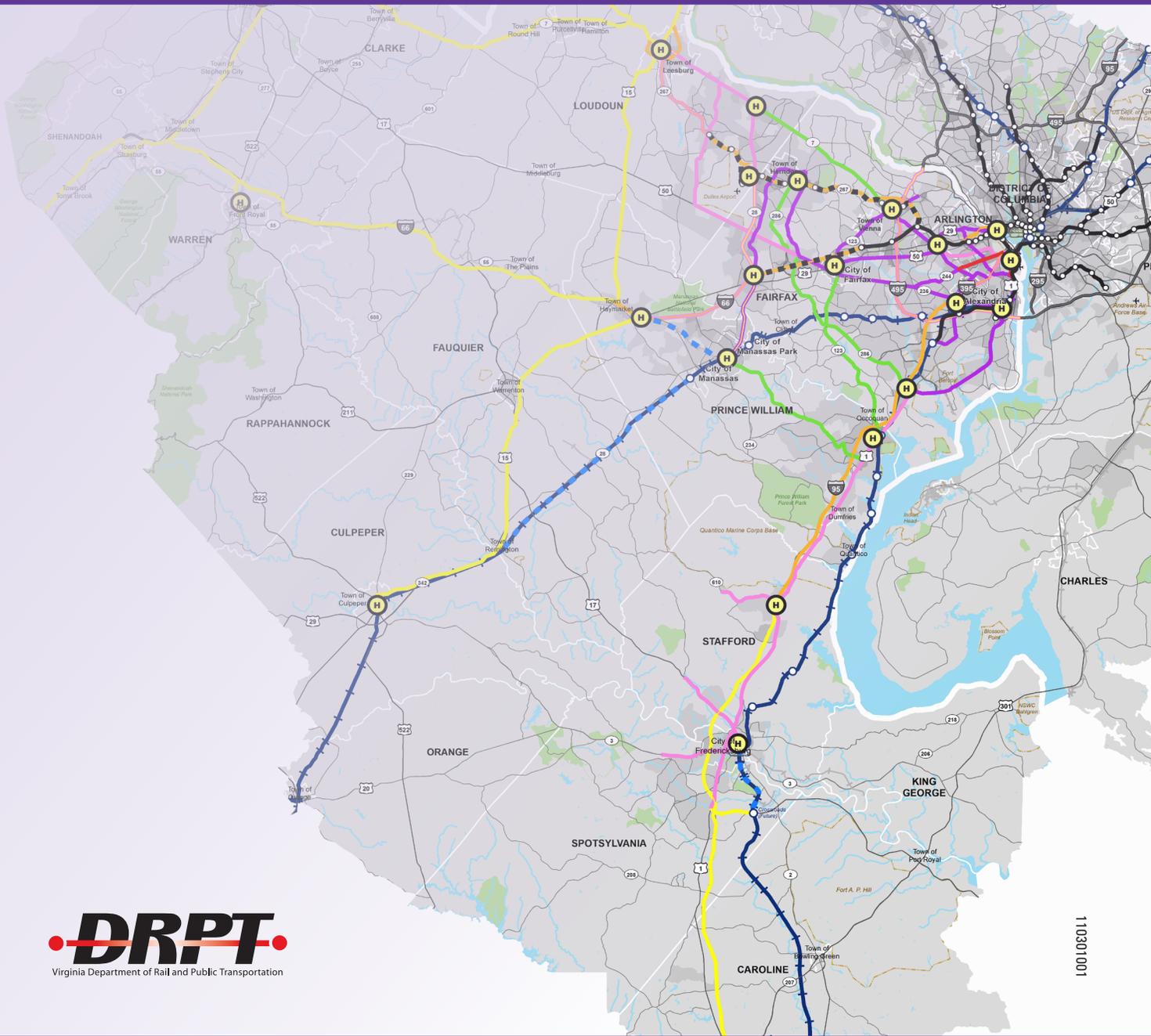


Visioning Mobility Beyond Boundaries

SUPER NoVa Transit/TDM Vision Plan

EXECUTIVE BRIEF

October 2012



VISION

The Super NoVa Transit/Transportation Demand Management (TDM) Plan envisions safe, strategic, and seamless mobility options for rail, transit, and TDM in greater Northern Virginia region

MISSION

Visioning mobility beyond boundaries

GOALS

- Increase mobility and transportation choice through strategic investments in transit and TDM
- Efficiently use transportation infrastructure to meet current and future transportation needs
- Integrate transportation and land use planning and policy
- Support sustained economic growth and prosperity

TRANSPORTATION CHOICE

Public transportation agencies—federal, state, regional, and local—have been chasing traffic congestion for decades.

The limited success in catching up with, or even not losing ground to congestion, has led many of the nation's largest urbanized areas to definitively shift their focus from a congestion relief-based approach, to one focused on people and mobility. An increasing number of communities are looking to maximize the utility of the transportation system and increase its ability to move people, by whatever manner they choose to travel.

NEW THINKING

The prosperity of the greater Northern Virginia region has been remarkable over the past 50 years. Population growth that has occurred has made the area the most populous in Virginia. Northern Virginia has become an employment destination for people from three states—Virginia, Maryland, and West Virginia—and the District of Columbia. Growth in population and jobs has created tremendous benefits for *Virginia, as well as the Washington Metropolitan area. It has not been without challenges.*

Recognizing the current and anticipated mobility challenges facing the northern part of Virginia, the State's leaders through Virginia Department of Rail and Public Transportation (DRPT), initiated a Vision Plan development process for transit and TDM in the greater Northern Virginia region. The Super NoVa Transit and Transportation Demand Management (TDM) Vision Plan expanded the mobility dialogue beyond regionally traditional local, regional, and state boundaries. The Plan looked at the needs of today, as well as those of the future—2040.



Figure E.1: Project Study Area

VOICES IN THE PLANNING PROCESS

The vast geography of the Super NoVa area, diverse needs of travelers, and multifaceted agency roles and responsibilities in the region contributed to a broad engagement approach being undertaken during the planning process. Working sessions with stakeholders and the public and communication through traditional and new media helped to reveal regional transit and TDM needs. Themes of input are summarized at the top of the next page.

STAKEHOLDERS

Stakeholder meetings were important in collecting the many public agency voices during the planning process. Staff from public agencies across the study area participated in four rounds (two meetings in each round) of working meetings throughout the study area. Each of the rounds of meetings corresponded with decision points during the study. These meetings helped to provide insight into regional transit and TDM challenges, opportunities, needs, and recommendations.

Meeting 1: Introducing the Vision Plan

During this round of meetings, stakeholders were introduced to the study and its vision, mission, and goals. Stakeholders also were asked to provide initial input on regional opportunities, constraints, and needs.

Meeting 2: Defining Regional Needs and Future Concepts

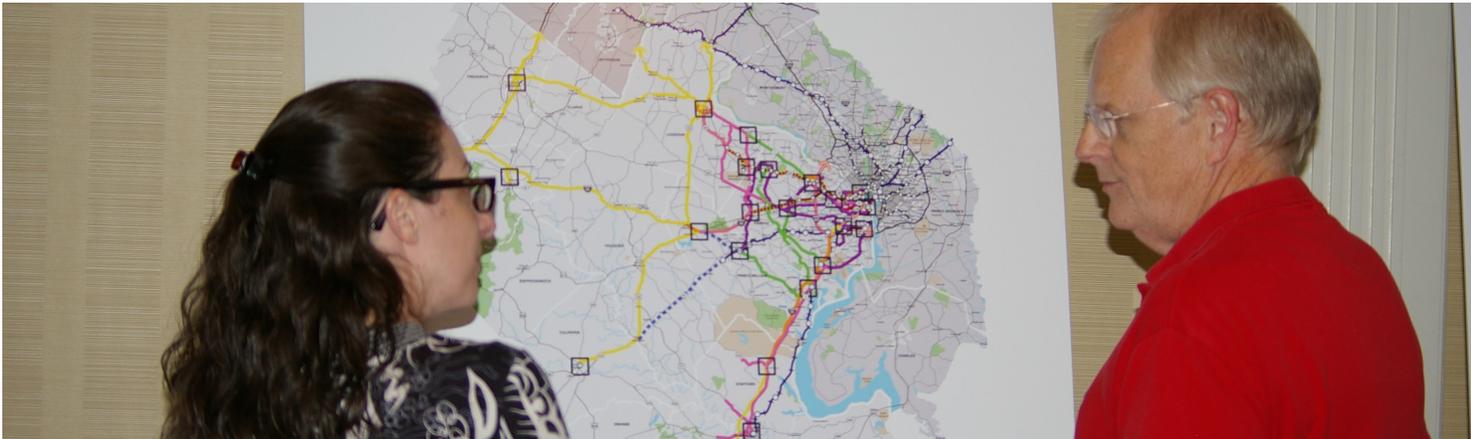
This round of meetings involved discussion on land use, travel demand, and population and employment forecasts. It focused on defining regional needs and identifying creative approaches in serving future regional needs.

