standards that are stronger.
- Work with new development and redevelopment to ensure that trip generation and new movements do not degrade the transportation system, increase delays, or reduce service levels.
- Create an informal working group with Staff, VDOT, and law enforcement to identify and address safety concerns with coordination to be handled by Planning and Development and the Board's Transportation Committee (TC).

Find ways to implement transportation needs while keeping the cost of industrial property competitive.

Work to enhance use of intermodal freight movement wherever possible.

- Coordinate with local business to maximize the use of Economic Development Road Access funding, as well as Rail Access funding.
- Actively work with rail carriers through the Economic Development Authority to maximize the amount of material that is shipped into and out of Frederick County via rail.
- Perform a study to discern where opportunities to bring air freight into the regional airport may be available.
- Work to encourage and maximize opportunities presented by expansion of the Virginia Inland Port and the new multimodal facility coming to Martinsburg, WV.
- Make use of revenue sharing funds for development of industrial property when the Board of Supervisors determines that it is in the best interest of Frederick County.
- Incorporate the Airport Master Plan into the County planning efforts.

Improve the beauty of transportation corridors at the County gateways and along commercial roadways.

- Work with VDOT to create roadway design plans that meet standards while beautifying local gateways and commercial corridors.
- Through the Transportation Committee, develop a plan and actively promote corridor beautification. This should include working with local institutions to create more attractive County entrances into their facilities.

Ensure safe operation of fire and rescue vehicles and school buses.

- Investigate the existence and potential removal of barriers between neighborhoods that lead to delays in response, particularly for the Greenwood and Millwood Companies.
- Promote the adoption of a uniform locking technology acceptable to the Fire and Rescue Department for use on gated and locked emergency access points.
- Analyze driving, road, and parking standards and actively seek the Fire and Rescue Department input for driveways and roads to ensure that all approved developments are accessible by fire equipment.

Provide cost-effective alternatives to automobile travel as needed, for the elderly, disabled, students and workforce.

- Coordinate with existing agencies such as the Shenandoah Area Agency on Aging (SAAA) and Access Independence to secure outside funding to enhance service to the elderly and disabled in the community.
 - Make use of the Winchester-Frederick Metropolitan Planning Organization (MPO) resources to identify areas of most critical need.
 - Monitor existing data source updates to determine areas of growing need.
-

Town of Stephens City (2011)

The 2010 Stephens City Comprehensive Plan calls for coordination and cooperation with Frederick County in jointly planning for compact, rational growth patterns and appropriate transportation systems for the greater Stephens City area. Under the plan’s transportation goal to “provide a safe, efficient transportation system for pedestrians, bicyclists and vehicles in the Town and surrounding areas” are objectives and strategies summarized below.

Transportation Objectives and Strategies, Town of Stephens City Comprehensive Plan

Extend the Town’s historic street grid into new development;

Develop a system of bicycle and pedestrian trails and sidewalks;

Review parking requirements;

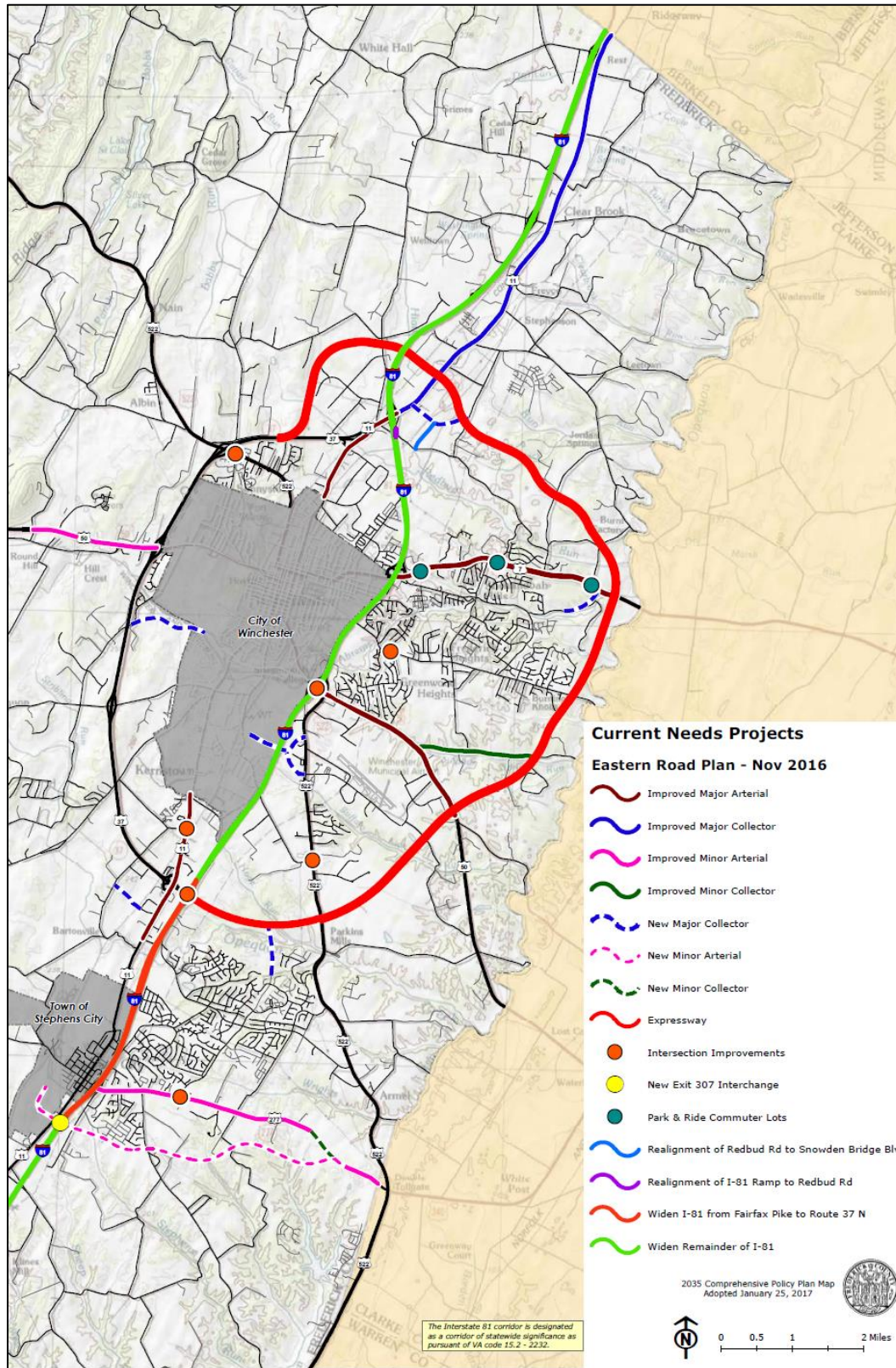
Utilize traffic calming strategies;

Pay for improvements through Tax Increment Financing and fair developer proffers; and

Build new roadways and other improvements to improve traffic flow and enhance safety:

- Widen I-81
 - Build a western bypass connecting Route 277 and Warrior Drive to the east with Shady Elm Road to the north;
 - Relocate Exit 307 to the south, to provide direct access to the western bypass;
 - Build two east-west roads to connect existing and future neighborhoods divided by I-81; and
 - Realign Passage Lane to improve safety.
-

Figure 8: Current Needs Projects, Frederick County



9.4 WinFred MPO strategies

The goals and objectives of this MTP, compiled from local plans to reflect the collective aspirations of the MPO's localities as they relate to state transportation goals and objectives, are presented at the beginning of this document. Strategies are identified for most of these goals and objectives, presented below.

1. Goal: Economic Competitiveness and Prosperity

- 1.1. Objective: Reduce the amount of travel that takes place in severe congestion
 - 1.1.1. Strategy: Maintain roadway levels of service by selectively expanding roadway capacity
- 1.2. Objective: Reduce the number and severity of freight bottlenecks
 - 1.2.1. Strategy: Facilitate truck movement between freight generators and the Virginia Inland Port
- 1.3. Objective: Improve reliability on key corridors for all modes
 - 1.3.1. Strategy: Implement meaningful improvements to I-81

2. Goal: Accessible and Connected Places

- 2.1. Objective: Reduce average peak-period travel times
 - 2.1.1. Strategy: Implement the County Roads Plan and Winchester Comprehensive Plan
- 2.2. Objective: Reduce average daily trip lengths
 - 2.2.1. Strategy: Build out the arterial and collector network associated with new development
- 2.3. Objective: Increase accessibility to jobs via transit, walking and driving
 - 2.3.1. Strategy: Implement WinTran Transit Development Plan
 - 2.3.2. Strategy: Implement the Bicycle and Pedestrian Master Plan
 - 2.3.3. Strategy: Design streets and roads for all users

3. Goal: Safety for All Users

- 3.1. Objective: Reduce the number and rate of motorized fatalities and severe injuries
 - 3.1.1. Strategy: Implement the Virginia Strategic Highway Safety Plan
 - 3.1.2. Strategy: Prepare and implement a metropolitan road safety strategic plan
- 3.2. Objective: Reduce the number of non-motorized fatalities and severe injuries
 - 3.2.1. Strategy: Promote Safe Routes to School strategies and programs

4. Goal: Proactive System Management

- 4.1. Objective: Improve the condition of all bridges based on deck area
- 4.2. Objective: Increase the lane miles of pavement in good or fair condition
- 4.3. Objective: Increase percent of transit vehicles and facilities in good or fair condition

5. Goal: Healthy Communities and Sustainable Transportation Communities

- 5.1. Objective: Reduce per-capita vehicle miles traveled
 - 5.1.1. Strategy: Encourage Traditional Neighborhood Development (TND) within the Urban Development Areas (UDAs)
- 5.2. Objective: Reduce transportation-related emissions
 - 5.2.1. Strategy: Encourage compact, mixed use development
- 5.3. Objective: Increase the number of bicycling and walking trips
 - 5.3.1. Strategy: Implement the MPO Bicycle and Pedestrian Master Plan
 - 5.3.2. Strategy: Design streets and roads for all users

9.5 Performance-based strategies

Ideally, the long-range plan should consist of projects which, as a package, best improve the overall performance of the system at a cost that can be covered by projected funding.

