



CHAPTER 5 TRANSPORTATION







Goals

- **Provide for efficient and reliable movement for all transportation modes**
- **Manage the impact of regional and local traffic on residential neighborhoods**
- Maximize safety and dependability
- Encourage people to walk and bicycle
- **Reduce congestion for environmental benefits**
- Manage the effects of regional development and travel trends



Introduction

This chapter describes the Transportation Plan, a long-range plan to guide transportation facilities and services in the Town of Vienna. The plan meets state and regional planning requirements and addresses local transportation needs for street, transit, freight, bicycle, and pedestrian improvements (commonly referred to as a “multi-modal transportation system”).

The plan provides transportation choices for residents, employees, visitors, and firms doing business in Vienna, with a balanced multi-modal transportation system to support neighborhood livability and economic development. The Transportation Plan is a living document, recognizing that implementation must remain flexible to changing conditions and priorities. It should be reviewed and updated on an as-needed basis.

Organization and Use

The Transportation Plan describes the existing facilities, usage, and trends of each major piece of transportation in the Town of Vienna, listed alphabetically:

- **Bicycle Mobility**
- **Demand and System Management**
- **Parking and Curbside Management**
- **Pedestrian Mobility**
- **Streets**
- **Transit**

Together, these pieces define the Town’s transportation system for all modes. Within each there are identified objectives with specific supporting policies and indicators to measure the level of success of the policies.

Transportation Network

The Town's transportation network is generally defined by the single major commercial corridor (Maple Avenue), several arterial streets and an interconnected residential road network. Vienna is located within an urbanizing region, and is surrounded and served by substantial highway and transit infrastructure. This relationship provides particular opportunities and challenges. The Town is benefited by access to a multi-modal transportation network which links employment and activity centers. However, the Town has limited influence regarding land use and transportation decisions made outside its jurisdictional limits, although they may directly affect the Town. In particular, Maple Avenue is subject to significant commuter traffic, as well as service decision-making by several multi-jurisdictional transit agencies.

Transportation Needs and Changing Demographics

Transportation planning continues to evolve from a singular focus on the automobile to one incorporating multiple modes of travel, including transit, bicycling, and walking. The reasons for this change are varied, but a significant element is the changing needs and demands of the population as a whole. In particular, aging residents that cannot rely on driving due to health or mobility reasons, must have access to other travel options to connect them with shopping, services, and recreational and social activities. At the same time, baby boomers are seeking communities which reduce time in the automobile, primarily through shorter commutes and access to other modes of travel. Millennials and others have also expressed a preference for increased transit access and options. Essentially, residents of all ages desire a range of effective transportation options.

Maple Avenue Vision

The new zoning district supports mixed-use development, including ground floor retail



The MAC zone supports denser, mixed-use development with a variety of transit options.

and office space, with residential and other complimentary uses on upper floors for those properties abutting Maple Avenue between James Madison Drive and East Street. The new zoning district provides height and mixed-use density incentives to support redevelopment that enhances the corridor through:

- New streetscape improvements
- Well-designed architecture
- Increased public amenities

In addition, this land use pattern is intended to help promote transit use by focusing density and mixed-use development along the corridor. The Maple Avenue Vision, as implemented through the MAC intends to be an important complement to the Town's stable residential neighborhoods. The corridor will provide a variety of housing, commercial space, and transit options that provides existing and future Town residents a choice in lifestyle which currently is not available.



Regional Transportation Trends

Vienna is directly affected by several components of the regional transportation network. I-66 (Custis Memorial Parkway) crosses the southern tip of the Town and is the major east-west corridor connecting from northern Virginia directly to downtown Washington, D.C. The western end of I-495 (Capital Beltway) is located 1.25 miles east of the Town. The Dulles Toll Road (Virginia State Route 267) and Leesburg Pike (Virginia State Route 7) are located near the northern end of the Town. Vienna is also located in between the Orange Line and Silver Line of the Washington Metropolitan Area Transit Authority (WMATA) Metrorail service. Several of these transportation components have seen and will continue to see improvements in the upcoming years. Leesburg Pike, for example, will be widened from 4 lanes to 6 lanes near the Dulles Toll Road and will include pedestrian

improvements. I-66 will likely see significant changes in the upcoming years.

Interstate 66

Currently, the I-66 corridor outside the Capital Beltway (I-495) includes High Occupancy Vehicle (HOV) lanes, regular travel lanes, and shoulder lanes which are only available during peak periods. I-66 traffic inside the Beltway is restricted to HOV use eastbound during morning rush hours and westbound in the evening rush.

The Virginia Department of Transportation (VDOT) and the Virginia Department of Rail and Public Transportation (DRPT) are currently analyzing the I-66 corridor, with the aim to add capacity, increase multi-modal use and create more predictable travel times. Under the proposed plan, I-66 would be improved to provide an additional regular lane, two

express lanes, and access between the express lanes and commuter parking facilities. It is expected the study will be completed in 2016, with construction to begin in 2017. The Town will continue to act as a stakeholder in the assessment process to understand the potential impacts of the project and avoid any negative effects. Of particular concern is the potential for impacts to Town parks, takings due to widening, the effects of noise and air pollution, and changes to traffic patterns which may affect the Town network.

A separate, but complimentary project is also underway inside the Beltway. This study is presently identifying multi-modal and corridor management solutions that can be implemented to reduce highway and transit congestion and improve overall mobility along the I-66 corridor, between I-495 and the Theodore Roosevelt Bridge. Current plans indicate the possibility for tolling the entire segment, with HOV exclusions. The Town will continue to evaluate the study recommendations.

Transit

WMATA's Metrorail and Metrobus, and the Fairfax Connector bus service provide the other significant components of the regional transportation network with impacts to the Town. Metrobus service through the Town provides links to the broader region. Fairfax Connector service compliments the Metrobus service and provides multiple routes throughout the Town.

The Vienna-Fairfax-GMU Metrorail Station, located just southwest of the Town limits, is the terminus of the Orange Line and a major commuter parking destination. The station sees about 12,000 passengers daily and is the location of 5,840 parking spaces. The station is also a hub for a variety of local and regional transit services.

In July 2014, Metrorail's new Silver Line opened with five new stations, including four in Tysons. The 11.7 mile extension is the first phase,

and the line will eventually extend to Dulles International Airport. In response to the new rail service, Metrobus and Fairfax Connector bus services were reconfigured in 2014 to adjust to expected changes in commuting habits and the need to direct ridership to the Silver Line.

The Town continues to work with Fairfax County regarding regional developments that may affect the transportation network. Tysons, the Dunn Loring-Merrifield area, and MetroWest are all areas that have seen high-density development.