Meeting 3: Initial Vision Plan Recommendations

The third round of meetings focused on the presentation, discussion, and refinement of future transit and TDM recommendations.

Meeting 4: Articulating the Vision Plan

The final round of stakeholder meetings was used to present and articulate the Vision Plan with stakeholders as well as receive final feedback on recommendations.



THEMES OF INPUT:

CONNECTIVITY *travel choice* **information**
seamless travel **reasonable cost** *quality access*
coordination **sustainability** *service expansion*
competitive travel time *respect for communities*
economic benefit *travel related to work* **RECREATION**

PUBLIC

Public meetings held throughout the study coincided with significant project milestones. Like the stakeholder meetings, the public meetings were distributed throughout the Super NoVa area. Each meeting was held at an accessible location with transit access. Meetings were open house style, with a brief presentation and interactive dialogue with the project team. The brief summaries below describe the focus of the three rounds of public meetings.

Meeting 1: Introducing the Vision Plan, Sharing Stories about Regional Needs

Leesburg, Crystal City (Arlington County), Warrenton, and Fredericksburg

Four meetings were conducted during this round of public meetings. During these meetings, the study's purpose and mission were introduced. The first round of public meetings also offered the public the opportunity to share ideas with the study team.

Meeting 2: Defining Regional Needs and Future Concepts

Triangle, Front Royal, and Courthouse (Arlington County)

The second round of meetings was used to work with the public to better define regional needs as well as concepts to address people's mobility challenges of today and the future.

Meeting 3: Vision Plan Recommendations

Alexandria, Manassas, and Herndon

During this round of meetings, the study team presented recommendations and offered the public the opportunity to review draft recommendations and provide comments and insight into next steps for the Vision Plan.

DEFINING THE NEED FOR MOBILITY

PEOPLE AND JOBS

The study evaluated regional activity—the combination of population and employment density—to help in the identification of regional transit and TDM needs.

Population and employment forecasts for 2040 were compiled from local, regional, and state plans and analyzed at the regional as well as local and corridor scales. Forecasts indicate that by 2040, the region will grow by more than 1.6 million jobs and 2.1 million people. Although considerable population and employment density will remain clustered in the traditional center of the region, significant growth is anticipated along nearly all of the region's major transportation corridors. Several findings from the activity density analysis include:

- Expansion of the urbanized center of the region
- Increasing densities in already urbanized areas
- Greater density in the larger towns and cities outside the traditionally defined center of the region
- Significant increases in population and employment density along major transportation corridors

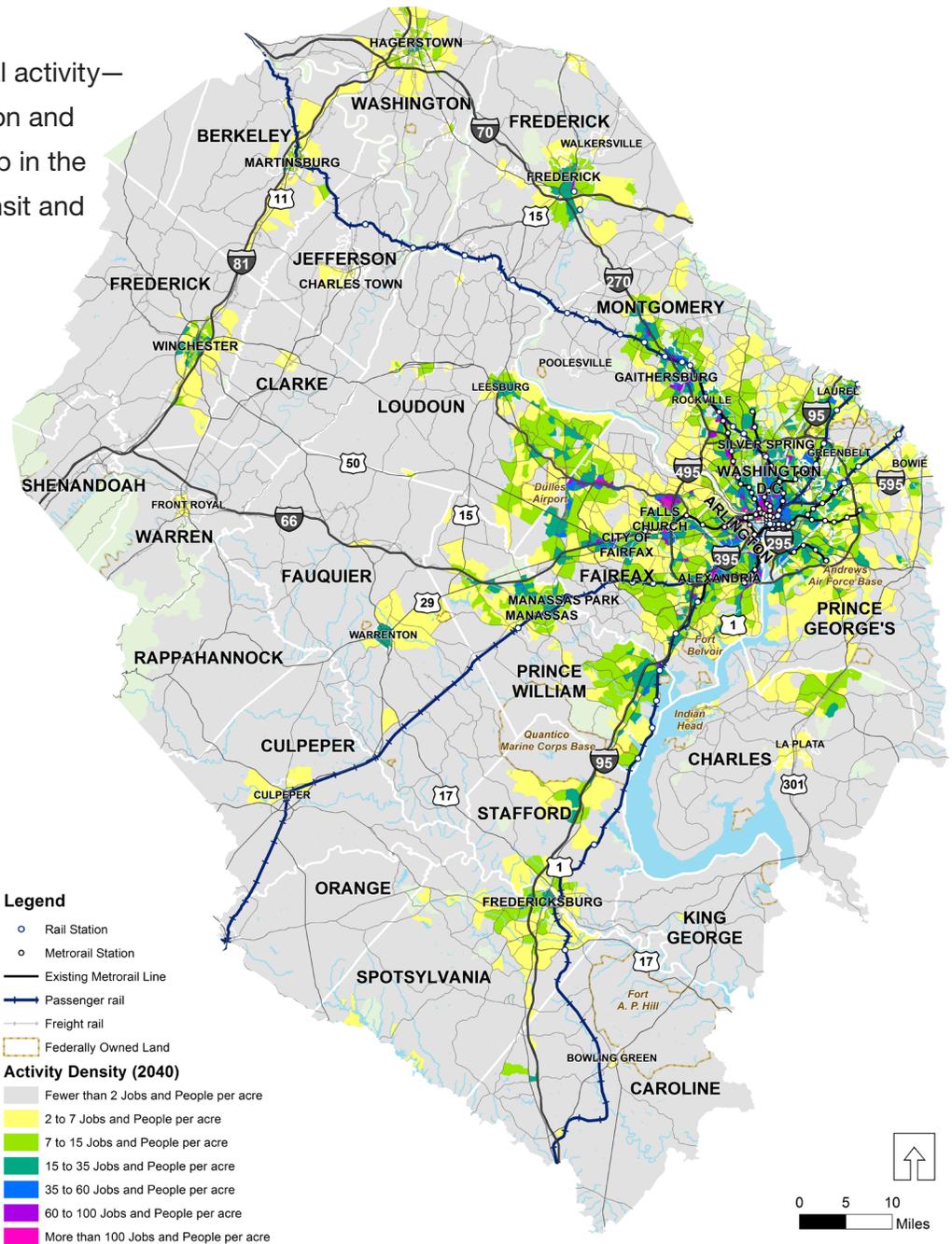


Figure E.2: Future Activity Density

LAND USE AND DEVELOPMENT

Land use and the places that are created by local policies are important to understand when defining regional transit and TDM needs. The anticipated land use of the region, as envisioned by comprehensive and other land use plans, was evaluated in terms of potential generation of transit demand.