Transportation system performance is commonly viewed in terms of traffic congestion. Planners quantify existing and future congestion with the help of metropolitan travel demand models, sophisticated mathematical representations of current and future land use, population and transportation networks with the ability to predict where congestion is likely to occur. These models are used to define potential projects to relieve the predicted congestion; and then test the projects' effectiveness in so doing.

Congestion is typically measured as miles of road which experience daily rush hour (peak hour) congestion, and as vehicle-hours of congestion-induced delay. There are other ways of viewing performance, only a few of which are related to congestion. These include

- *Mobility*, the distance one can travel in a given amount of time;
- *Access*, the amount of goods, services, jobs and activities reachable within a given time;
- *Reliability*, the probability that your travel time will be consistent from day to day;
- *Equity*, the distribution of transportation system benefits and costs across the community;
- *Safety*, as reflected in the number and rate of traffic-related deaths and injuries; and
- *Sustainability*, the impact of the transportation system on communities and the environment.

In varying degrees, these measures are reflected in the emerging state and federal performance management requirements outlined previously. While use of the travel demand model to measure congestion remains common and backed by a large body of knowledge and experience, models of other aspects of system performance are new and evolving.

An update of the WinFred Travel Demand Model was completed in 2017. Testing of projects is included in the MPO Fiscal Year 2018 UPWP. This testing is intended to inform decisionmakers regarding the probable effectiveness of projects in addressing the goals of this plan and MPO performance measures, to aid in the selection of the most effective set of projects for inclusion in the CLRP by way of amendment to this plan.

10 Financial plan

10.1 Highway funding

The Virginia Department of Transportation (VDOT) provided funding projections for the WinFred MPO based on projected revenues. As shown in Table 6 below, these projections are subdivided by funding category and include both maintenance and construction programs. This list does not include other potential discretionary funding sources such as the Transportation Alternatives Program, Revenue Sharing, and bond revenue; nor does it include transportation improvements funded by land developers, or developer proffers.

Table 6: Summary of future roadway allocations for the WinFred MPO

Funding Source	2018-2040 Totals
Administrative	\$35,890,447
District Grant Program	\$30,029,546
High Priority Projects	\$30,029,546
Maintenance-Localities	\$108,737,624
Maintenance-VDOT	\$643,549,956
Other Discretionary Construction	\$52,447,936
State of Good Repair	\$46,287,016

Each of the funding sources listed in the table, and the methods used by VDOT to determine the funding amounts, is described below.

Administrative Programs includes the following VDOT program areas:

- 699 – Administrative and Support Services
- 514 – Environmental Monitoring and Evaluation
- 60315 – Construction Management
- 602 – Ground Transportation Planning and Research

Maintenance allocations include Highway System Maintenance and Operations for VDOT-maintained roads and Financial Assistance for City and County Road Maintenance. These funds are divided amongst the districts based on the district’s twelve-year average share (2004-2015). Once districts’ amounts for Maintenance are obtained, population percentages are applied to determine MPO amounts.

Construction allocations are distributed according to the SYIP detailed distribution for FY2016-2021 where applicable.

VDOT-specific programs such as Revenue Sharing were held as statewide amounts and not distributed to the MPOs.

Un-programmed Federal Grant Anticipation Revenue Bonds (GARVEE Bonds) in FYs 2016 through 2021 are included in the funding available for the District Grant Program and the High-Priority Projects Program (as described on the following page).

2040 METROPOLITAN TRANSPORTATION PLAN

House Bill 1887 from the 2015 Virginia General Assembly session implemented new funding distribution methodologies that will be fully implemented in Fiscal Year 2021:

- **State of Good Repair** funding is distributed to VDOT districts based on need and has codified constraints on the distribution among the districts. For the CLRP distribution, the currently assumed needs distribution has been applied over the planning period. The distribution to the MPOs within the district is determined based on its population share of the district.
- **District Grant Program** funding is distributed to VDOT districts based on the codified formulas. For the CLRP distribution, the currently assumed distribution has been applied over the planning period. The distribution to the MPOs within the district is determined based on its population share of the district.
- **High-Priority Projects Program** funding is available to projects as selected by the Commonwealth Transportation Board. For the CLRP distribution, the distribution of the District Grant Program funding has been assumed for this funding. The distribution to the MPOs within the district is determined based on its population share of the district.

Of the funding sources listed in Table 6, only the District Grant, High Priority Projects, and Other Discretionary Construction programs can be used to fund the construction of new facilities. The funds available from these sources is projected to be **\$112,507,028**. The total estimated cost of projects in this plan must be constrained to this amount.

Highway projects intended to increase capacity or improve safety, for which funds have been committed, are listed in Table 7 below.

Table 7: Programmed highway projects

UPC	Description	Route	Road System	Estimate	Previous	FY 2017	FY 2018-'22
18003	RTE 277 - WIDEN TO 5 LANES	277	Primary	\$35,935	\$12,400	\$0	\$23,535
75881	INTERCHANGE MODIFICATION, EXIT 310	81	Interstate	\$41,558	\$34,599	\$2,852	\$4,107
94847	ADD THRU LANE FROM I-81 TO RT 37 & LT TURN LANES	11	Primary	\$2,501	\$1,422	\$734	\$344
101204	IMPROVE ALIGNMENT VALLEY MILL RD AT RT. 7	659	Secondary	\$7,200	\$7,200	\$0	\$0
104262	AIRPORT ROAD AND WARRIOR DRIVE EXTENSION	Local	Secondary	\$5,600	\$5,600	\$0	\$0
105633	SNOWDEN BRIDGE BLVD PHASE I	875	Secondary	\$8,137	\$8,137	\$0	\$0
107020	RTE 37 - SAFETY IMPROVEMENTS	37	Primary	\$3,325	\$0	\$0	\$3,325
107022	RTE 50 - SAFETY IMPROVEMENTS	50	Primary	\$4,800	\$0	\$0	\$4,800
109325	ROUTE 11 S. APPLE VALLEY RD. RIGHT TURN LANE	11	Primary	\$515	\$0	\$258	\$256
109326	FOX DRIVE TURN LANES	767	Secondary	\$651	\$0	\$300	\$351
T17535	I-81 EXIT 323 NB ACCEL AND SB DECEL LANE EXTENSION	81	Interstate	\$3,451	\$0	\$0	\$3,451

Amounts are in thousands of dollars

2040 METROPOLITAN TRANSPORTATION PLAN

10.2 Transit funding

Grant funds administered by DRPT generally provide support for capital, operating or planning expenses. Capital expenditures are long-term assets such as vehicles, transit facilities and infrastructure, machinery or heavy equipment. Operating expenditures are annual costs to support transit operations, maintenance, repairs and administrative costs. Planning expenditures are for studies of public transportation and/or Transportation Demand Management (TDM) improvements, such as service expansions or ridesharing programs.

DRPT administers eight state aid grant programs and seven federal aid grant programs:

State Aid Grant Programs

- Operating Assistance
- Capital Assistance
- Demonstration Project Assistance
- Technical Assistance
- Public Transportation Intern Program
- TDM Operating Assistance
- Transportation Management Project Assistance
- Senior Transportation Program

Federal Aid Grant Programs

- Metropolitan Planning - FTA Section 5303
- Statewide Planning - FTA Section 5304
- Small Urban Areas Program - FTA Section 5307
- Enhanced Mobility of Seniors and Individuals with Disabilities - FTA Section 5310
- Rural Areas - FTA Section 5311
- New Freedom Program - FTA Section 5317 (repealed)

Each year, DRPT publishes a five-year capital program for all transit systems receiving state assistance. The projections for Winchester Transit for fiscal years 2018 through 2022 are shown in Table 8. A total of \$2,877,000 has been programmed for capital expenses; 16 percent (\$453,000) from state funding, the remainder from federal and local government sources.

Table 8: DRPT FY 2018-2022 Capital Program, Winchester Transit

	FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		Total FY 2018-2022	
	State	Total	State	Total	State	Total	State	Total	State	Total	State	Total
Maintenance Facility renovation	\$120	\$750									\$120	\$750
Purchase ADP hardware	\$1	\$6				\$6					\$1	\$12
Purchase expansion bus < 30 ft.	\$20	\$125			\$108	\$675					\$128	\$800
Purchase replacement vans	\$20	\$125									\$20	\$125
Purchase passenger shelters			\$3	\$20					\$3	\$20	\$6	\$40
Purchase replacement bus < 30 ft.			\$64	\$400	\$72	\$450	\$40	\$250			\$176	\$1,100
Purchase bus stop signs			\$1	\$5					\$1	\$5	\$2	\$10
Purchase shop equipment				\$10							\$	\$10
Purchase support vehicles				\$30							\$	\$30
	\$161	\$1,006	\$68	\$465	\$180	\$1,131	\$40	\$250	\$4	\$25	\$453	\$2,877

Amounts are in thousands of dollars.

10.3 Freight rail funding

Shortline railroads often serve as the first or last link in business-to-business delivery by providing the intensive switching operations that are not profitable for the Class I railroads. Winchester and Western Railroad is one of five independent shortline railroads operating in Virginia.