Tysons

In 2009, Fairfax County approved a new [Comprehensive Plan for the Tysons area](#), establishing goals for 200,000 new jobs and 100,000 new residents by 2050 (they are currently working on updating their Comprehensive Plan). The transformation of Tysons into a major urban activity center will have impacts on the surrounding transportation network, including the Town of Vienna. Today, the vast majority of people traveling to, from, within and through Tysons do so using private automobiles. The extension of the Metrorail system has the opportunity to reduce dependence on automobiles, but needed improvements to the pedestrian and bicycle network will take time.

As part of the [Tysons plan](#), impacts to the surrounding communities were evaluated based upon the proposed 2030 land use intensities. Fairfax County conducted an operational analysis of selected intersections, including three within the Town. Model results indicated that there would be impacts to all intersections, including degradation of service and longer queues. The County's proposed mitigation recommendations each posed particular challenges. As such, this chapter aims to provide a more cohesive vision for the Town's transportation needs and specific recommendations to address the challenges faced by local and regional changes in land use within a framework created and defined by the Town itself.



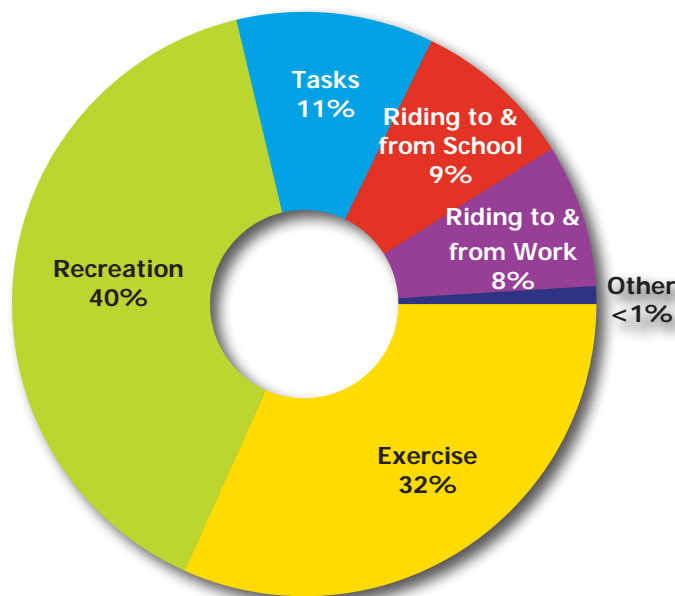
Bicycle Mobility

People of all ages ride bicycles in the Town of Vienna. The popularity of bicycle riding is growing across Northern Virginia and is seen as a healthy, economical, and environmentally friendly mode of transportation.

Ridership

According to the Town Survey taken in 2014, 60% of those who responded indicated that someone in their household uses a bicycle. The majority of respondents indicated that bicycle riding was for recreational use and exercise. Other uses, such as for riding to and from work and tasks, were chosen by only 28% of bicycle users. The Town should look for ways to increase riding to and from school and to and from work as a way to promote healthy living and to alleviate traffic congestion on Vienna's roads.

In order to help encourage bicycling, there needs to be a robust bicycle infrastructure. Gaps in the existing network of routes and paths need to be filled and there needs to be ample bicycle parking at schools, employment centers, public facilities, and retail centers.



2014 Town Survey: Household Member's Purpose of Bicycle Use

Source: ETC Institute for the Town of Vienna

One of the priorities for the Town is linking the Vienna-Fairfax-GMU Metrorail Station to the Centrail Business District and the Washington & Old Dominion Trail with bike routes and bike paths. A map of existing bike routes can be found on [Page 66](#).

Community Support

In addition to infrastructure improvements, there also needs to be robust community support in order to increase the number of residents and visitors bicycling in the Town. Programs, such as Safe Routes to School, and events, such as Bike to Work Day, the Town's Bike Rodeo and Walk, Bike, Shop Vienna, are successful in building support among parents of school-aged children, businesses, and commuters.

It should also be noted that the Bicycle Advisory Committee (BAC), an advisory committee to the Transportation Safety Commission (TSC), plays an important role in promoting bicycle initiatives and providing citizen input in planning bicycle transportation improvements.

The Town should continue to support and be involved in such programs and events and should continue to support the efforts of the BAC.

Washington & Old Dominion Trail

A principal north-south route for bicycle travel through the Town is the Washington & Old Dominion Railroad Regional Park, commonly referred to as the W&OD Trail. The park, which was constructed on the original W&OD railroad bed, runs from Arlington to Purcellville and is owned and operated by NOVA Parks. The trail accommodates pedestrians, cyclists, skaters, and horseback riders. Within the Town, the W&OD trail crosses Maple Avenue East, Park Street SE, Church Street NE and Ayr Hill Avenue NE. The Maple Avenue crossing is of particular concern because of the high volume of automobile, pedestrian, and cyclist traffic. A user-activated traffic signal was installed in 1996 to improve crossing safety.

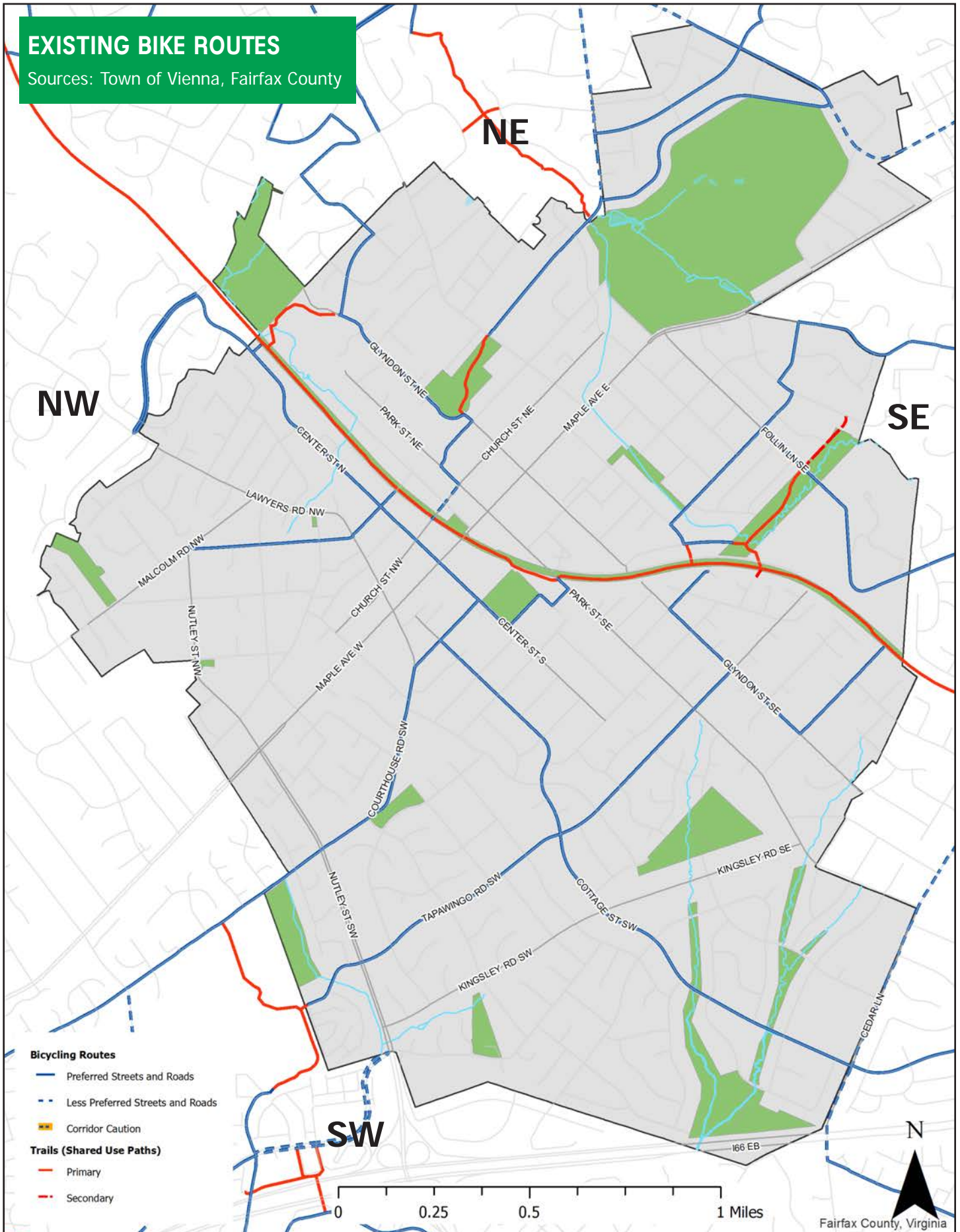
The trail is an asset to the Town in terms of its popularity and ridership and its connection to other parts of Fairfax County. The Town should support further improvements of the trail and remain an active partner with NOVA Parks.