As a part of the land use evaluation, regionally consistent land use definitions were developed and applied across the entire study area. Looking at the region on a consistent basis helped to reveal regional transit needs from a future built environment perspective. Findings from the land use analysis include:

- Increasing number of activity centers regionally
- Transformation of many currently lower density suburban areas to higher density urban areas
- Need for significant additional transit service
- Expansion of the region's primary urban area

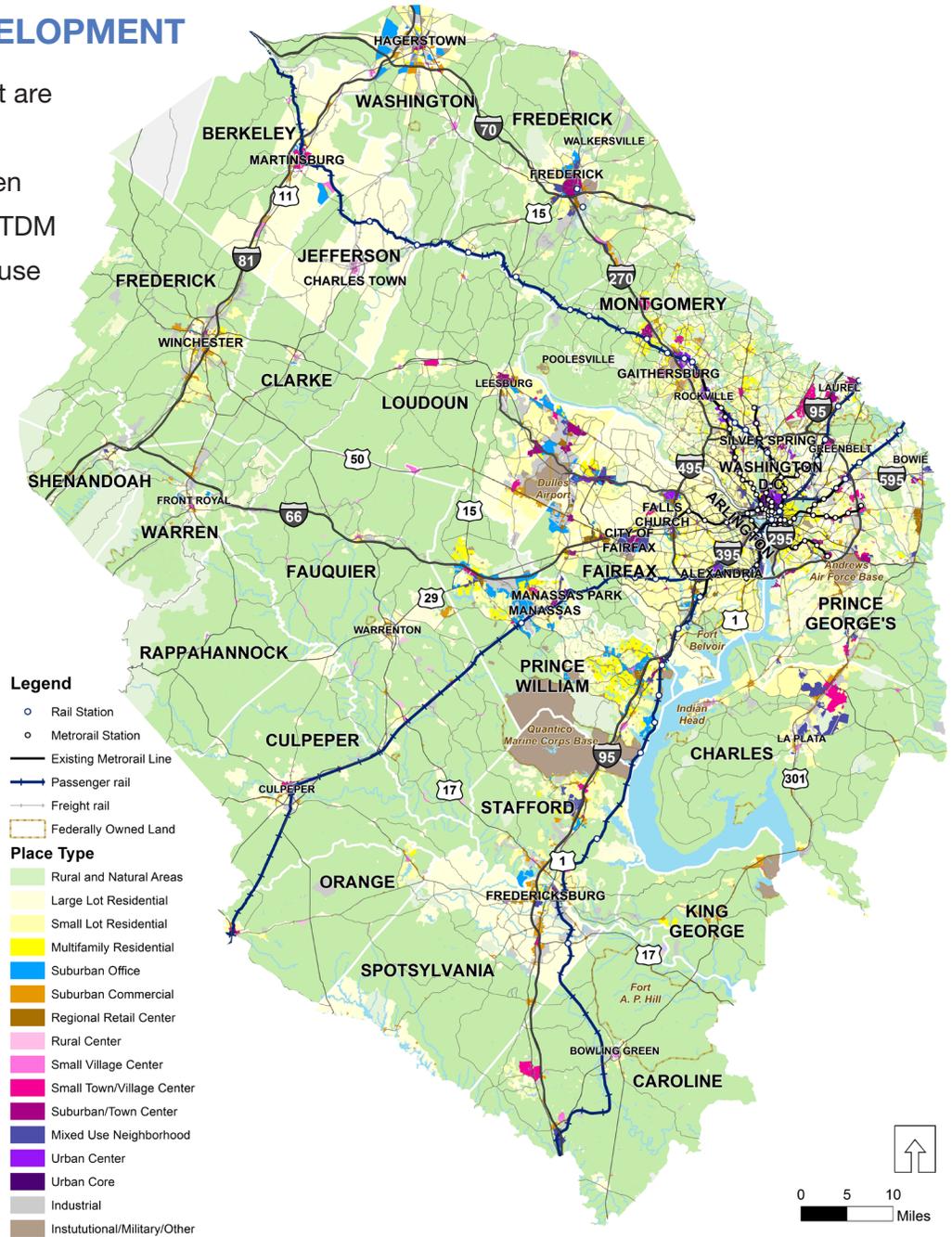


Figure E.3: Future Place Types

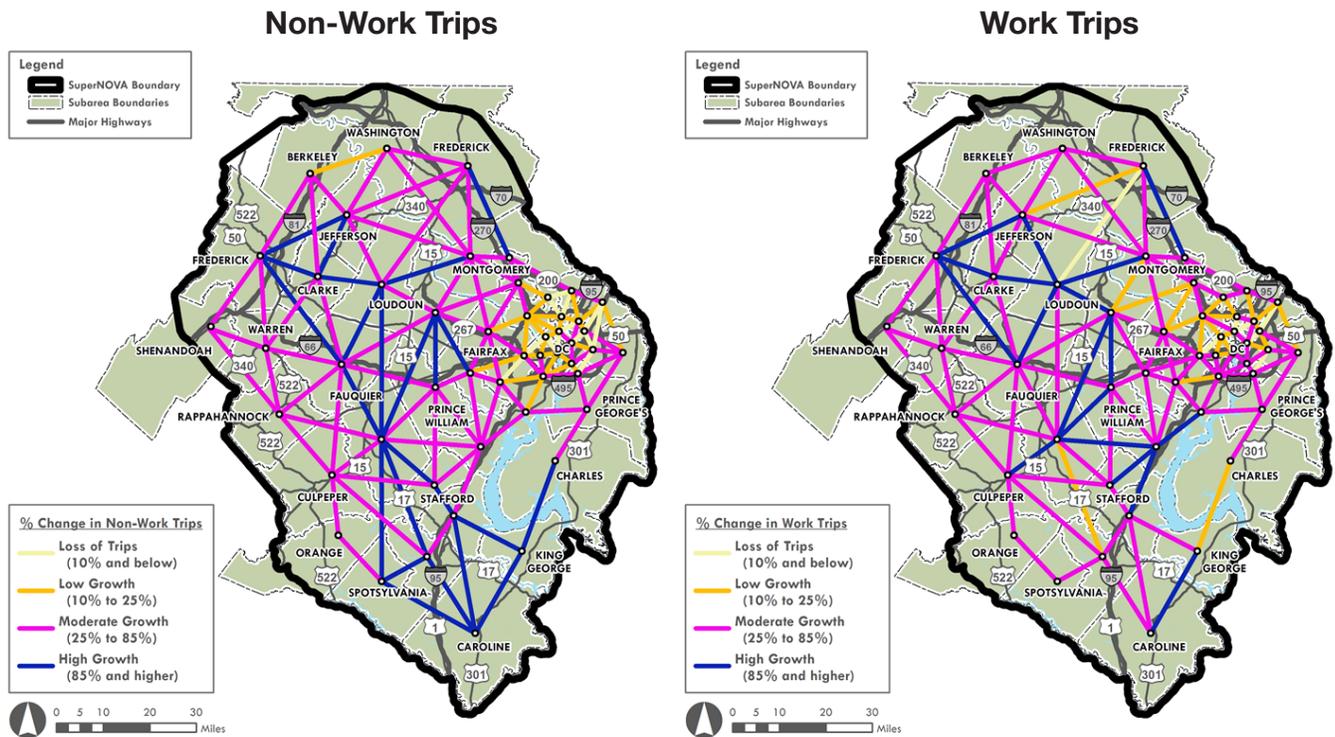


Figure E.4: Future Non-Work and Work Trip Summaries

TRAVEL

Regional growth will contribute to an increase in people’s need to travel. The development of travel demand forecasts (2040) during the Vision Plan involved combining information from four metropolitan planning organizations travel demand models.