Winchester and Western, like many of Virginia's shortlines, was built over 100 years ago, to standards that are now obsolete. A combination of deferred maintenance and the trend toward the use of heavier railcars has created a need to invest in shortline infrastructure.

The state's Shortline Railway Preservation and Development Fund provides funding for the preservation and continuation of existing shortline rail service. Funds are distributed through DRPT's Rail Preservation Program (RPP) which is allocated \$3 million annually.

The allocation of RPP funds considers project cost in relation to the prospective use, line capacity, and the economic and public benefits and future public uses of the properties. Projects must show a benefit-cost ratio of greater than 1.0, except in the case of safety projects not eligible under another safety program. No funds are used for general railroad operating expenses. Each application must be accompanied by a resolution from the appropriate local government, MPO, or PDC endorsing the usage of funds for the project.

Funds are provided to local governments, authorities, agencies, MPOs, PDCs, or non-public sector entities for rail projects funded under the program at a maximum 70-percent state and minimum 30-percent local match. RPP funds may be used as a portion of the non-federal match for federal grants. No more than 50 percent of the funds can be recommended for any single applicant in any fiscal year unless there are too few applicants to otherwise use the funds or a project has been determined to be of major significance to the Commonwealth.

Funds may be loaned to the current or prospective owners of a shortline railroad to purchase or refinance operating railway properties. The maximum amount of any loan is limited by the net liquidation value of the property.

The Commonwealth retains an interest in the property with an option to buy the balance if the rail operation is not continued as originally intended. The Commonwealth may purchase lines for lease to other entities for rail transportation purposes.

The recipients of funding are contractually committed to the maintenance of such tracks, facilities, and property and to the payment of any costs related to the future relocation or removal of such tracks and facilities for a period of 15 years. The Commonwealth may allow the recipient of funds to purchase the Commonwealth's interest in a railway, equipment, and facilities. RPP funds are intended for projects that obtain a minimum FRA Class II Track Safety Standards and those that develop the viability of the branchline for current and future rail traffic.

RPP programmed projects for Winchester & Western Railroad are listed in Table 9.

Table 9: Rail Preservation Program allocations, FY 2017-2022, Winchester & Western Railroad

		Programmed through FY '22
Tie / Rail Replacement, Surfacing, Crossing	Total	\$ 4,871,640
	State Rail Preservation Funds	\$ 3,410,148
	Public or Private Matching Funds	\$ 1,461,492
Capacity Upgrade / Yard Improvements	Total	\$ 4,379,980
	State Rail Preservation Funds	\$ 3,065,986
	Public or Private Matching Funds	\$ 1,313,994
Rail Replacement and Bridge Deck Renewal	Total	\$ 3,680,000
	State Rail Preservation Funds	\$ 2,576,000
	Public or Private Matching Funds	\$ 1,104,000

10.4 Bicycle and pedestrian funding

Standalone bicycle and pedestrian projects may be included in the CLRP for highway and transit funding described above. Other funding sources include the Transportation Alternatives Program (including Safe Routes to School), the Highway Safety Improvement Program (HSIP), and the Revenue Sharing program. Localities may apply for grants from these competitive funding sources for standalone bicycle and pedestrian projects. Projections for these uncertain, competitive funding sources cannot be made and therefore not considered in developing the CLRP.

Most of the funding sources described above require a local match – up to 20% of the project cost, in some cases. In-kind donations of materials, labor, and land can be used as matching funds. Through a creative strategy of volunteer assistance and land donation, other Virginia counties have been able to generate matching funds with very little capital outlay.

To ensure adequate funding for trails, on-road bikeways, and sidewalk projects, programs, and maintenance activities, it will be important for the County, City, and Town to:

- Establish specific funding sources to use as matching funds for federal, state, and other grants. These funds can be generated through donations from community groups, through the land development proffer system, and through the capital budget if necessary;
- Partner with local governments and adjacent jurisdictions to develop funding sources; and
- Look for additional funding opportunities from the public and private sectors.

The VDOT *Policy for Integrating Bicycle and Pedestrian Accommodations* applies to all projects that involve VDOT right of way or use funds that flow through VDOT. This policy requires that such projects will be initiated with the presumption that they will accommodate pedestrians and bicyclists. However, localities should continue to make specific requests for pedestrian and bicycle facilities to be included in project descriptions within the TIP, SYIP and locality capital improvement programs; and should monitor the planning, design, and construction of these projects to ensure that they accommodate pedestrians and bicyclists adequately.

11 Constrained Long-Range Plan

The constrained long-range transportation plan (CLRP) identifies and recommends a capital investment strategy to meet the existing and future transportation needs of the public into the year 2040. The inclusion of a recommended improvement in the CLRP represents preliminary regional support for that improvement. The CLRP is a decision-making tool to determine which projects should be implemented. Transportation projects go through several steps from conception to implementation and take many years to complete.

Fiscal constraint for long-range plans is mandated by Federal law. Updated at least every five years, the CLRP includes only those projects and strategies that can be implemented over the planning period with funds that are reasonably expected to be available. Projections of highway funds, provided by VDOT, are presented in Chapter 11, Financial Plan.

VDOT has provided official projections of highway funding only; therefore, the CLRP consists solely of highway projects. Strategies for funding stand-alone bikeways and pedestrian ways, and transit service expansions, are described in the financial plan.

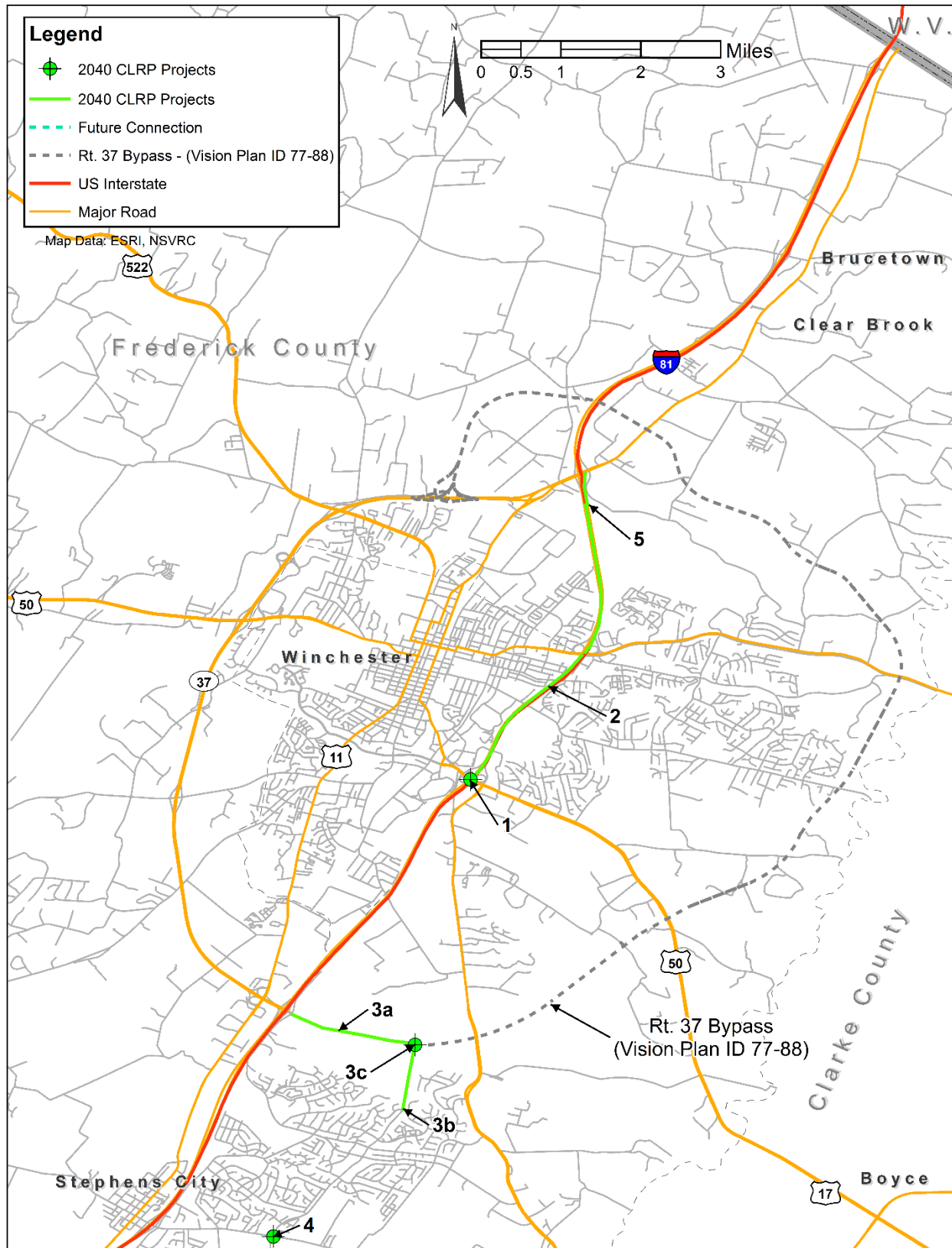
The CLRP, presented in Table 10 and Figure 9 on the following pages, was developed by the WinFred MPO Project Steering Committee after conducting a review of the 2035 MTP (adopted in 2012) Vision Plan (an expansive list of projects considered by the localities as priorities) and CLRP. Each project executes one or more of the plan's objectives and strategies as described in Section 10.4.

Figure 9 depicts the location of the five projects which comprise the CLRP; also depicted is the location of the proposed Route 37 Eastern Bypass. As no funds to design and build the road have been identified, the Bypass is not part of the CLRP. Its inclusion on the map, by consensus of the MPO Policy Board, is intended to indicate its status as Frederick County's highest transportation priority. The Bypass is included in the Vision Plan (2035 MTP Project IDs 77-88, page 64).