Safe Routes to Schools, a program funded partially by the U.S. Department of Transportation Federal Highway Administration and run by the National Center for Safe Routes to School, assists communities in obtaining grants for sidewalks near schools and helps promote walking and biking to and from school.

EXISTING BIKE ROUTES

Sources: Town of Vienna, Fairfax County



Objective 1 - Provide bicycle facilities between residential areas and schools, community centers, parks and businesses with connections to bicycle facilities in adjacent jurisdictions and transit services.

Implementation Strategies

- Adopt a bicycle master plan with a Town-wide bicycle facilities plan that creates a phased bicycle route system, way finding signs, and bicycle parking. To connect the Town's commercial areas and neighborhoods, transit facilities, schools, regional bicycle facilities, and designated bicycle routes in neighboring jurisdictions.
- Evaluate the administration of a uniform bike rack application for private, non-residential locations.
- Evaluate and recommend expanding bicycle parking requirements for new developments not covered under the Maple Avenue Commercial zoning ordinance, including short-term visitor parking and long-term secure parking.
- Evaluate and recommend alternatives to improve bicycle parking in the Church Street Commercial Corridor.



Conveniently located bicycle rack outside of Town Hall

Objective 2 - Increase the number of residents bicycling to work and to school as well as other activities.

Implementation Strategies

- Evaluate the costs, benefits, and feasibility of extending bicycle sharing services (such as Capital Bikeshare or others) into the Town.
- Earn recognition as a [Bicycle Friendly Community](#) by submitting an application for recognition to the League of American Bicyclists.
- Evaluate and recommend plan to establish temporary detours for primary bicycle routes during special events when significant conflicts between pedestrians and bicycles may occur.



Capital Bikeshare Station located in Arlington, VA



Demand and System Management

Often, in small communities like Vienna situated in a large growing region, transportation plans and programs focus on improving the quality and, in large part, expanding the transportation network: new sidewalks and bike trails, wider streets, more frequent or direct transit service. Five of the six sections of the Transportation Plan focus on improving the supply of transportation, in terms of quantity and quality. This section concentrates on transportation demand and system management improvements to increase efficiency on a recurring basis or for unplanned events.

Transportation Demand Management

Transportation Demand Management (TDM) is a set of specific strategies that influence behavior by mode, frequency, time, route, or trip length to maximize the efficient and sustainable use of transportation facilities. TDM can include other community goals, such as promoting access for all transportation system users, improving mobility, and minimizing the negative impacts of vehicular travel such as traffic congestion, air pollution, and an auto-dominated physical environment.

Potential strategies include the following:

- Promotion of walking, bicycling, and ride-sharing
- Management parking and pricing
- Encouraging telework and flexible work schedules
- Marketing of transit and providing commuter subsidies

Maple Avenue Vision

While the regional [Commuter Connections](#) program, coordinated by the Metropolitan Washington Council of Governments (MWCOC), has been available to residents, the Town is relatively new to the concept of TDM. The MAC zone incorporated some [TDM strategies](#) as an incentive and a means to reduce the minimum number of off-street parking spaces required for non-residential or mixed-use development. TDM plans included with MAC applications must include the following:

- Transportation program coordinator
- Submission of a TDM annual report
- An enforcement mechanism

Transportation System Management

Transportation System Management (TSM) is a set of strategies to make better use of the existing transportation system, aimed at managing the supply to the existing demand. TSM strategies focus on increasing the efficiency, safety, reliability, and capacity of existing transportation systems through techniques such as:

- Facility-design treatments
- Access-management programs
- Incident-response plans
- Targeted traffic enforcement
- Intelligent transportation systems (ITS)

Often, these measures involve greater use of technology, though some of the most effective measures may simply be pavement markings or changing a single sign. Examples include:

- Better signalization (timing, phasing, and coordination)
- Incident detection and management
- Re-striping to create left-turn lanes
- Real-time traveler information

Traffic Signals and Intelligent Transportation Systems

The Town of Vienna operates 14 traffic signals within the town limits, two of which are pedestrian/trail signals. The traffic signal hardware includes current generation National Electronics Manufacturers' Association (NEMA) standard controllers as well as video detectors aimed at intersection approaches. Maple Avenue signals are interconnected and synchronized. The traffic signals are actuated based on detection of vehicles and are managed by time-based coordination according to time-of-day signal timing plans. The signalized intersections are at various states of compliance with the [Public Rights-of-Way Access Guidelines](#) issued by the U.S. Access Board.

A study was recently completed assessing the timing of signals along Maple Avenue and



Signals along Maple Avenue will be re-timed to improve the flow of traffic.

signals will be adjusted accordingly to improve the flow of traffic.

Emergency Operations and Preparedness

The [2013-2015 Town of Vienna Strategic Plan](#) incorporates an initiative to develop a continuity of operation plans for emergency preparedness. This initiative includes training on the National Incident Management System and preparation of continuity of operation plans by department.