Information from the Fredericksburg Area MPO, Winchester-Frederick MPO, Hagerstown-Eastern Panhandle MPO, and Metropolitan Washington Council of Government’s models was combined and formed the basis for the development of future (2040) travel demand forecasts. Through an evaluation of travel demand at an area-wide, sub-area, and corridor-level, the project team identified future travel trends and patterns as well as future needs. Key findings from the evaluation include:

Trends and Patterns

- Significant increase in reverse-commute trips along portions of I-95/395, I-66, Dulles Corridor, and I-270 in the most urbanized parts of the region
- Significant increase in demand in major radial corridors such as I-66, I-95/395, Dulles Corridor, and I-270
- Increase in short-trips in the traditionally defined center of the region
- Increase in circumferential demand along major circumferential routes such as Fairfax County Parkway, Route 123, Route 234, Prince William Parkway, Route 28, and I-495

Needs

- Increased level of multi-jurisdictional operation of transit services
- Expansion of, and augmentation to existing transit facilities and services, and TDM programs along regional radial freeway and interstate corridors as well as major arterials
- Significant investment in new circumferential transit facilities and services and TDM programs

DIFFERENT VISIONS ON GROWTH

Understanding that there is the potential for shifts in the location and magnitude of future growth, a sensitivity analysis was conducted as a part of the planning process.

Decision-makers are increasingly asking and answering questions related to alternative future growth scenarios as a part of long-range transportation planning. Not unlike forecasts for any long-range planning study, those used as a basis for identifying transit needs in the Super NoVa could change. Figure E.5 describes the four “what if” scenarios studied. It also indicates the magnitude of change—20 percent—considered in each scenario.

High- and low-growth scenarios were developed by increasing or decreasing the population and employment forecasts for the region by 20 percent. The more centralized and dispersed scenarios maintained the base forecast number of jobs and people, but redistributed them regionally. Findings of the sensitivity analysis included:

- Regional transit and TDM needs are significant, irrespective of any of the four scenarios
- Shifts in population and employment would minimally affect needs identified by future base forecasts
- Increasing density in already urbanized areas increases local and regional transit needs in those areas
- Modest shifts in density from urban areas to rural areas does not create significant additional transit need in those areas

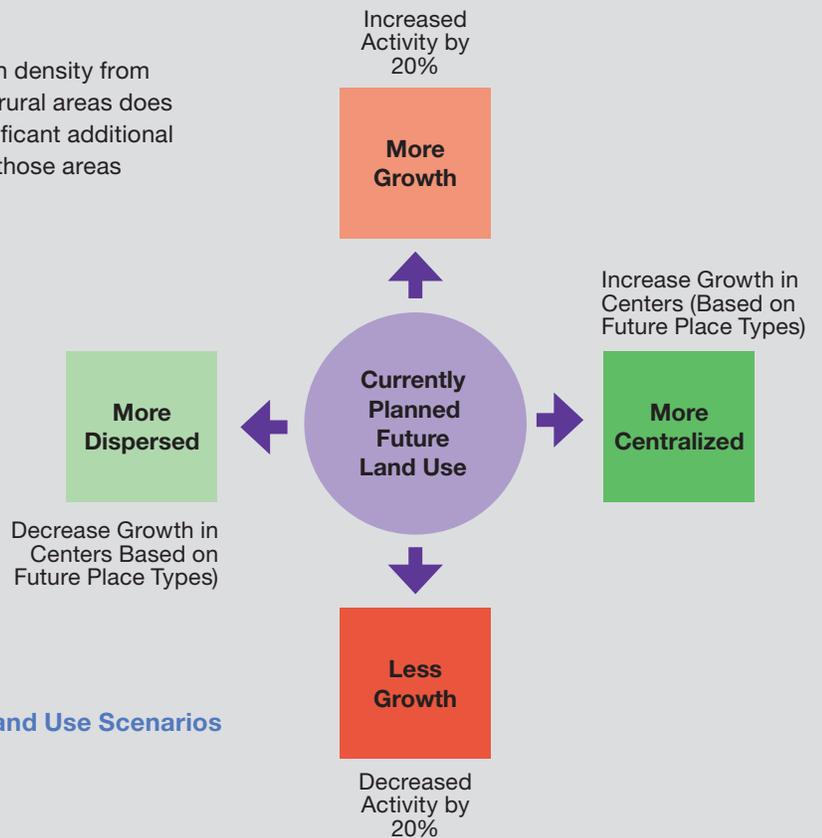


Figure E.5: Land Use Scenarios

THE VISION

REGIONAL TRANSIT NETWORK

The recommended transit network represents a significant expansion of transit facilities and services across the Super NoVa region as shown in Figure E.6. It was developed through a rigorous analytic process and through considerable coordination among stakeholders and the public.

The recommended transit network is comprised of an interconnected network of corridor- and area-focused transit facilities and services. It dramatically expands the availability of high-quality transit across the region in coordination with anticipated regional growth and identified needs. At a high level, corridor recommendations include:

- Expansion of rail (passenger and commuter) services in the I-95 and I-66/US 29 corridors
- Expansion of Metrorail in the I-66 and Dulles corridors
- Development of a regional bus network in lower density parts of the region
- New circumferential transit services and facilities
- Streetcar in inner areas
- High-capacity transit services (light rail, bus rapid transit, and rapid bus) on urban arterial corridors
- Expansion of all-day transit services in the I-95/395, Dulles, and I-66 corridors
- Creation of a system of regional transportation hubs