Table 10: WinFred 2040 Constrained Long Range Plan

	MAP ID #	Description	Purpose	Strategies	Estimate	Year of Expenditure
I-81	1	Interchange at Exit 313 (Route 17/50/522) Improve Interchange. Replace existing bridge over I-81	Improve safety	4.1	\$43,600,000	2030
	2	Between exits 313 and 317 Add an additional travel lane in each direction. Preliminary Engineering only.	Increase capacity, improve safety	1.3.1; 4.1	\$5,436,000	2040
Route 37						
		Extend Route 37 as a four-lane expressway east from I-81 approximately 1.3 miles; extend Warrior Drive north approximately 0.8 miles; construct partial interchange connecting the Route 37 and Warrior Drive extensions.	Improve network connectivity; accommodate land development	2.1.1; 2.2.1	\$56,071,000	2030
Route 277						
	4	Route 277 @ Warrior Drive RTL to Sherando High School Extend right turn lane for eastbound 277 at the intersection of Rt 277 and Warrior Drive with pedestrian improvements.	Improve safety	4.1	\$500,000	2025
OTHER						
	5	Exit 317 and Redbud Road Realign I-81 Northbound Exit ramp to Route 11 to the location of the current intersection of Redbud Road and Route 11. Future Redbud Road realignment to an intersection with Snowden Bridge Blvd. not included in cost.	Improve safety; improve network connectivity	2.2.1; 3.1	\$6,900,000	2025
TOTAL					\$112,507,000	

Figure 9: WinFred 2040 Constrained Long Range Plan



2040 METROPOLITAN TRANSPORTATION PLAN

The WinFred Travel Demand Model, a tool for forecasting traffic flows, underwent an update in 2017. The updated model was not ready in time to test the CLRP projects for their effect on overall system performance. This work is included in the MPO's Fiscal Year 2018 UPWP.

12 Environmental mitigation activities

The considerations and recommendations made during the planning process are preliminary in nature. The National Environmental Policy Act (NEPA) does not subject metropolitan transportation plans to detailed environmental analysis. With exceptions for regional ambient air quality, the mitigation of environmental impacts during the metropolitan planning process is not required.

While detailed environmental analysis is not required, it is important to consult with environmental resource agencies during the development of a long-range transportation plan. This interagency consultation provides an opportunity to compare transportation plans with environmental resource plans, develop a discussion on potential environmental mitigation activities, areas to provide the mitigation, and activities that may have the greatest potential to restore and maintain the environment.

Detailed environmental analysis of individual transportation projects occurs later in the project development process as the improvement approaches the preliminary engineering stage. At this stage, project features may be narrowed and refined, and the environmental impacts and environmental mitigation strategies can be appropriately ascertained. Virginia's State Environmental Review Process directs the project-by-project interagency review, study and identification of environmental concerns.

Related requirements that typically apply at this stage involve public hearings, environmental permit-processing, and NEPA studies. Usually, a variety of environmental documentation, permit and mitigation needs are identified and environmental findings are closely considered and evaluated.

Common project environmental mitigation measures (required silt-fence barriers, precautions to control dust, etc.) are managed using road and bridge standards that apply to all construction activities. Special environmental concerns, however, may differ widely by project and location. As environmental studies are conducted and undergo public and interagency review, needed mitigation plans are specified and committed to within the environmental documents on the particular transportation project or activity. Environmental management systems then are used to monitor, and ensure compliance with, the environmental mitigation commitments.

Potential environmental mitigation activities may include: avoiding impacts altogether, minimizing a proposed activity/project size or its involvement, rectifying impacts (restoring temporary impacts), precautionary and/or abatement measures to reduce construction impacts, employing special features or operational management measures to reduce impacts, and/or compensating for environmental impacts by providing suitable, replacement or substitute environmental resources of equivalent or greater value, on or off-site. Where on-site mitigation areas are not reasonable or sufficient, relatively large off-site compensatory natural resource mitigation areas generally may be preferable, if available. These may offer greater mitigation potential with respect to planning, buffer protection and providing multiple environmental habitat value (example: wetland, plant and wildlife banks).

Mitigation activities and the mitigation areas will be consistent with legal and regulatory requirements relating to the human and natural environment. These may pertain to neighborhoods and communities, homes and businesses, cultural resources, parks and recreation areas, wetlands and other water sources, forested and other natural areas, agricultural areas, endangered and threatened species, and the ambient air. The following table illustrates some potential mitigation activities and potential mitigation areas for these resources:

Table 11: Environmental Mitigation Options for Transportation Projects

Resource	Key applicable requirements	Potential mitigation activities for project implementation	Potential mitigation areas for project implementation
Neighborhoods and communities, and homes and businesses	Uniform Relocation Assistance and Real Property Acquisition Policy Act at 42 USC 4601 et seq.	Impact avoidance or minimization; context sensitive solutions for communities (appropriate functional and/or aesthetic design features).	Mitigation on-site or in the general community. (Mitigation for homes and businesses is in accord with 49 CFR 24)
Cultural resources	National Historic Preservation Act at 16 USC 470	Avoidance, minimization; landscaping for historic properties; preservation in place or excavation for archaeological sites; Memoranda of Agreement with the Department of Historic Resources; design exceptions and variances; environmental compliance monitoring	On-site landscaping of historic properties, on-site mitigation of archeological sites; preservation in-place
Parks and recreation areas	Section 4(f) of the U.S. Department of Transportation Act at 49 USC 303	Avoidance, minimization, mitigation; design exceptions and variances; environmental compliance monitoring	On site screening or on-site replacement of facilities; in some cases, replacement of affected property adjacent to existing
Wetlands and water resources	Clean Water Act at 33 USC 1251-1376; Rivers and Harbors Act at 33 USC 403	Mitigation sequencing requirements involving avoidance, minimization, compensation (could include preservation, creation, restoration, in lieu fees, riparian buffers); design exceptions and variances; environmental compliance monitoring	Based on on-site/off-site and in-kind/out-of-kind sequencing requirements; private or publicly operated mitigation banks used in accordance with permit conditions

Table 11 (continued): Environmental Mitigation Options for Transportation Projects

Resource	Key applicable requirements	Potential mitigation activities for project implementation	Potential mitigation areas for project implementation
Forested and other natural areas	Agricultural and Forest District Act (Code of VA Sections 15.2-4305; 15.2-4307-4309; 15.2-4313); Open Space Land Act (Section 10.1-1700-1705, 1800-1804)	Avoidance, minimization; Replacement property for open space easements to be of equal fair market value and of equivalent usefulness; design exceptions and variances; environmental compliance monitoring	Landscaping within existing rights of way; replacement property for open space easements to be contiguous with easement; replacement of forestry operation within existing agriculture/forestal district
Agricultural areas	Farmland Protection Policy Act of 1981 at 7 USC 4201-4209, Agricultural and Forest District Act (Code of VA Sections 15.2-4305; 15.2-4307-4309; 15.2-4313)	Avoidance, minimization; design exceptions and variances; environmental compliance monitoring	Replacement of agricultural operation within existing agriculture/forestal district
Endangered and threatened species	Endangered Species Act at 16 USC 1531-1544	Avoidance, minimization; time of year restrictions; construction sequencing; design exceptions and variances; species research; species fact sheets; Memoranda of Agreements for species management; environmental compliance monitoring	Relocation of species to suitable habitat adjacent to project limits
Ambient air quality	Clean Air Act at 42 USC 7401-7671, and Conformity regulations at 40 CFR 93	Transportation control measures, transportation emission reduction measures	Within air quality non-attainment and maintenance areas

13 Environmental justice analysis

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. To ensure environmental justice, the process of transportation planning must be consistent with the provisions of Title VI of the Civil Rights Act:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations.
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

Consistent with the U.S. DOT Order on Environmental Justice, disproportionately high and adverse impacts should be mitigated where possible. Beyond this mitigation requirement, there is no presumed distribution of resources to sustain compliance with the Environmental Justice provisions. The intent is to ensure that no person is denied benefits based on race, color, or national origin.

As shown in Table 12 below, racial minorities as a percentage of total population in the Win-Fred MPO urbanized area is significantly below that of Virginia as a whole. The urbanized area’s Hispanic population is concentrated in City of Winchester; its percentage of the City’s population is nearly double that of the Commonwealth. Low-income individuals, residing in households with incomes less than 200 percent of the poverty level, comprise 44 percent of the City’s population, 17 percentage points higher than the state’s share.

Table 12: Minority and low-income populations, 2015

Area	Percentage of total population		
	Racial minority	Hispanic	Low income
City of Winchester	19.4%	16.3%	43.6%
Frederick County (urbanized portion)	11.3%	8.6%	23.5%
Total, urbanized area	14.3%	11.5%	31.1%
Virginia	31.0%	8.6%	26.8%

Source: American Community Survey 2015 5-Year estimates.