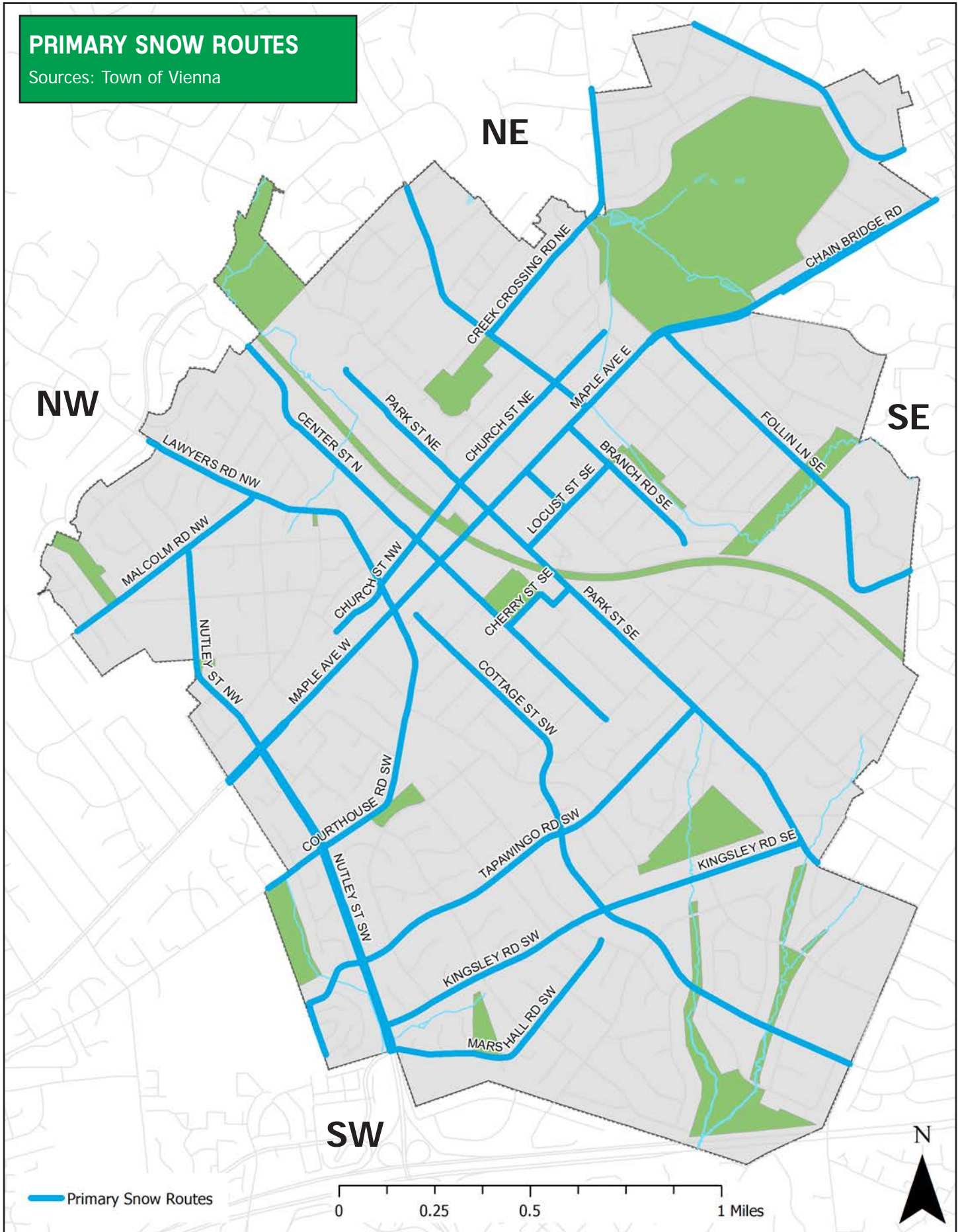
The Town of Vienna also maintains [fire and rescue response routes](#). Physical traffic calming measures are discouraged along these routes in the Town to avoid unnecessary delays to emergency vehicles.

The Town will also plan for homeland security events and create strategies for evacuations, emergency vehicle access in gridlock, and staging areas for emergency operations. The Town's response routes for fire and rescue will be used for emergency vehicles during homeland security events.

Finally, the Town maintains a snow emergency routes map and a response plan for winter weather events. See the Primary Snow Routes Map on [Page 70](#).

PRIMARY SNOW ROUTES

Sources: Town of Vienna



Objective 1 - Encourage the use of alternative modes of travel to reduce demand on the Town's major and minor streets.

Implementation Strategies

- Create a Town-wide TDM policy that is regionally coordinated to ensure facilities for all modes of transportation are provided as part of development projects.
- Encourage residents to take advantage of employer provided transportation stipends used to offset the cost of commuter travel by non-auto modes.
- Explore the feasibility of partnering with a car-sharing service to provide access to shared vehicles in Town.



SmartTrip Card stipends could be offered via a TDM Policy



Vienna Public Works staff working on traffic signals

Objective 2 - Implement solutions to reduce travel time and improve trip reliability on major and minor arterial streets during peak and non-peak periods.

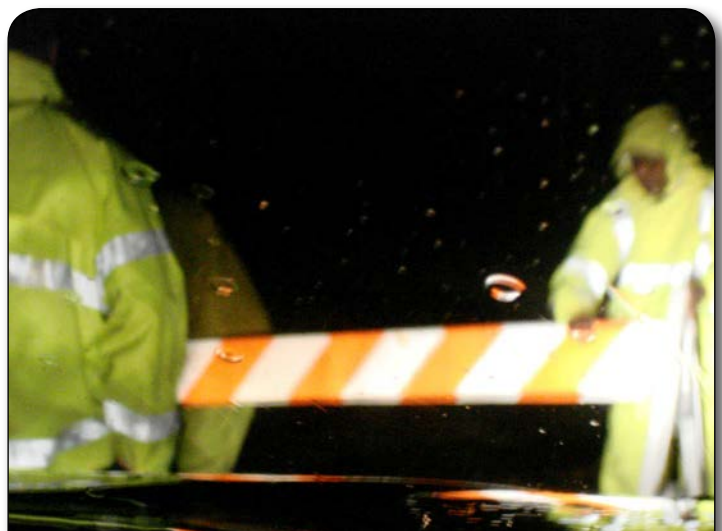
Implementation Strategies

- Use traffic management and operational methods to address congestion and better manage conflicts in the demand for street space among pedestrians, cars, transit, goods movement, and bicycles.
- Establish, monitor, and act on performance measures for traffic signal operation.
- Study implementation of transit signal priority in signal system with transit agencies as part of signal upgrades.

Objective 3 - Improve emergency preparedness to be able to respond to regional diversion of traffic on to Town streets.