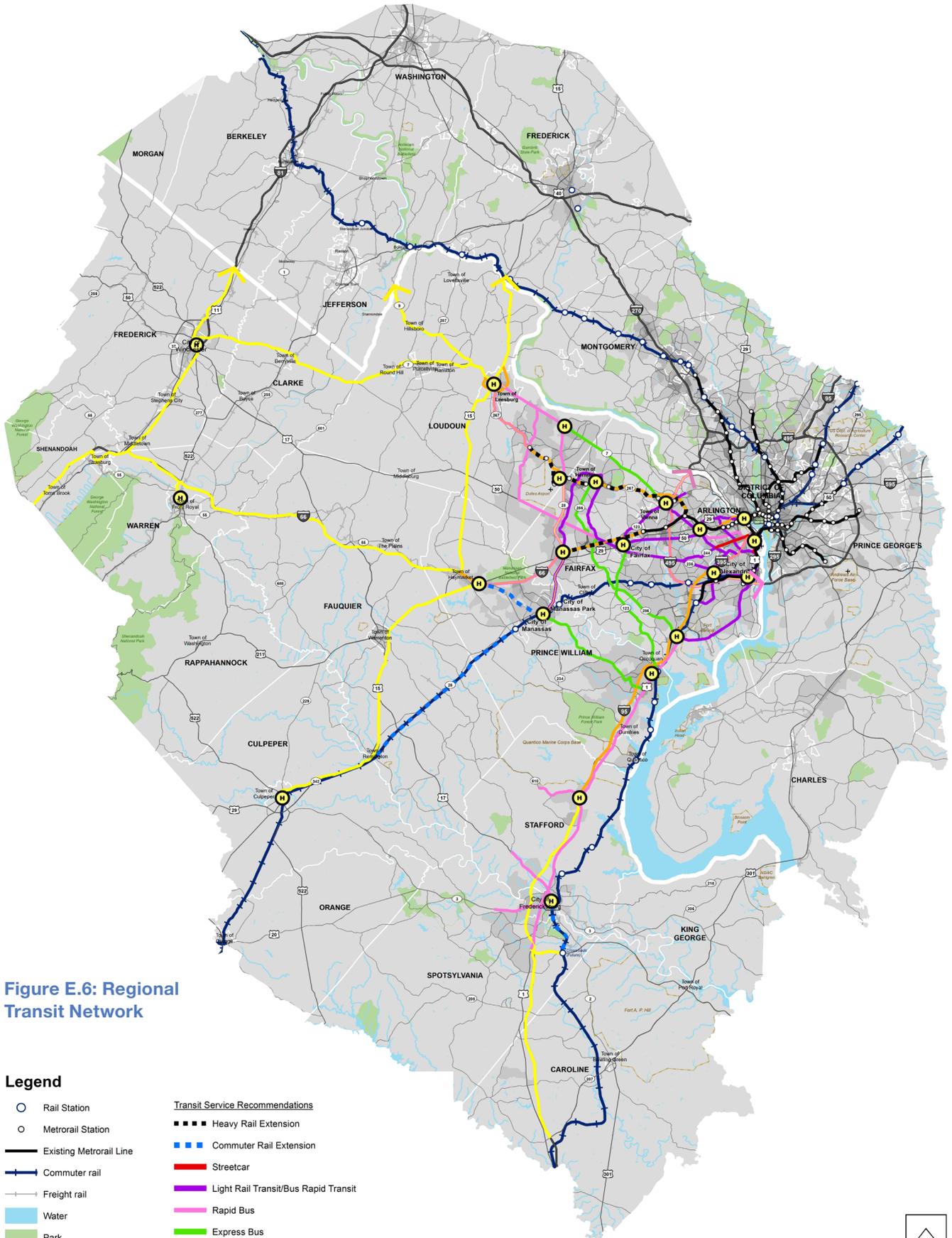


Figure E.6: Regional Transit Network

Legend

- | | |
|---------------------------------|---|
| ○ Rail Station | Transit Service Recommendations |
| ○ Metrorail Station | ▬▬▬ Heavy Rail Extension |
| — Existing Metrorail Line | ▬▬▬ Commuter Rail Extension |
| ▬ Commuter rail | ▬ Streetcar |
| ▬ Freight rail | ▬ Light Rail Transit/Bus Rapid Transit |
| Water | ▬ Rapid Bus |
| Park | ▬ Express Bus |
| Federally Owned Land | ▬ Regional Commuter Bus on Existing Express or HOV Lane |
| Lowest Activity Density (2040) | ▬ Regional Commuter Bus |
| Highest Activity Density (2040) | Ⓜ Potential Intermodal Hub |



HIGHER-CAPACITY TRANSIT NETWORK

Growth in the center of the region will create a tremendous need for higher-capacity transit facilities and services. A dramatic investment in Rapid Bus, Bus Rapid Transit (BRT), and Light Rail Transit (LRT) will be needed along major arterial and freeway corridors throughout the center of the region, as shown in Figure E.7.

Arlington County, Alexandria, and Fairfax County, among others, already recognize the need to invest in additional high-capacity transit and are studying, planning, implementing, or operating these services. The region will need to expand on the actions of these and other localities to increase the reach of the higher-capacity transit network. The higher-capacity transit network vision is for frequent, extensive (duration), higher-speed services coordinated with sophisticated facilities. This network would benefit from features that include:

- Fully dedicated transit runningways separated from non-transit traffic (most BRT and LRT lines)
- Partially dedicated transit runningways separated from non-transit traffic (some BRT, most Rapid Bus lines)
- Traffic signal preemption (some BRT and LRT lines)
- Transit signal priority
- Queue jump lanes (Rapid Bus and some BRT lines)
- Level or nearly level passenger boarding
- Off-board fare collection
- Substantial stations with significant passenger amenities (BRT and LRT and some Rapid Bus lines)
- Service- and line-specific branding and identity
- Robust real-time passenger information
- Special vehicles



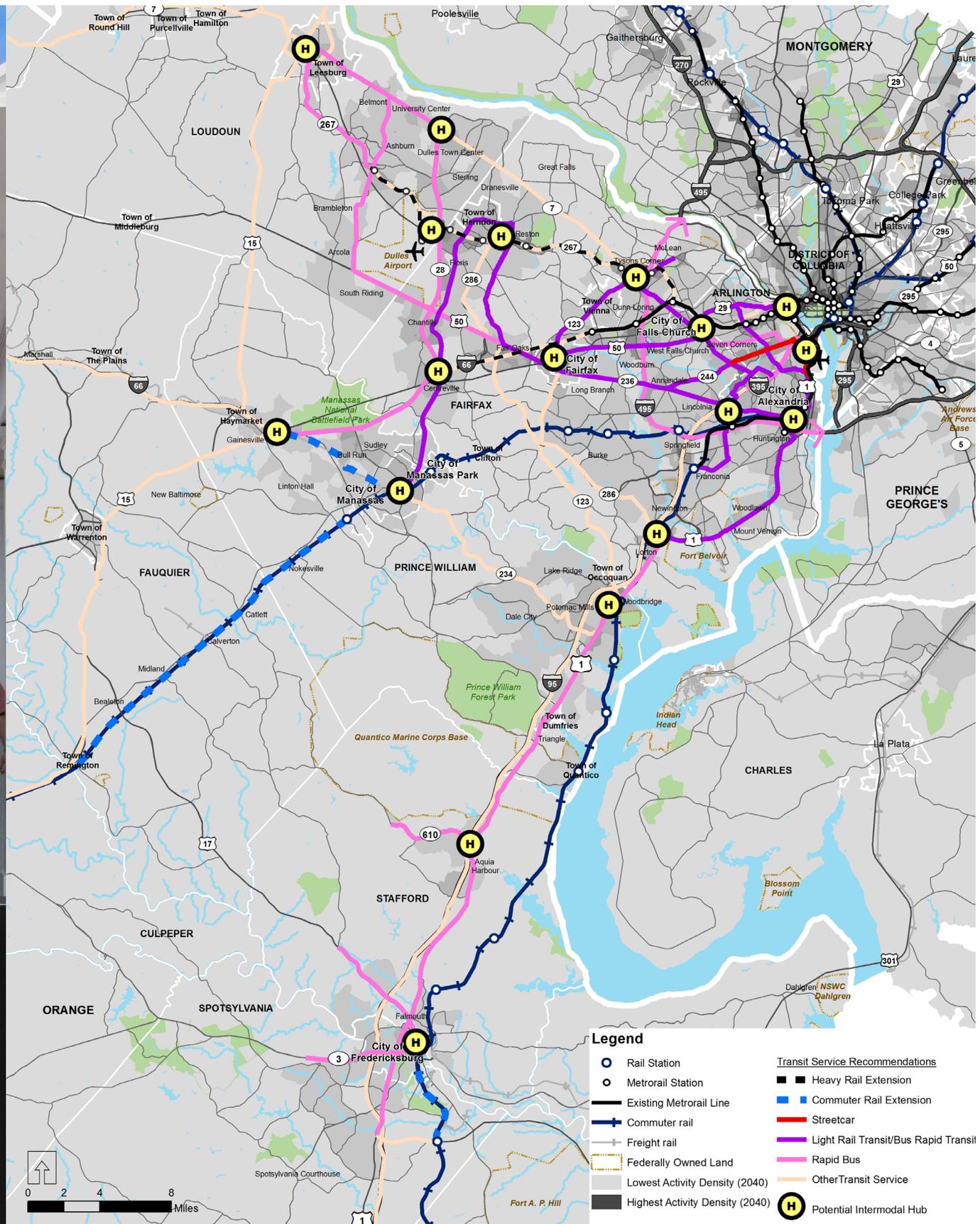


Figure E.7: Recommended Higher Capacity Transit Network

TRANSIT FACILITIES

The planning, development, construction, and operation of major region-serving transit facilities often falls on individual jurisdictions, at considerable cost to the traveling public and the jurisdiction. Too often, critical facilities are delayed in their development as a result of the burden of implementation falling on a single or several entities, rather than the regional group who will ultimately benefit from the facility. Transit facilities will need to be viewed as regionally beneficial infrastructure in the future.

HUBS

The transit network will need to be supported by appropriately scaled transfer, intermodal, and multimodal hubs. The Vision Plan envisions transit hubs as purpose-developed facilities where transit connections can be easily made and where travelers can have easy and comprehensive access to TDM services.