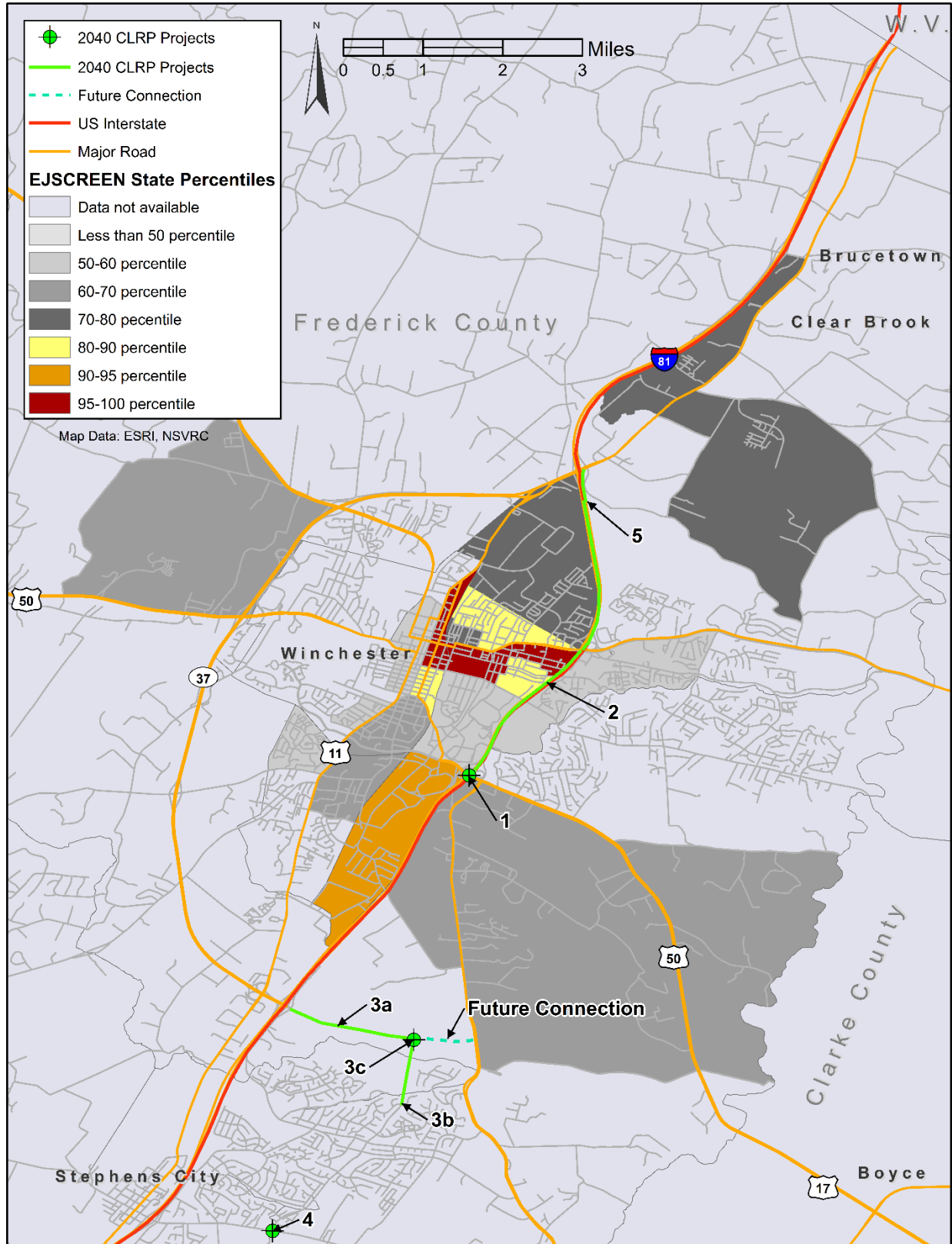
The construction of new roadways, and roadway projects intended to increase traffic capacity (the volume of traffic the roadway can handle) may bring adverse health, environmental and financial impacts in the form of increased noise, air pollution, risk of personal injury and property damage, and reduction in home values, to persons living near the facility. Care must be taken that such projects as included in the CLRP do not disproportionately burden predominantly minority or low-income neighborhoods with adverse impacts.

2040 METROPOLITAN TRANSPORTATION PLAN

Figure 10 (next page) illustrates the geographic proximity of the CLRP projects to low-income and minority populations. For each Census block group, a Demographic Index value, an average of percent low-income and percent minority, was calculated. Each block group was then ranked by Demographic Index against all Census block groups in the state. The resulting rank of each block group, expressed as a percentile, is illustrated on the map. A percentile of 50 means that 50 percent of the state's block groups have a lower Demographic Index value. The 50th percentile is the state average; percentiles 50 or above indicate combined percentages of low income and minority populations higher than that of the respective percent of Virginia Census block groups. The numbers used in the calculation are estimates derived from the Census Bureau's American Community Survey 2010-2014; the resulting state percentiles were obtained through the U.S. Environmental Protection Agency's online mapping tool, EJSCREEN.

2040 METROPOLITAN TRANSPORTATION PLAN

Figure 10: CLRP projects and low income and minority populations by Census block group



14 Public involvement

Public involvement is an integral part of transportation planning and project development decision-making. Federal law emphasizes the meaningful involvement by the public, including minority and low-income populations, in transportation decision making.

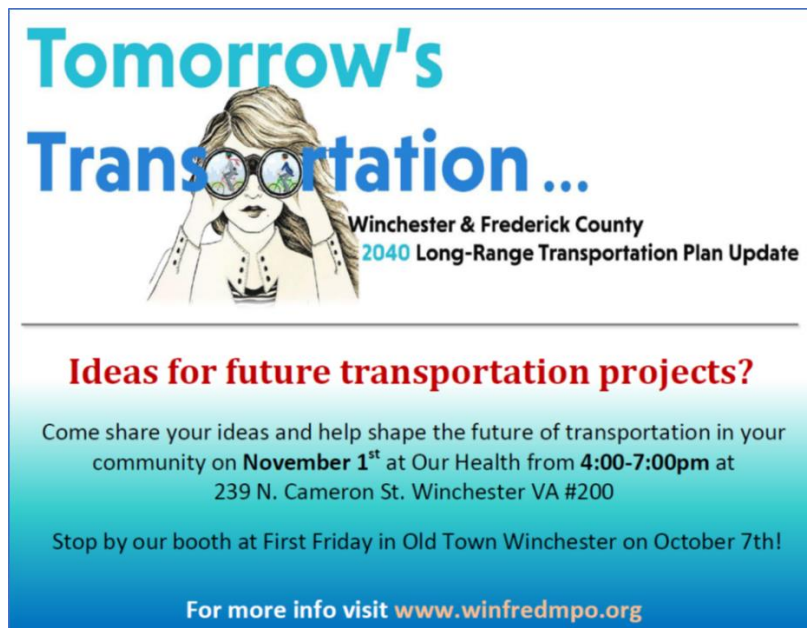
In recognition of the importance of involving all segments of public in the transportation planning processes, WinFred MPO has adopted a Public Involvement Process to gain insight and perspective from citizens before transportation plans are adopted and implemented. Methods of public outreach include mail and e-mail (distribution lists of stakeholders are maintained by MPO staff), community and group presentations, announcements in local newspapers, and publication of meeting notices, reports, and summaries on the MPO website, www.winfredmpo.org. Feedback gathered from citizens at the public involvement meetings is provided to the Win-Fred MPO committees for review and outlining of procedures to be used in the transportation plan or program.

Two **public information open houses** were held, each in the Our Health Board Room, 329 N. Cameron Street in downtown Winchester: on Tuesday, November 1st, 2016, from 4 to 7 p.m., and on Thursday, May 11, 2017, from 5:30 to 7 p.m. The site is served by public transportation. Both events were advertised in the Winchester Star newspaper, the MPO website, www.winfredmpo.org, and through flyers distributed throughout the community (the flyer for the November 1st event is illustrated below).

Additionally, MPO staff was available to discuss the plan and take comments at an **information table** on the Loudoun Street pedestrian mall on Friday, October 7th, 2016 from 4 to 6 p.m. during Old Town Winchester's First Friday event.

An MTP information page and comment form were posted on the MPO website during the plan's development, from September 2016 through June 2017.

Figure 11: Flyer for public information open house



Environmental resource agency consultation

As required by federal law, this MTP was developed in consultation with federal, state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation. Agencies were requested via letter to review and comment on the plan. The letter, a list of the agencies and organizations consulted, and comments received are presented in Appendix B.

Appendix A: Vision Plan

Road Name	2035 MTP Project ID	Roadway Section	Project Description
I-81	1	Mile Post 305-307	Widen I-81 to 6 lanes
I-81	2	Exit 310 (Route 37)	Widen I-81 to 6-lane section transitioning to Project #3 (Mile Post 310-313)
I-81	3	Exit 310-313 (Route 37; Route 17/50/522)	Widen I-81 with 2-lane CD roads in both directions
I-81	4	Interchange at Exit 311/Battaille Drive Interchange on I-81	New Interchange. Project also includes: Removing existing bridge over I-81 (Papermill), Extending Battaille to new Interchange and Papermill Road, Widening existing portion of Battaille Drive to 4-lanes, and extending and widening Pleasant Valley to 4-lanes between Cedarmeade and Battaille.
I-81	5	Mile Post 313-317	Widen I-81 to 6 lanes and widen Senseny Road and Woodstock Lane Bridges over I-81
I-81	6	Mile Post 317 - 319	Widen I-81 to 6 lanes
I-81	7	Mile Post 319-321	Widen I-81 to 6 lanes
I-81	8	Mile Post 321-324	Widen I-81 to 6 lanes and widen Cedar Hill Road bridge over I-81
I-81	9	Interchange at Exit 307 (Route 277)	Relocate Existing Interchange to the south
I-81	10	Interchange at Exit 310 (Route 37S/642)	Construct Full Cloverleaf Interchange with C-D roads
I-81	12	Interchange at Exit 315 (Route 7)	Improve Interchange
I-81	13	Interchange at Exit 317 (Route 11)	Improve Interchange including Ramp Relocation and add C-D roads between Exit 317 and new Exit 318
I-81	14	Interchange at Exit 318	Construct Full Cloverleaf Interchange with C-D roads to accommodate Route 37
I-81	15	Interchange at Exit 321 (Route 672)	Replace 2 lane bridge and relocate Waverly Rd
I-81	16	Interchange at Exit 323 (Route 669)	Turn lane improvements
US Route 11	18	Rt 37 to South of City Limits	Widen to 4-lane divided cross section with LT Lanes - Widen to four lane bridge
US Route 11	20	Martinsburg Pike Junction with Route 37 (existing junction)	Improvements to Off Ramp
US Route 11	22	I-81 to Old Charles Town Rd (Route 761)	Widen to 6-lane divided cross section
US Route 11	23	Old Charles Town Rd to West Virginia Line	Widen to 4-lane divided cross section; Modified from Project #23
US Route 11	24	Interchange improvements to South Route 11/Route 37 Interchange	Intersection and Through Lane Upgrades, Ramp Modifications