Implementation Strategies

- Ensure that Town staff receives appropriate and current training on emergency preparedness and practices applicable to the community.
- Create contingency plans and procedures to optimize traffic-signal timing on arterial streets for use during emergencies, including evacuation when necessary.
- Publish information and educate the community on the Town of Vienna's emergency-preparedness plans and consider conducting periodic public demonstrations.



Vienna Public Works staff closing down a street during a storm



Parking and Curb Space Management

The Town of Vienna faces a set of challenges in the management of parking in the public right-of-way and private facilities. They include the following:

- The nature of businesses in Vienna creates parking demand and supply imbalances by time of day and location along the Maple Avenue and Church Street Commercial Corridors.
- Those arriving to a destination by car want access to convenient parking and do not want to be towed for parking once and visiting multiple shops. In turn, business owners want to maintain a sufficient supply of parking to accommodate their customers.
- The expanding portfolio of special events and festivals places added pressure on parking supply in selected locations during these events.
- Residential neighborhoods near the commercial center and the Vienna-Fairfax-GMU Metrorail station can be adversely affected by commuter parking.
- Large, vacant surface parking lots create an undesirable walking environment along the Town's commercial corridors.

Private Facilities

The majority of private parking in Vienna consists of surface parking lots. Many of these lots are separated from each other by either strips of landscaping or concrete curbs, with few lots having inter-parcel connections, shared parking or shared entrances. Inter-parcel connections, shared parking and shared entrances should be encouraged and in some cases required.

Inter-parcel Connections

The Virginia Department of Transportation (VDOT) lists the following as benefits of inter-parcel connections:

- Reduction in the number of trips on main streets
- Opportunity for several properties to benefit from having access to a signalized intersection
- Reduction in the number of curb cuts and ability to create a more pedestrian-friendly streetscape
- Ability for shopping centers to attract more customers by adding convenience of connected parcels

Shared Parking

There are multiple opportunities for shared parking along the Town's commercial corridors. The Department of Planning and Zoning has examined parking demand for some of the major commercial surface parking lots along the Maple Avenue Commercial Corridor during the day and at night and did find that supply exceeded demand in most cases along Maple Avenue, especially away from the center of Town. ([see the Appendix](#)). (The Department will continue to conduct parking counts, including counts during the weekend.)

The excess of available parking spaces makes the implementation of shared parking easier to justify and implement in certain areas. Shared parking can allow for a reduction in the number of vacant parking spaces and more compact development.

Shared Entrances

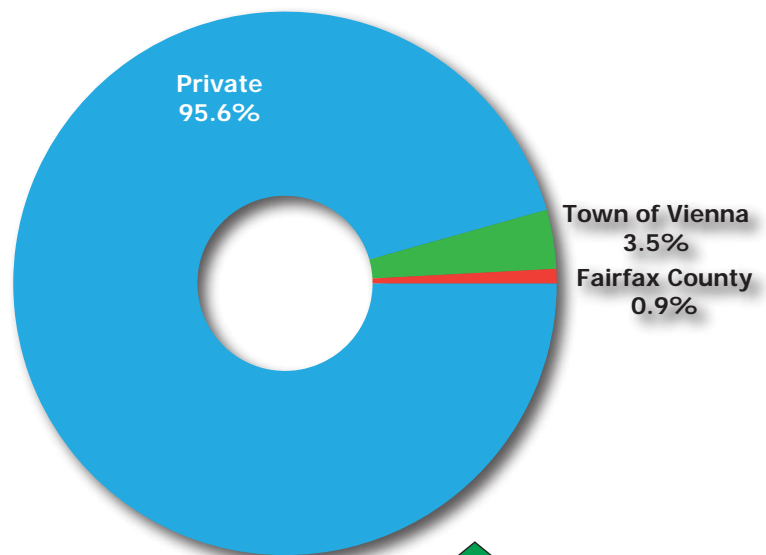
Shared entrances can also help with parking management. VDOT has listed the following as benefits of shared entrances:

- Reduces number of entrances along main streets
- Fewer entrances prevent crashes and help reduce congestion
- In some cases property owners can gain access to a traffic signal

Public Parking

At the present time the Town of Vienna does not have structured public parking facilities but does have limited on-street parking and off-site surface parking at public buildings. The Town has agreements with some private businesses and the Fairfax County School Board that allow residents to utilize certain parking lots after business and school hours.

The Town should look at opportunities to build centrally located municipal parking structures,



Parking Spaces by Ownership in the Central Business District (CBD)

Source: Town of Vienna Planning and Zoning, 2014

ideally along Church Street, where parking demand exceeds supply. Parking structures can allow patrons to park once and walk to various establishments in the CBD. Opportunities such as public-private partnerships should be considered and the Town should initiate a study to examine potential sites for parking structures and the need to acquire property.

Commuter Residential Permit Parking

Residential neighborhoods may be adversely affected by commuter parking. The HOV-only restrictions on Interstate 66 inside the Beltway provide an incentive for commuters to use southwest Vienna as a place to meet for carpools. This activity, combined with the high demand for parking at the Vienna-Fairfax-GMU Metrorail Station, has resulted in commuter cars overwhelming the available parking along Vienna's residential streets in close proximity to the Metrorail station and I-66.

In response, the Town has established "permit required" parking zones in the affected areas to alleviate the congestion and to address safety concerns. Additional permit required parking areas may be necessary as more commuters carpool and use Metrorail.

Objective 1 - Manage the parking supply by lowering automobile demand, and limiting the expansion of surface parking areas.