Hubs will need to be of many different scales and purposes, respecting context and role. Some

hubs would stand-alone as transit facilities, while others may be integrated into other facilities and development. Features and services that may be provided at hubs include:

- Real-time traveler information
- Bikesharing and carsharing
- Park-and-ride spaces
- Transit services
- TDM services
- Ridesharing services and accommodations
- Vanpool parking
- Secure bicycle storage
- Taxi, private shuttle, and private transit services
- Retail development
- Mixed-use development
- Access to area bicycle and pedestrian facilities

TRANSIT STORAGE AND MAINTENANCE FACILITIES

Transit vehicle storage and maintenance facilities are critical to the successful and efficient operation of transit services. The appropriate location and level of accommodation at these facilities enables operators to best serve their markets efficiently.

As the region's transit services evolve to be more regionally-focused, facility infrastructure and development processes will need to evolve. Already, Virginia Railway Express's (VRE) ability to expand services to the inner area of the region is limited by the ability of Union Station to store more train cars mid-day. Potomac

Rappahannock Transportation Commission (PRTC), Loudon County Transit (LCT), and numerous other commuter-service providers deadhead most or all of their fleet back to their overnight storage locations due to limited mid-day storage in the inner part of the region. Deadheading is costly to operators. At the same time, building facilities to reduce deadheading is costly for the urban localities where storage is most needed. The following are recommended related to future transit-vehicle storage and maintenance facilities:

- Identify and implement strategies to reduce demand for mid-day and off-peak transit vehicle storage
- Develop regional forecasts of transit vehicle storage and maintenance needs for overnight and mid-day (off-peak) periods
- Conduct regional planning as to the most beneficial location of new facilities
- Identify public and private partnerships in development, operation, and maintenance of new facilities
- Plan, develop, operate, and maintain new facilities to support regional transit services





CORE CAPACITY

Despite robust transit systems operating in many parts of the center of the region, significant capacity constraints exist and threaten the ability for these systems to expand and meet current and future transit demand. While many of these constraints are physically located in the center of the region—Arlington County, Alexandria, Fairfax County, and the District of Columbia—their operational impact creates ripple effects across the Super NoVa area. Significant investments are already, and will continue to be needed in the inner area of the region to support regional transit demand. Core capacity will need to become high regional priority if it is to be resolved.

Washington Metropolitan Area Transit Authority (WMATA), VRE, and transit operators throughout the center of the region, face innumerable challenges in meeting identified needs. As transit demand increases regionally, its effect will be multiplied in the center of the region. The following issues will need to be addressed to make progress on increasing core capacity:

- Inadequate fleet sizes and aging vehicles
 - Service reliability due to aging and insufficient infrastructure
 - Inadequate mid-day transit vehicle storage
 - Conflicts between passenger, commuter, and freight rail operations
- Station capacity at key transfer stations such as Gallery Place, L'Enfant Plaza, Metro Center, Farragut North, Farragut West, and Union Station
 - Line capacity for critical system links between Virginia and the District of Columbia and within the District of Columbia
 - Constraints on expanding the number of eight-car trains due to limits on rolling stock

LOCAL TRANSIT SERVICE

Projected growth in the Super NoVa area will create a tremendous need for additional local transit service. The Super NoVa area is currently underserved and will need a significant investment in local transit service to meet regional needs.

With planned growth, many of the region's localities will transition from rural and suburban densities, to suburban and urban densities. This transition will create the need for additional local transit services within individual jurisdictions and between jurisdictions. The following is a brief summary of findings related to local transit in the Super NoVa region:

- 2040 population increases by 58% in Virginia portion of Super NoVa area
- Service needs to increase by 111% to 137% to meet area needs
- More cross-jurisdictional local transit services are needed