2040 METROPOLITAN TRANSPORTATION PLAN

Road Name	2035 MTP Project ID	Roadway Section	Project Description
US Route 11	25	Route 11 South at Opequon Church Lane and Shawnee Drive	Intersection Improvements and Access Management
US Route 11	26	Entire Section of Route 11	Access Management Improvements - Placeholder should funding or grant opportunities become available
US Route 11	27	Hopewell Rd and Bruce town Rd (Route 672)	Align Intersections
US Routes 17/50	28	Entire Eastern Section of Route 17/50	Access Management and Safety Improvements - Placeholder should funding or grant opportunities become available
US Routes 17/50	29	Carpers Valley Road to Sulphur Springs Road	Widen to be determined by model - R6D
US Routes 17/50	30	Sulphur Springs Road to Relocated Route 522	Widen to be determined by model - R6D
US Routes 17/50	31	Relocated Route 522 to I-81	Widen to be determined by model - R6D
Route 50	34	Amherst Street between Keating Drive & Route 37	Widen to 6-lane cross section
Route 50	35	Route 50 Between Rt 37 and Poor House Road	Widen to be determined by model
Route 37	36	Interchange with Route 651 (Shady Elm Road)	New Interchange
Route 37	37	Interchange with Cedar Creek Grade	Improve Interchange - SBL, Signal, Add extra LTL
Route 37	38	Interchange with West Jubal Early Drive	New Interchange
Route 37	39	Interchange with US Route 50	Improve Interchange with Realignment with Merriman's Lane
Route 277	41	Double Church Rd (Route 641) to White Oak Road (Route 636)	Widen to Urban 4-lane divided cross section
Route 277	42	White Oak Road to US Route 522/US Route 340	Widen to R6D 4-lane divided cross section
Route 277	44	Extension of Route 277 and Route 522	Extension of existing route approximately 1.75 miles west to new intersection with Route 522 approximately 1.25 miles north
Cedar Creek Grade (Route 622)	45	Rt 37 to Winchester City Boundary	Widen to U4D 4-lane cross section
Cedar Creek Grade (Route 622)	46	Interchange with Route 37	Install traffic signals
US Route 522	47	Airport Road to US Route 17/50	Relocate US Route 522 to the east. Existing US Route 522 to be closed at northern end to serve local traffic only.

2040 METROPOLITAN TRANSPORTATION PLAN

Road Name	2035 MTP Project ID	Roadway Section	Project Description
US Route 522	48	Fairmont St. to 0.2 miles north of Winchester CL	Widen to U4D 4-lane cross section
Route 641 (Double Church Road)	49	Warren Co Line to Route 277	Upgrade existing two-lane road
Route 641 (Double Church Road)	50	Route 277 to South Frederick Parkway	Improve road to South Frederick Parkway - U4D, Modified from Project #49
Route 642 (Tasker Road)	51	US Route 522 to Lakeside Drive	Widen to U4D 4-lane cross section
Route 642 (Tasker Road)	52	Vicinity of Route 37	Crosspoint Improvements - Realignment and potential proffered
Route 642 (Tasker Road)	53	Route 37 to Papermill Road (Route 644)	Extension from North of Route 37 - U4D
Route 651 (Shady Elm Road)	54	Apple Valley Road (Route 652) to Stephens City Bypass	Widen to 4 lane cross section and expanding intersection
Route 652 (Apple Valley Road)	55	US Route 11 to Shady Elm Rd (Route 651)	Widen to Urban 4-lane cross section with Turn Lanes
Route 652 (Apple Valley Road)	56	Shady Elm Rd (Route 651) to Middle Road	Roadway Improvements with Turn Lanes - R3, Modified from Project #55
Shawnee Drive	57	Battaille Drive to US Route 11	Widen to 4-lane cross section
Greenwood Road (Route 656)	58	Senseny Road to Valley Mill Road - widening to be determined by model	Widen to 2-lane upgrade with Turn lanes from Senseny Road approximately .93 miles south
Sulphur Springs Road (Route 655)	59	US Route 17/50 to future Channing Drive Intersection	Turn lane improvements at the intersection 2 lane with paved shoulders, an upgrade of the existing
Weems Lane	60	Roosevelt Blvd to US Route 11	Widen to 4-lane section with LT lanes at intersections. Drainage improvements, add curb and gutter and sidewalks, turn lanes at intersections
White Oak Road	62	US Route 522 to Tasker Road	Widen to Urban 4-lane cross section
Old Charles Town Road	63	US Route 11 to New Stephenson Village Boulevard	Improve existing roadway
Jordan Springs Road	64	Old Charles Town Road to Woods Mill Road	Improve existing Rural 2-lane road
Woods Mill Road	65	Jordan Springs Road to Route 7	Improve existing Rural 2-lane road
Channing Drive	66	Senseny Road to Valley Mill Road	Widen to Urban 4-lane cross section
Inverlee Way	67	Route 17/50 to Taggart Drive	Widen existing to Urban 4-lane cross section
Route 7	69	Clarke County line to I-81	Widen to 6-lane cross section

2040 METROPOLITAN TRANSPORTATION PLAN

Road Name	2035 MTP Project ID	Roadway Section	Project Description
Route 7	70	Entire Route 7 Corridor	Access Management and Safety Improvements - Placeholder should funding or grant opportunities become available
Fairfax Street	71	Main Street/Route 11	Upgrades to existing section including widening, curb, gutter and sidewalks
Fairfax Street	72	Stephens City Western Bypass to Route 11	On-street parking, curb, gutter and sidewalk
Redbud Road	73	Redbud Road Connection	Disconnect from Route 11 and Realign to Meet Snowden Bridge Blvd
South Frederick Parkway	74	South Frederick Parkway at Intersection of Route 277 and Route 522	Relocation of Exit 307 to Route 277 - From relocated Exit 307 to existing intersection 277/522. Make Parkway
South Frederick Parkway	75	South Frederick Parkway between 277 Extension to 522 and existing Route 277	Create connector road from existing Route 277
Hudson Hollow Road	76	Route 277 to South Frederick Parkway	Improve and realign to South Frederick Parkway
Airport Road	77	Route 522 to Victory Lane	Widen/Improve existing roadway
Route 37	79	US Route 522 to Routes 17/50	Construct limited access divided highway
Route 37	80	Routes 17/50 to Route 7	Construct limited access divided highway
Route 37	81	Route 7 to I-81 at MP 318	Construct limited access divided highway
Route 37	82	I-81 at MP 318 to Route 37 (west of industrial park)	Construct limited access divided highway
Route 37	85	Route 37 @ Route 17/50	Construct interchange
Route 37	86	Route 37 @ Senseny Road	Construct interchange
Route 37	87	Route 37 @ Route 7	Construct interchange
Route 37	88	Route 37 @ Snowden Bridge	Construct Interchange
Warrior Drive	89	Opequon Creek to Papermill Rd	Construct 4-lane Urban cross section
Warrior Drive	90	Papermill Rd to E Tevis Street	Construct 4-lane cross section
Warrior Drive	91	Route 277 to South Frederick Parkway - Connection between existing 277 and the South Frederick Parkway	Extend and Widen to 4-lane cross section
Airport Road Extension	92	US Route 522 to Warrior Drive	Construct 4-lane cross section
Relocation of Papermill Road	93	West of US Route 522	Relocate to south opposite new school entrance/Victory Blvd Extension

2040 METROPOLITAN TRANSPORTATION PLAN

Road Name	2035 MTP Project ID	Roadway Section	Project Description
Jubal Early Drive Extension	94	Existing West Jubal Early Drive to Route 37	Construct 4-lane cross section
Brooke Road Extension	95	US Route 11 to Route 522	Construct 4-lane cross section
Route 642 (Tasker Road) Extension	96	Existing Route 642 to US Route 11	Construct 4-lane cross section
Route 642 (Tasker Road) Extension	97	US Route 11 to Stephens City Bypass	Construct 4-lane cross section
Route 644 Extension (Parkins Mill Rd)	98	US Route 522 to Lakeside Drive	Construct 2-lane cross section - Determine bridge called for and add as necessary
Aylor Road (Route 647) Realignment	99	Relocate intersection with Route 277 to the east	Construct 3-lane cross section
Stephens City Bypass	100	Relocated I-81 Exit 307 Interchange to US Route 11 South	Construct 4-lane cross section
Stephens City Bypass	101	US Route 11 South to Fairfax Street (US Route 631)	Construct 4-lane cross section plus bridge over US Route 11
Stephens City Bypass	102	Fairfax Street (Route 631) to Shady Elm Road (Route 651)	Construct 4-lane cross section
East/West Connector Roads (Route 11) Modified from Project #101	103	US Route 11 South to Stephens City Bypass	Construct 2-lane cross section
Modified from Project #102	104	US Route 11 South to Stephens City Bypass	Construct 2-lane cross section
Meadow Branch Avenue	105	Extension to US Route 50	Construct 4-lane cross section
Victory Road	106	Airport Road to Justice Drive	Construct 4-lane Urban cross section
Legge Boulevard	107	Patsy Cline Blvd to Frontage Road	Construct 3-lane Urban cross section
Renaissance Drive	108	US Route 11 to Route 651	Construct 2-lane UAD cross section
Snowden Bridge Boulevard	109	Old Charles Town Road to US Route 11	Construct 4-lane Urban cross section
Willow Run Drive	110	Jubal Early Drive to Cedar Creek Grade	Construct 4-lane cross section
Route 7-Senseny Road Connector	111	Route 7 to Senseny Road (Spine Road)	Construct 4-lane cross section