Implementation Strategies

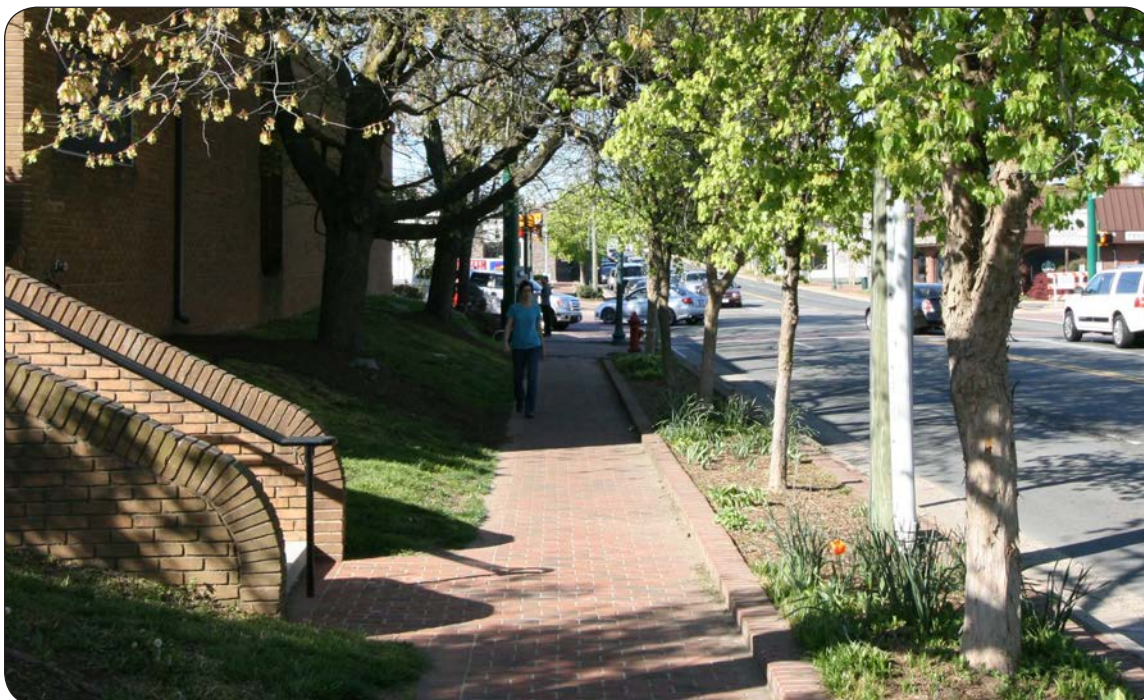
- Locate parking lots and parking structures so that they do not front on streets. Parking lots and parking structures should be designed to provide retail, office, or other uses along the street level. Trees and landscaping should be planted to improve the look of parking areas.
- Conduct periodic parking studies and/or monitoring to assure that parking supply accommodates demand and consider developing a comprehensive parking strategy for development and funding of future parking facilities.
- Promote bicycle parking facilities at all employment, commercial, and recreational destinations, and work to provide additional bicycle parking throughout commercial areas.
- Identify and evaluate a variety of creative strategies to provide parking within the Church Street and Maple Avenue corridors, such as shared parking, shared entrances and inter-parcel connections and allow for a “park once” environment.
- Encourage the use of parking structures in lieu of surface parking. Design such facilities so that they maintain pedestrian-friendly street frontages and have sufficient architectural detail to integrate with surrounding uses. This may include providing “liner” uses which wrap the garage and provide space for residential or commercial uses.
- Evaluate the Town’s parking requirements in comparison to regional standards and best practices.
- Alleviate and prevent parking on residential streets and support additional parking at the Vienna-Fairfax-GMU Metrorail Station.



Street parking located on Church Street NW and Center Street N



Parking garages should match architecturally with surrounding buildings and include pedestrian-friendly features



Pedestrian Mobility

Walking is a fundamental form of transportation and is integral to the health and livability of the community of Vienna. In small towns and suburban communities like Vienna, pedestrian facilities, including sidewalks, paths, trails, and street crossings, are a significant component of the transportation network. The Town's pedestrian network not only depends on accessible and usable sidewalks; it encourages stronger social connections, exercise and recreation, environmental quality, and economic growth. When safe facilities are not available, people may be forced to engage in risky behavior to walk along or cross streets at dangerous crossings or take an automobile for very short trips.

Existing Guides and Plans

Building a pedestrian network and addressing potential threats to pedestrian safety are addressed through the implementation of the Town's [Pedestrian Master Plan](#) and [The Citizen's Guide to Traffic Calming in Vienna](#). Pedestrian issues are also addressed through the Council-appointed [Pedestrian Advisory Committee](#), which serves as an advisory committee to

the Town's Transportation Safety Commission by providing citizen input in planning the pedestrian infrastructure improvements and promoting pedestrian initiatives within the Town of Vienna. The Town should continue to update these guides and plans and ensure that they are consistent with the Comprehensive Plan.