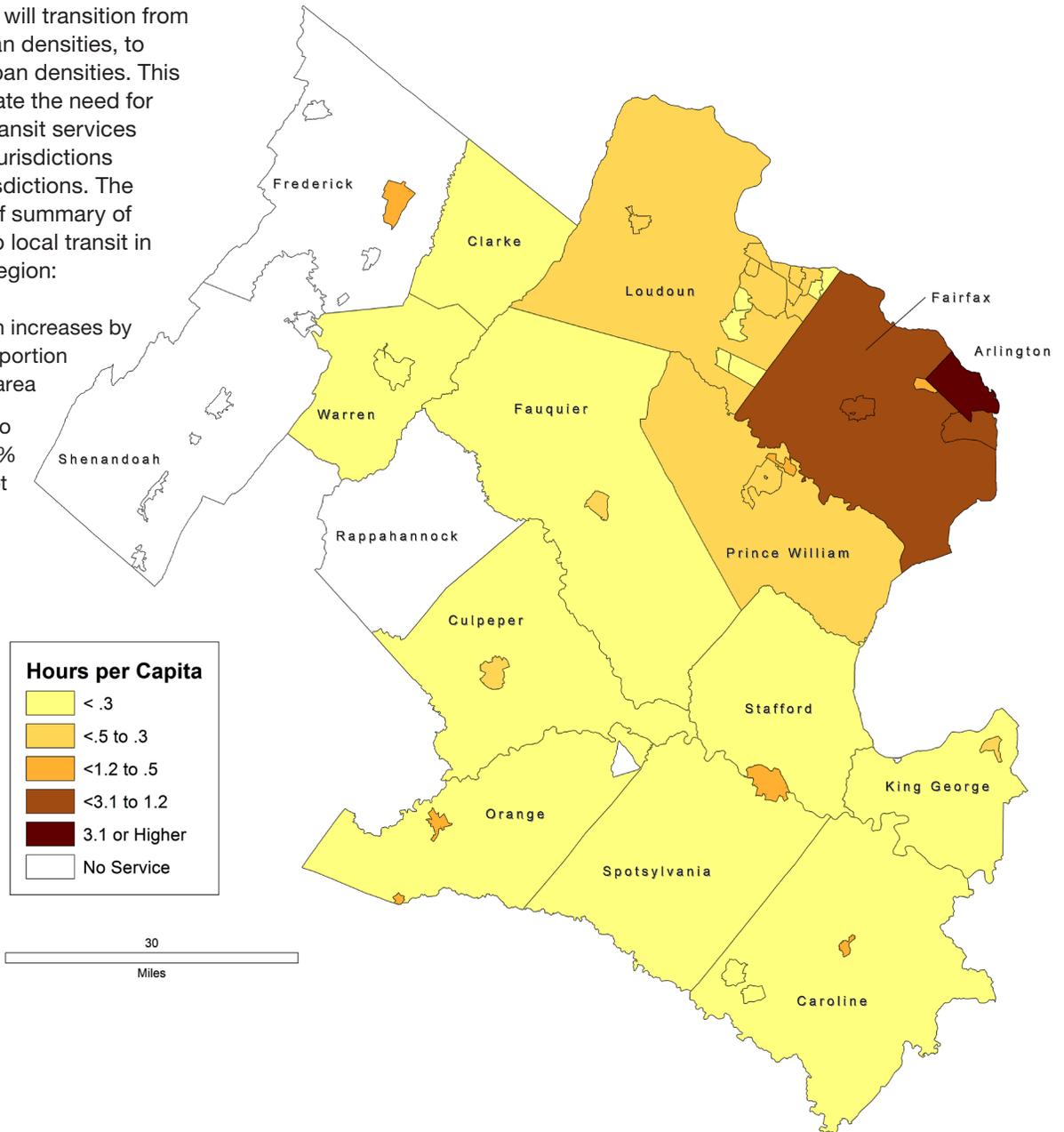


Figure E.8: 2010 Service Hours/Capita

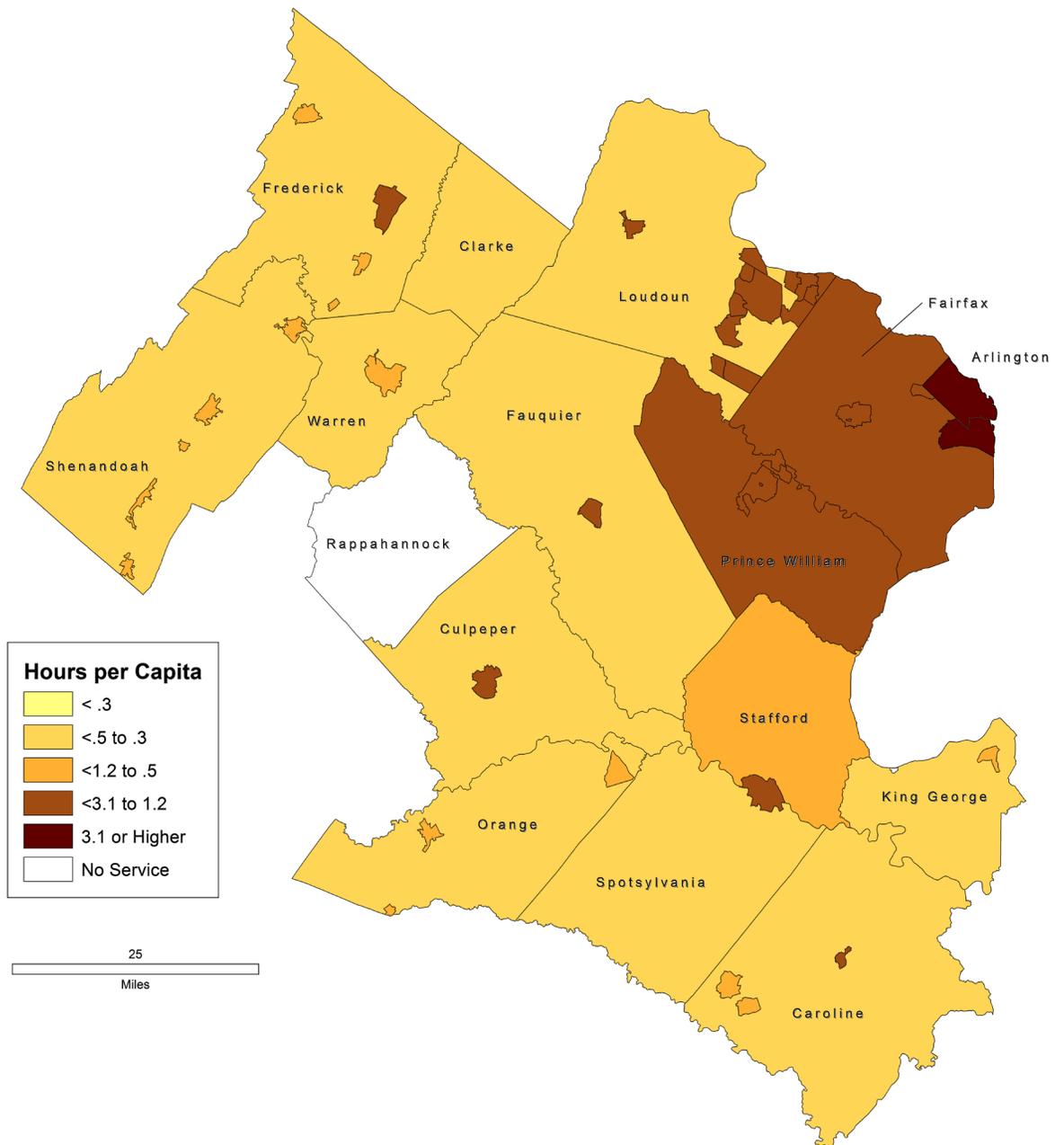


Figure E.9: 2040 Service Hours/Capita

TRANSPORTATION DEMAND MANAGEMENT

Transit facilities and services will need to be complemented by robust TDM programs and services. TDM can have a tremendous effect by increasing people’s travel choices and ultimately, their mobility. TDM programs and services will need to be tailored for different area types, trip purposes, destinations, and corridors throughout the region.

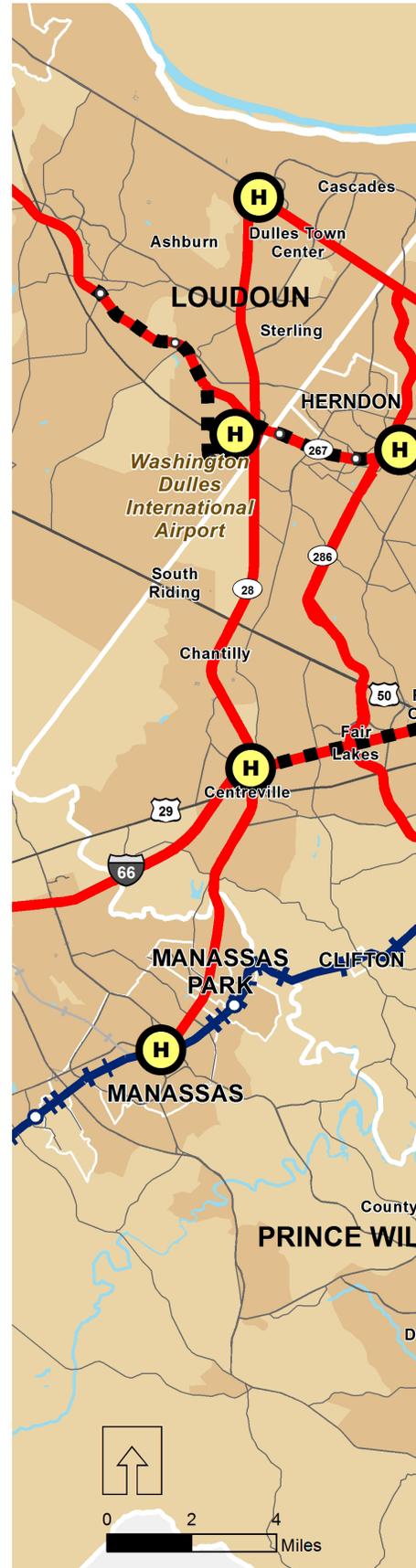
The Super NoVa region already has a number of effective TDM agencies whose reach extends throughout the area. These agencies provide a wide range of programs and services that offer people opportunities to travel differently, or in some cases, save the trip altogether. The continued growth of the region will create the need for an expansion of the programs and services offered by these agencies, as well as greater coordination among the agencies themselves. In addition to areawide strategies, the Vision Plan recommends the following hub and corridor focused strategies:

STRATEGIES FOR HUBS

- Real-time service information
- Park-and-ride capacity
- Slug lines/rideshare pick-up area
- Overnight vanpool parking
- Bike storage, bike trails/lanes
- Carshare
- Private shuttles/local transit
- Events

STRATEGIES FOR CORRIDORS

- Targeted media campaign
- Customized marketing materials
- Coordination with all area agencies
- Regular surveys to assess trends and needs
- Financial incentives to meet mode-split goals