2040 METROPOLITAN TRANSPORTATION PLAN

Road Name	2035 MTP Project ID	Roadway Section	Project Description
Stonewall Industrial Park Connector	112	Lenoir Drive to Route 37	Construct Rural one-lane, one-way SB roadway
Botanical Road	113	Route 522	Extension - U3
Fort Collier Road	114	Brick Kiln Road	Relocate Intersection
Channing Drive	115	Senseny Road to Sulphur Springs Rd	Extension
Channing Drive	116	Sulphur Springs Road to Route 50	Extension
Inverlee Way	117	Taggart Rd to Senseny Rd	Extension - U4D
Taft Avenue	118	Valley Avenue	New alignment to Middle Road
Taft Avenue	119	Weems Lane to Hope Drive	North/South Extension to New Roundabout Intersection
Western Bypass	120	US Route 11 to Shady Elm Rd (Route 651) - Stephens City Bypass	Construct 4-lane cross section
S. Loudoun	121	At Featherbed Lane	Drainage improvements on Abrams Creek
Tasker Road Flyover	122	Existing Tasker Road to Route 11	New roadway connection with bridge over I-81
I-81 Winchester Rest Area Design Build	123	Winchester Rest Area Design Build	Winchester Rest Area Design Build Construction Project
Route 7 at First Woods Drive	124	Route 7 at First Woods Drive	Modify signal at Route 7 and First Woods Drive
Route 7 at Morgans Mill Road	125	Route 7 at First Woods Drive	Close median crossover on Route 7 at Morgans Mill Road
Route 7 at I-81	126	Route 7 at I-81	Modify signal, Extend left turn lane, construct curb & gutter
Routes 7 and 991	127	Routes 17/50 to Route 7	Widen west bound right turn lane at Route 7 and State Route 991
Intersection of Route 11 and Route 672	128	Intersection of Route 11 and Route 672	Install traffic signals at intersection
Route 277	130	Route 277	Install object markers, widen pave and retime signal
Route 37	140	Route 37 between Rt. 50 & Rt. 11N	Operational & safety improvements

Appendix B: Public involvement summary

Stakeholder consultation outreach letter

WinFred Metropolitan
Planning Organization
400 Kendrick Lane, Suite E
Front Royal, Virginia 22630
Phone: 540-636-8800
Website: www.winfredmpo.org

Policy Board

Chair:

John A. Willingham
City of Winchester

Vice-Chair:

Charles S. DeHaven, Jr.
Frederick County

Secretary/ Treasurer:

Brandon Davis
NSVRC

City of Winchester:

*Eden Freeman
City Manager
*John W. Hill
Council Member
*John A. Willingham
Council Member

Frederick County:

*Judith McCann-Slaughter
Board of Supervisors
*Brenda Garton
County Administrator
*Charles S. DeHaven, Jr.
Board of Supervisors

Stephens City:

*Michael Majher
Town Administrator/ Engineer

VDOT:

*Randy Kiser
District Administrator

Va. Dept. of Rail & Public Trans.:

Tim Roseboom
Transit Planning Manager

Federal Highway Administration:

Mack Frost
Planning and Environmental Specialist

Federal Transit Administration:

Tony Cho
Transportation Program Specialist

* Denotes Voting Members



May 23, 2017

«Company»

«Address»

«Address_2»

«City», «State» «Zip»

Dear Sir or Madam,

Re: WinFred MPO Draft Metropolitan Transportation Plan for the year 2040

As it is mandated to do every five years, the Winchester-Frederick County Metropolitan Planning Organization (WinFred MPO) is creating a long-range plan for surface transportation for the City of Winchester and surrounding areas of eastern Frederick County, Virginia.

Federal law requires that metropolitan transportation plans be developed in consultation, as appropriate, with federal, state and local agencies responsible for land use and natural resources management, environmental protection, conservation, and historic resources. WinFred MPO invites you to review the draft 2040 Metropolitan Transportation Plan (at http://nsvregion.org/assets/2040_MTP_May_19_Draft.pdf) and submit comments on behalf of your organization or agency.

MPO staff will acknowledge and respond as appropriate to all submitted comments. Comments received prior to June 23, 2017 will be published in the final plan document.

Please submit your comment via letter or e-mail to:

Mr. John Madera
WinFred MPO
400 Kendrick Lane, Suite E
Front Royal, VA 22630
jmadera@nsvregion.org

You may contact Mr. Madera at (540) 636-8800 for more information.

Sincerely,

Brandon Davis
Secretary-Treasurer, WinFred MPO
Executive Director, Northern Shenandoah Valley Regional Commission

BPD/jm/gc

2040 METROPOLITAN TRANSPORTATION PLAN

List of stakeholder agencies and organizations consulted

Agency/Organization	City	State
AARP Virginia State Office	Richmond	VA
Access Independence, Inc.	Winchester	VA
Bike Walk Virginia	Williamsburg	VA
Cedar Creek Battlefield Foundation	Middletown	VA
Community Integration for People with Disabilities	Richmond	VA
Federal Highway Administration	Sterling	VA
Federal Highway Administration	Richmond	VA
Federal Transit Administration	Washington	DC
Kernstown Battlefield Association	Winchester	VA
League of American Bicyclists	Washington	DC
National Park Service	Atlanta	GA
Rails-to-Trails Conservancy	Washington	DC
Shenandoah Area Agency on Aging	Front Royal	VA
Shenandoah Valley Battlefields Foundation	New Market	VA
U.S. Army Corps of Engineers-Wilmington District	Wilmington	NC
U.S. Department of Transportation	Washington	DC
U.S. Fish and Wildlife Service	Washington	DC
U.S. Geological Survey-Environmental Affairs Program	Reston	VA
US EPA Region III	Philadelphia	PA
USDA Forest Service	Atlanta	GA
USDA Natural Resources Conservation Service	Richmond	VA
USDA Rural Development	Strasburg	VA
VDOT - Edinburg Residency	Edinburg	VA
Virginia Bicycling Federation	Arlington	VA
Virginia Board for People with Disabilities	Richmond	VA
Virginia Clean Cities	Harrisonburg	VA
Virginia Department for Blind and Vision Impaired	Roanoke	VA
Virginia Department for Deaf and Hard of Hearing	Richmond	VA
Virginia Department of Conservation and Recreation	Richmond	VA
Virginia Department of Emergency Management	Richmond	VA
Virginia Department of Environmental Quality	Richmond	VA
Virginia Department of Environmental Quality	Harrisonburg	VA
Virginia Department of Forestry	Salem	VA
Virginia Department of Game and Inland Fisheries	Richmond	VA
Virginia Department of Historic Resources	Richmond	VA
Virginia Department of Historic Resources	Stephens City	VA

2040 METROPOLITAN TRANSPORTATION PLAN

Agency/Organization	City	State
Virginia Department of Housing and Community Development	Richmond	VA
Virginia Department of Mines, Minerals, and Energy	Charlottesville	VA
Virginia Economic Development Partnership	Richmond	VA
Virginia Employment Commission	Richmond	VA
Virginia Employment Commission	Winchester	VA
Virginia Housing Development Authority	Richmond	VA
Virginia Marine Resources Commission	Newport News	VA
Virginia Office for Protection and Advocacy	Richmond	VA
Virginia Office of Commonwealth Preparedness	Richmond	VA
Virginia Tourism Corporation	Richmond	VA
Winchester Economic Development	Winchester	VA
Winchester Fire & Rescue	Winchester	VA
Winchester Wheelman	Winchester	VA
Winchester-Frederick County EDA	Winchester	VA
Winchester-Frederick County Historical Society	Winchester	VA

Comments received

From: Fowler, Keith (DEQ) [mailto:Keith.Fowler@deq.virginia.gov]
Sent: Wednesday, May 31, 2017 4:31 PM
To: John Madera <jmadera@nsvregion.org>
Cc: Fulcher, Valerie (DEQ) <Valerie.Fulcher@deq.virginia.gov>
Subject: WinFred MPO Draft 2040 Metropolitan Transportation Plan

Mr. Madera – We are in receipt of a letter from Brandon Davis, dated 5/26/17, requesting comments from this office. Below is general information related to DEQ programs and other environmental issues which may be relevant in proceeding with the subject project. I encourage you to review this information and to contact me with any questions you may have. We are glad to discuss specifics for any aspects of this project with you as it relates to any DEQ programs. Please let me know if you have any questions or need any additional information regarding environmental matters.