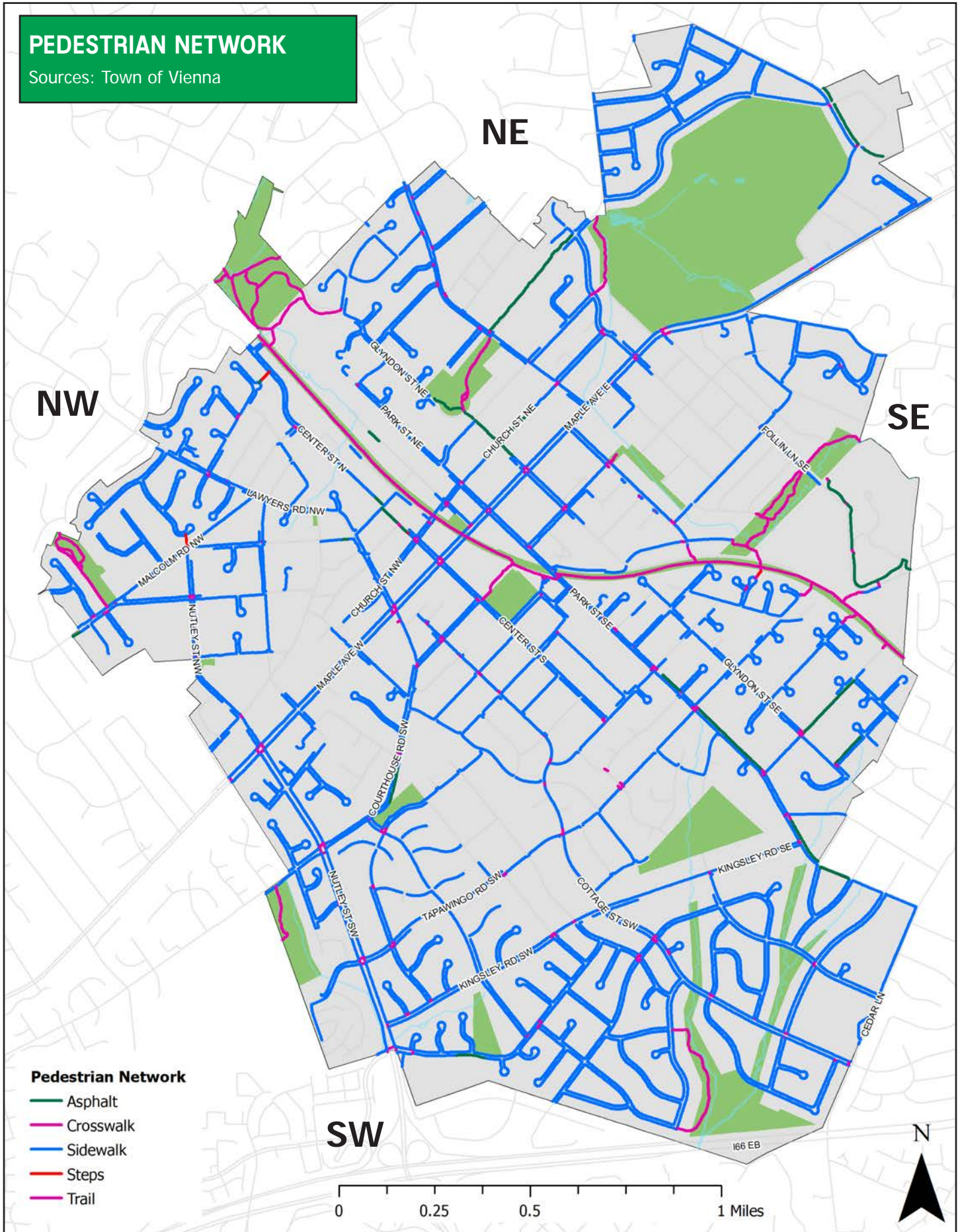
Existing Facilities and Usage

The [Pedestrian Network map on Page 84](#) shows the existing public walkways within the Town. The term "walkway" includes concrete and asphalt sidewalks. Vienna has approximately 81 miles of walkways, excluding trails, such as the W&OD trail. The Town Code requires subdividers to construct curb, gutter, and sidewalks on any right-of-way adjacent to new residential subdivisions. For infill lots, where the adjacent lot has a sidewalk, developers must dedicate and build new sidewalk across their frontage.

The Town should continue policies that advance the construction of sidewalks and help fill in gaps in the pedestrian network. Proposed transportation projects shown on [Page 77](#) will help in creating a better connected network.

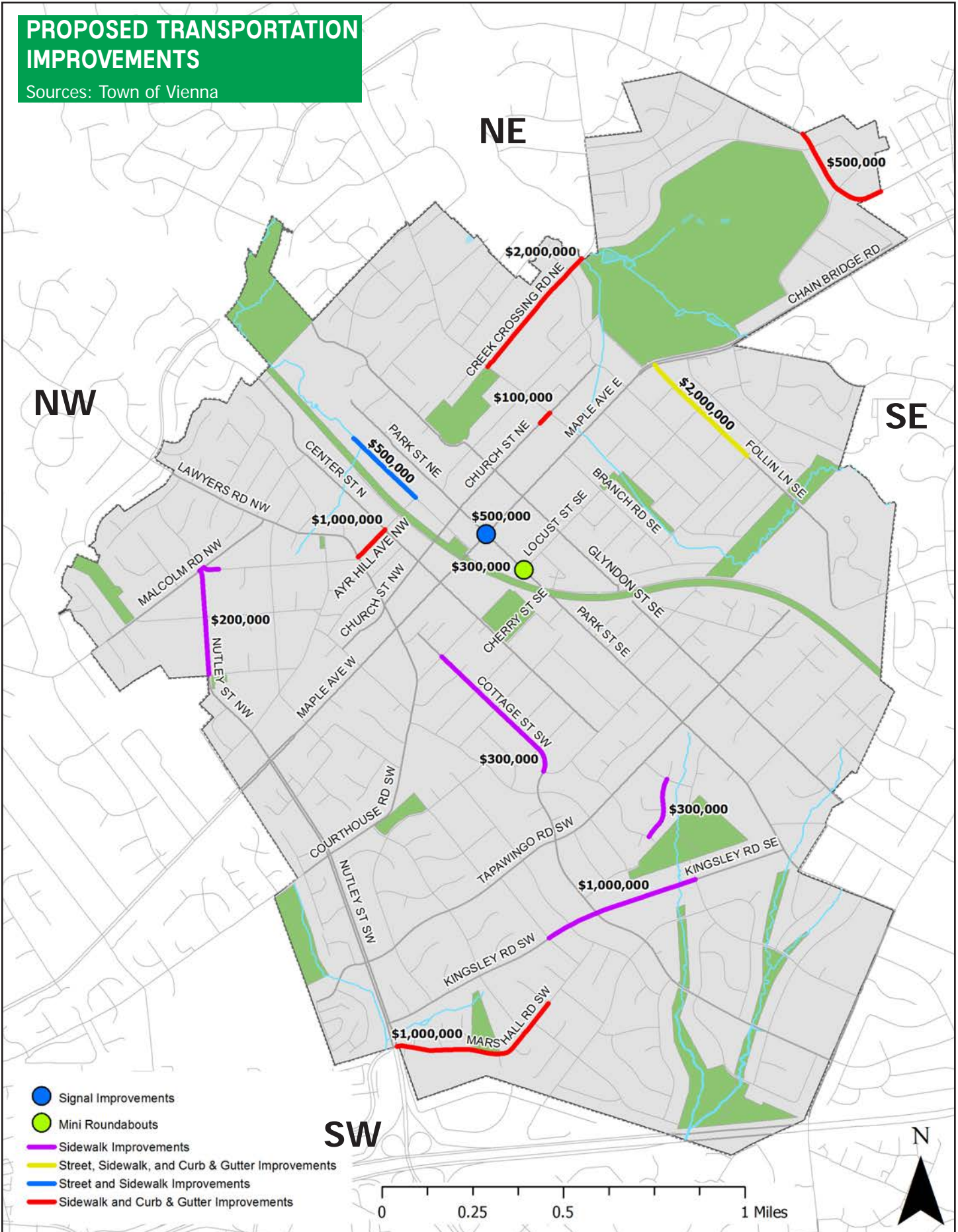
PEDESTRIAN NETWORK

Sources: Town of Vienna



PROPOSED TRANSPORTATION IMPROVEMENTS

Sources: Town of Vienna



Objective 1 - Improve the pedestrian network throughout the Town by connecting and expanding the existing sidewalk networks.

Implementation Strategies

- Continue to update the “Inventory of Sidewalks to be Completed” so the Town can track and prioritize sidewalk development and improvements.
- Strive to meet national standards of pedestrian-friendly communities so that the Town can adapt to the increased needs of a modern walkable town.



Objective 2 - Make the Town a pedestrian-friendly community as a means of encouraging a healthy lifestyle and promoting a cleaner environment.

Implementation Strategies

- Continue to install audible crosswalk signals and other signage required to support pedestrian needs as the Town’s commercial corridors expand, including intersections along Maple Avenue and Church Street.
- Establish a uniform policy based on regional and national best practices for crosswalks.
- Explore new means for crosswalk definition and safety such as raised and lighted crosswalks.
- Adjust signal timing to encourage pedestrian crossing in mid-day, off-peak and weekend time periods.
- Install and maintain appropriate street furniture in commercial corridors to create more active pedestrian streets.



Objective 3 - Support businesses, residents and visitors by enhancing pedestrian access to Town amenities.

Implementation Strategies

- Continue the use of grants and alternative funding to connect and fill in gaps of the pedestrian network.
- Engage businesses to determine where there are needs for enhancement of pedestrian access.
- Earn recognition as a “Walk Friendly Community” through the Walk Friendly Communities program.