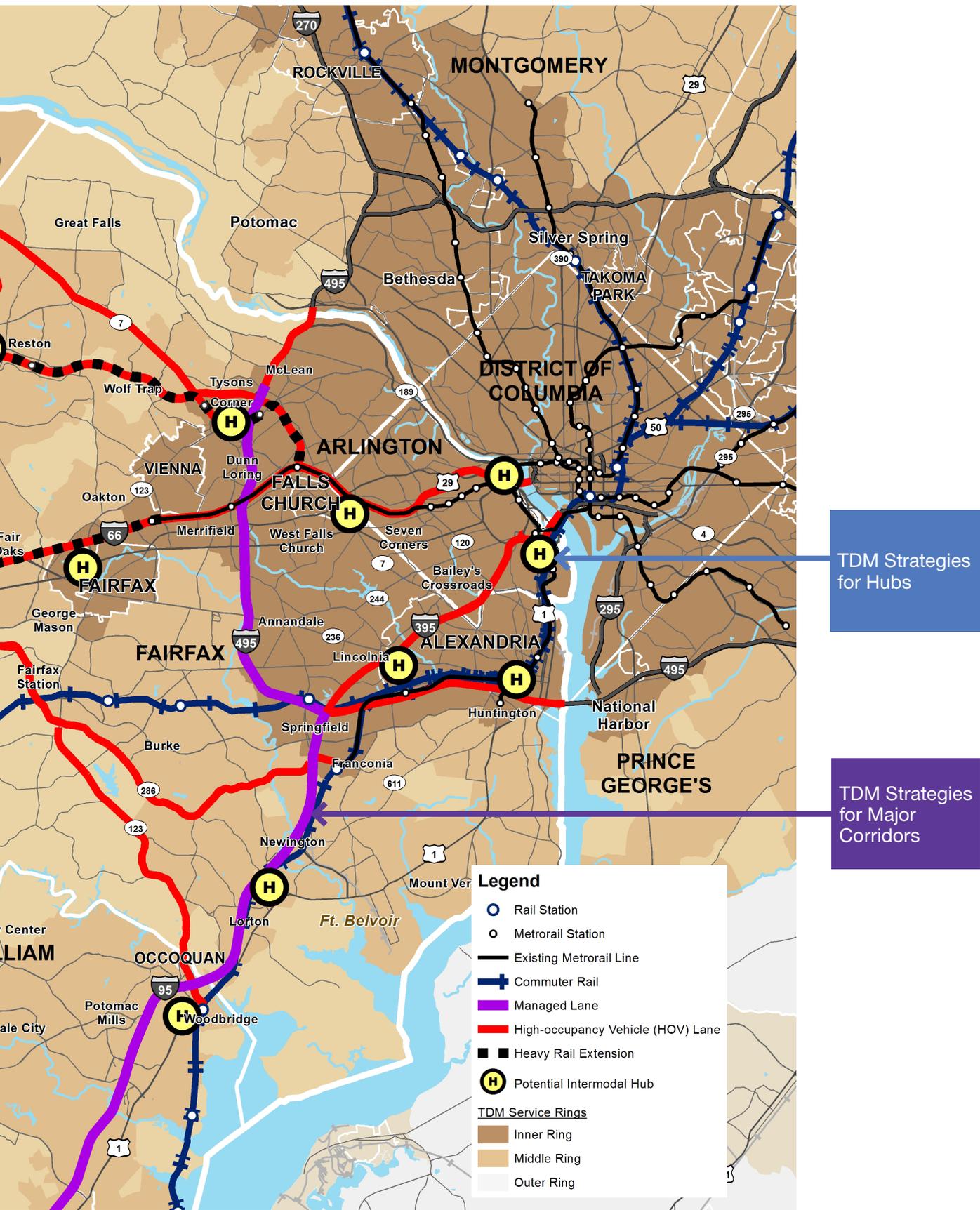


Figure E.10: TDM Strategies for Hubs and Corridors

POLICIES

MARKETING AND COMMUNICATION

- Coordinated marketing (services, programs, and facilities)
- Consistent branding (i.e., route names and service types)
- Common language to refer to transit and TDM services, facilities, and programs
- Educational programs tailored to serve:
 - Users (young, old, captive riders, choice riders)
 - Travel markets (long distance, local, specific corridors, and destinations)
- Cross-marketing with related industry and other modal (bicycle, pedestrian, and HOV) efforts
- Consolidated locations for consumers to obtain information on services, facilities, and programs
- Social media and mobile device application support

PLANNING

- Multi-jurisdictional transit and TDM planning
- Coordinated land use and transportation planning and policy-making
- Regional transit performance standards
- Performance-based transit funding
- Regional interoperability planning
- Continued Super NoVa transit and TDM dialogue (regular)
- DRPT guidance on transit-supportive land use characteristics and densities

OPERATIONS

- Super NoVa region cooperative transit service provider(s) or
- Coordinated operating plan(s)
- Simplify bus routes
- Local bus services coordinated to interface with regional transit services such as
 - commuter bus
 - commuter rail
 - intercity passenger rail
 - Metrorail
- Public private partnership in operations
- Fare structures (reduce penalty for transfers, route pricing, and private and public) to incentivize transfers
- Universal transit payment system
- Integrated corridor management
- Regional transit interoperability
- Operating cost sharing for cross-jurisdictional service
- Support evacuation plans and security
- Performance standards

FACILITIES

- Capacity improvements for VRE & Metrorail
- System of intermodal transit centers (including park-and-rides) with supporting infrastructure, services, programs, and technology
- Development of a system of hubs
- Innovative delivery methods for transit facilities
- Quality, context-sensitive community growth related to transit facilities
- Transit-vehicle storage and maintenance facilities
- Guidance on the shared use of roadway/HOT/HOV facilities for transit
- Accommodations for private bus and shuttle operations
- Shared- or joint-use facilities (i.e. sport facilities park-and-ride) that benefit transit and TDM



Source: Virginia Railway Express

ACCESS TO AND FROM TRANSIT

- Pedestrian and bicycle facilities in transit corridors
- Programs to expand bicycling and walking to/from transit
- Transit stops and stations that offer good access by walking and bicycling
- Secure bicycle parking at transit stops and stations
- Vehicle-sharing systems at transit stops and stations
- Para-transit support
- Guidance for access to transit provisions in local development ordinances
- Facilitate access for transit-dependent populations

TECHNOLOGY

- Comprehensive, simple travel information (i.e., 511) for transit and TDM
- Develop a regional AVL system
- Open-source data
- Private investment in traveler information applications
- Intelligent transportation systems (ITS) as transportation infrastructure
- Inter/intra agency technology integration
- Multi-jurisdictional technology planning
- Consistent policy on technology infrastructure and platforms
- Expand and coordinate regional transit signal priority application and deployment

Source: PRTC



ACHIEVING MOBILITY BEYOND BOUNDARIES



The Super NoVa Transit/TDM Vision Plan development process was a successful start to broader regional coordination on transit and TDM. Actions will need to follow and support facility, service, and policy recommendations outlined by the Vision Plan. Achieving mobility beyond boundaries will take commitment and collective will from local, regional, state, and federal officials as well as the traveling public. The following are recommended as a starting point for continued dialog and coordination on the Super NoVa Transit and TDM Vision Plan:

Follow the Policy Articulated in the Vision Plan

The policy recommendations for the Vision Plan address topics related to improving mobility through transit and TDM. The policy statements are intentionally simple to allow local, regional, and state policy-makers the opportunity to mold the policies to fit the local context, while maintaining the intent of the statement.

Integrate Vision Plan Recommendations into Local and Regional Policies, Plans, and Programs

There is value for local and regional planning organizations to take the Vision Plan into consideration as input into their local and regional plans and programs. The Vision Plan's recommendations provide a high-level view of the super-region based projected travel demand, demographics, and land use. As local and regional plans are updated in the future, Super NoVa recommendations should be an input for consideration by local and regional agencies.



Develop an Action Plan to Pursue Implementation

The Vision Plan is a long-range vision. The series of recommendations that form the plan will need to be incorporated into local and regional plans so that they can be prioritized and implemented. Additionally, an implementation plan identifying roles, responsibilities, costs/benefits, priorities, and timetables should be developed as a tool to guide local and regional decision-making and programming.

Continue Regional Coordination to Ensure that the Region has Accountable and Comprehensive Multimodal Planning and Programming Leadership

The dialog that has been started by the Vision Plan should be continued. Planning and programming at a scale that is consistent with travel desires and transportation demand of the super region has the potential to be beneficial in better meeting regional needs and increasing the region's competitiveness in terms of receiving federal assistance on transportation programs.

Identify and Support Strong and Comprehensive Regional Leadership and Champions

As the Super NoVa area is discussed and coordination efforts continue, there will be the need to foster and encourage multimodal leadership at all levels of state, regional, and local government. Without a super-regional mandate to coordinate, there is tremendous need for voluntary cooperation and coordination.

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ACKNOWLEDGEMENTS:

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Visioning Mobility Beyond Boundaries