1. Water Quality and Wetlands. Measures must be taken to avoid and minimize impacts to surface waters and wetlands during construction activities. The disturbance of surface waters or wetlands, including water withdrawals, may require prior approval by DEQ and/or the U.S. Army Corps of Engineers. The Army Corps of Engineers is the final authority for an official confirmation of whether there are federal jurisdictional wetlands or other surface waters that may be impacted by the proposed project. DEQ may confirm additional waters as jurisdictional beyond those under federal authority. Review of National Wetland Inventory maps or topographic maps for locating wetlands or streams may not be sufficient; there may need to be a site-specific review of the site by a qualified professional. Even if there will be no intentional placement of fill material in jurisdictional waters, potential water quality impacts resulting from construction site surface runoff must be minimized. This can be achieved by using Best Management Practices (BMPs). If construction activities, including water withdrawals, will occur in or along any streams (perennial, intermittent, or ephemeral), open water or wetlands, the applicant should contact Eric Millard at DEQ-VRO (540-574-7813, Eric.Millard@deq.virginia.gov) to determine the need for any permits prior to commencing work that could impact surface waters or wetlands.

2. Erosion and Sediment Control and Storm Water Management. DEQ has regulatory authority for the Virginia Pollutant Discharge Elimination System (VPDES) programs related to municipal separate storm sewer systems (MS4s) and construction activities. Erosion and sediment control measures are addressed in local ordinances and State regulations. Additional information is available at <http://www.deq.virginia.gov/Programs/Water/StormwaterManagement.aspx>. Non-point source pollution resulting from this project should be minimized by using effective erosion and sediment control practices and structures. Consideration should also be given to using permeable paving for parking areas and walkways where appropriate, and denuded areas should be promptly revegetated following construction work. If the total land disturbance exceeds 10,000 square feet, an erosion and sediment control plan will be required. Some localities also require an E&S plan for disturbances less than 10,000 square feet. A stormwater management plan may also be required. For any land disturbing activities equal to one acre or more, you are required to apply for coverage under the VPDES General Permit for Discharges of Storm Water from Construction Activities. The Virginia Stormwater Management Permit Authority may be DEQ or the locality. Specific questions regarding the Stormwater Management Program requirements should be directed to Gary Flory at DEQ-VRO (540-574-7840, Gary.Flory@deq.virginia.gov).

3. Other Site Development Considerations. Fugitive dust generated during construction should be controlled by using measures such as the prompt removal of spilled or tracked dirt or other materials from paved streets, limited application of water to suppress dust, and washing of construction vehicles and paved roadways immediately adjacent to construction sites. Do not use water for dust control to the extent that it results in runoff to surface waters or wetlands. Land clearing wastes (vegetative debris) generated during construction should be properly managed in accordance with applicable regulations and

local ordinances. Shredding/chipping of vegetative debris and reuse on-site is usually recommended over open burning. Any open burning of vegetative debris must be performed in accordance with the Open Burning Regulation and coordinated with the local fire official to ensure that all local ordinances are met. A copy of DEQ's open burning regulation and related information are accessible from <http://www.deq.virginia.gov/Programs/Air/AirQualityPlans/OpenBurning.aspx>. Also, no open burning should take place in violation of the Virginia Waste Management Regulations, <http://law.lis.virginia.gov/admincode/title9/agency20/>. Contact Keith Fowler at DEQ-VRO (540-574-7812, Keith.Fowler@deq.virginia.gov) for any questions related to the proper control of fugitive dust, or open burning requirements and prohibitions.

4. Air Quality. Installation / operation / modification / replacement of stationary or portable fuel burning equipment (e.g., generators, wood chippers/grinders, boilers, etc.) or other sources of air pollutants, including dust, may be subject to registration and/or air permitting requirements (<http://www.deq.virginia.gov/Programs/Air/PermittingCompliance/Permitting/TypesofAirPermits.aspx>); for questions regarding this, please contact Janardan Pandey at DEQ-VRO (540-574-7817, Janardan.Pandey@deq.virginia.gov).

5. Petroleum Storage Tanks. Installation / operation / modification of tanks used for the storage of petroleum and CERCLA substances may be subject to registration and/or other regulatory requirements (<http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/PetroleumProgram/StorageTanks.aspx>). If petroleum-contaminated soils or water are encountered during excavation work, or if old petroleum tanks need to be removed or replaced, contact DEQ. For questions regarding any of this, please contact Todd Pitsenberger at DEQ-VRO (540-574-7847, Todd.Pitsenberger@deq.virginia.gov).

6. Solid and Hazardous Wastes, and Hazardous Substances. DEQ administers the Virginia Waste Management Regulations, <http://law.lis.virginia.gov/admincode/title9/agency20/>. All solid wastes, hazardous wastes, and hazardous materials, including construction and demolition (C&D) wastes and universal wastes (batteries, fluorescent lights, refrigerants, mercury switches, mercury thermostats, etc.), must be managed in accordance with all applicable federal, state, and local environmental regulations. The generation of hazardous wastes should be minimized and solid wastes generated at the site should be reduced at the source, reused, or recycled. DEQ encourages the management of certain organic wastes by on-site composting or reuse as animal feed or soil amendment. Also, if you encounter any improperly disposed solid or hazardous wastes, or petroleum contaminated soils, you should contact DEQ-VRO. You may wish to refer to the web link for "What's in My Back Yard?", <http://www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx>, to help you determine areas where residual contamination may be more likely. Contact Graham Simmerman at DEQ-VRO (540-574-7865, Graham.Simmerman@deq.virginia.gov) for any questions related to waste management / disposal, including any questions related to open burning requirements and prohibitions. Manage / dispose of any asbestos-containing materials (ACMs) in accordance with Virginia Department of Labor and Industry (DOLI) regulations. Contact Doug Wiggins at DOLI (Richard.Wiggins@doli.virginia.gov, 540-562-3580, ext. 131) for any questions related to management / disposal of ACMs.

7. Pesticides and Herbicides. DEQ recommends that herbicides or pesticides for construction or landscape maintenance, when necessary, be used in accordance with the principles of integrated pest management, and that the least toxic pesticides that are effective in controlling the target species be used. Please contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information. If applying aquatic pesticides to surface waters, the applicant must comply with the DEQ's Pesticide General Permit, <http://www.deq.virginia.gov/Programs/Water/PermittingCompliance/PollutionDischargeElimination/PermitsFees.aspx#pest>.

8. Natural Heritage Resources. The Virginia Department of Conservation and Recreation (DCR) Division of Natural Heritage (DNH) can search its Biotics Data System for occurrences of natural heritage resources from the area indicated on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered animal and plant species, unique or exemplary natural

communities, and significant geologic communities. We recommend that the DNH be contacted at (804) 786-7951 to secure updated information on natural heritage resources before commencing the project.

9. Wildlife Resources. The Virginia Department of Game and Inland Fisheries (DGIF) exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species. DGIF determines likely impacts on fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts. For more information, see the DGIF website at <http://www.dgif.virginia.gov> or contact Ray Fernald at (804) 367-6913.

10. Historic and Archaeological Resources. *Section 106 of the National Historic and Preservation Act of 1966*, as amended, requires that activities that receive federal funding must consider effects to properties that are listed or eligible for listing on the National Register of Historic Places. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources. If applicable, contact DHR. In the event that archaeological resources are encountered during construction, immediately contact Ms. Ethel Eaton, DHR, at (804) 367-2323.

11. Pollution Prevention. DEQ recommends that construction projects incorporate the principles of pollution prevention including the following recommendations:

- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content and toxicity level should be considered.
- Consider contractors' commitment to the environment when choosing contractors. Also, specifications regarding raw material selection (alternative fuels and energy sources) and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable practices and materials in infrastructure and construction and design. These could include asphalt and concrete containing recycled materials and integrated pest management in landscaping.
- Integrate pollution prevention techniques into maintenance and operation activities to include source reduction (fixing leaks, energy efficient products).

Pollution prevention measures are likely to reduce potential environmental impacts and reduce costs for material purchasing and waste disposal. DEQ's Office of Pollution of Prevention hosts a number of programs and initiatives that provide non-regulatory assistance to businesses, institutions, and communities including the Virginia Environmental Excellence Program and Virginia Green. For more information, please visit our web site at <http://www.deq.virginia.gov/Programs/PollutionPrevention.aspx>.

12. Energy Conservation. Any structures should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. For example, energy efficiency of the structures can be enhanced by maximizing the use of the following:

- thermally-efficient building shell components (roof, wall, floor, and insulation);
- high efficiency heating, ventilation, air conditioning systems; and
- high efficiency lighting systems.

Matt Heller at the Department of Mines, Minerals and Energy, (434) 951-6351, may be contacted for assistance in meeting this challenge.

13. Potable Water. Installation of potable water lines and appurtenances must comply with the State's Waterworks Regulations. The Virginia Department of Health (VDH), <http://www.vdh.state.va.us/ODW/>, administers both federal and state laws governing waterworks operation. For more information, contact the VDH's Lexington Office of Water Programs at (540) 463-7136.

14. Wastewaters. DEQ has approval authority over wastewater discharges per the State Water Control Law and corresponding regulations. This includes discharges or land application of any wastewaters generated from washing of materials, products, or vehicles, or other practices relevant to this project, including water contaminated by chemicals used on-site. DEQ also has approval authority over plans and specifications for sewage collection systems and treatment works (except drainfields and other on-site systems approved by the local health department), per the Sewage Collection and Treatment (SCAT)

2040 METROPOLITAN TRANSPORTATION PLAN

Regulations, <http://law.lis.virginia.gov/admincode/title9/agency25/chapter790/>. Any wastewaters generated by this project must be properly managed and disposed. For additional information and assistance, contact Brandon Kiracofe at DEQ-VRO (540-574-7892, Brandon.Kiracofe@deq.virginia.gov).

B. Keith Fowler | Deputy Regional Director | DEQ-Valley Regional Office | 4411 Early Road | P. O. Box 3000 | Harrisonburg, VA 22801 | 540-574-7812 | Keith.Fowler@deq.virginia.gov