Streets

Streets are essential facilities for various forms of transportation including vehicles, mass transit, taxicabs, freight/deliveries, bicycles, and walking. The public space encompassed by the right-of-way shapes many parts of our community. The design and use of the Town's streets convey other aspects of community, including civic pride, parades and other special events, unified streetscape, space for vegetation, and stormwater management. This section provides a framework for addressing and managing often conflicting desires. It addresses street classification, traffic congestion, traffic safety, and traffic calming.

Street Inventory and Classification

Vienna's street network has been classified by the Town in accordance with functional categories used by the Virginia Department of Transportation (VDOT). Street designations provided in this section and shown on [Page 81](#), reflect traffic patterns and volumes in the Town. Vienna has approximately 65 miles of streets within its corporate limits.

- **Interstate Highway System** - The Interstate Highway System is a network of controlled-access highways that helps form the National Highway System. The only interstate that goes through Vienna is a small portion of Interstate 66.
- **Principal Arterial Streets** - Principal arterial streets carry the majority of the traffic entering and leaving a community. Maple Avenue is Vienna's only principal arterial street as determined by the VDOT criteria.
- **Minor Arterial Streets** - Minor arterial streets link collector and local streets with principal arterial streets and typically carry a mix of local and through traffic. Streets designated as minor arterials are: Nutley Street SW, Courthouse Road SW, Lawyers Road NW, Malcolm Road NW, Park Street SE, Old Courthouse Road NE, Beulah Road NE; Cottage Street SW, and the 100 block of Locust Street SW.



- **Collector Streets** - Collector streets provide direct service to and from local areas, and distribute traffic from arterials to local streets and other collector streets. Collector streets also provide the links for the principal internal movement within residential neighborhoods, and within commercial and industrial districts. Streets designated as collector streets include: Church Street, Branch Road SE, Locust Street SE, Nutley Street NW, Tapawingo Road, Echols Street SE, and Follin Lane SE.
- **Local Streets** - Local streets provide direct access to properties in residential areas. All streets not designated as arterials (principal or minor), or as collector streets, are classified as local streets.

New Street Typology

While keeping the classification categories used by VDOT, the Town should also utilize a street typology that is linked with land uses. The current functional classification system is used as the only way to distinguish between higher- and lower-order streets. The functional classification system disregards the broader aspects of street

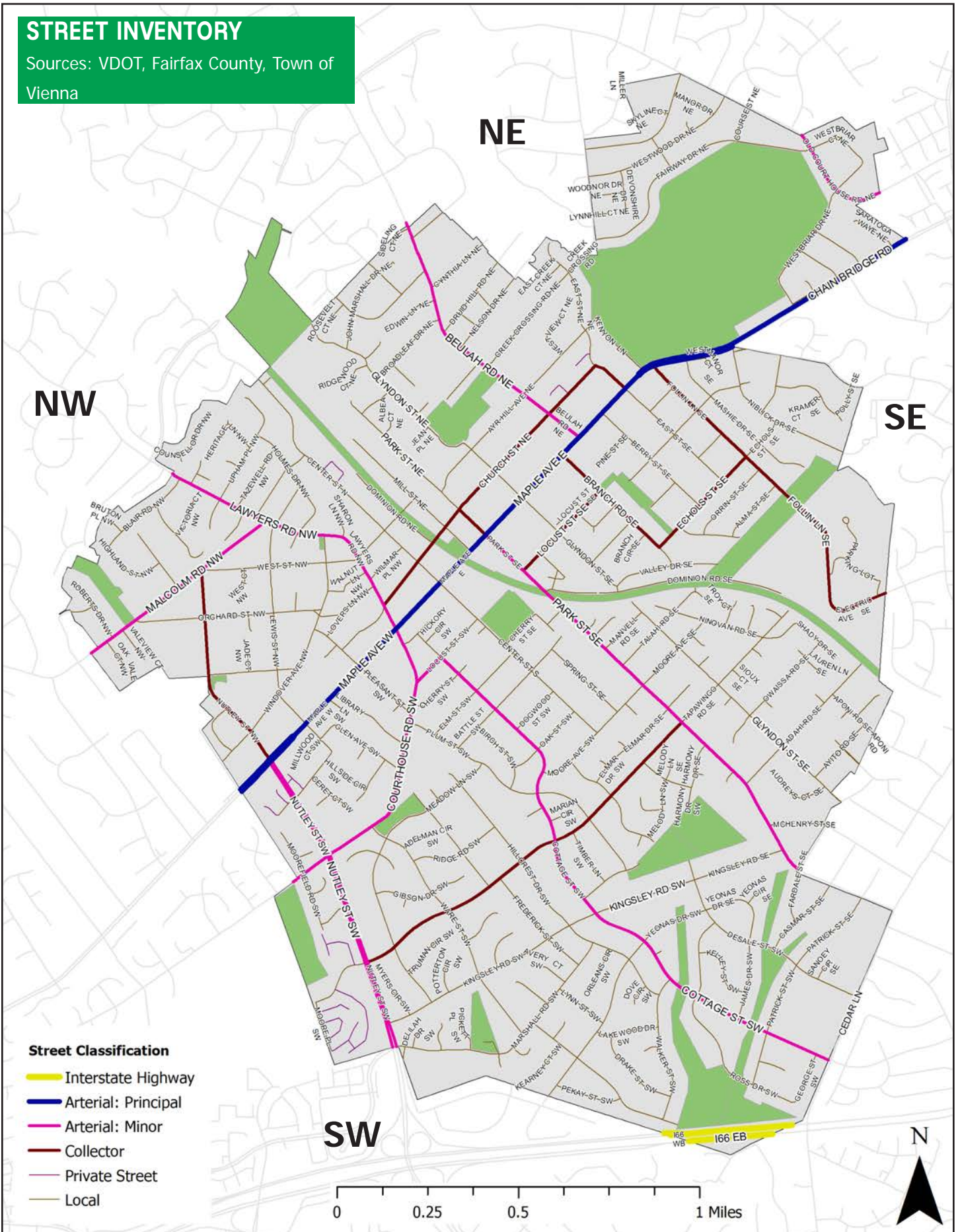
function, such as framing building lots, setting block lengths, providing public space, and accommodating public transit and bicycle and pedestrian travel in recognition of the adjacent land uses. A new typology is included in this Plan in order to help the Town to better plan the various types of streets. In addition to the new typology, the Town should consider implementing a [Complete Streets policy](#). A Complete Streets policy would direct Town staff to design and operate the entire right of way to enable safe access for all users, regardless of age, ability, or mode of transportation. The new street types include the following:

- Arterial Street
 - ◊ Primarily Retail Oriented Mixed-Use
 - ◊ Primarily Single-Family Residential Neighborhoods
- Local Streets (Non-Arterial)
 - ◊ Neighborhood Commercial Streets
 - ◊ Neighborhood Principal Streets
 - ◊ Neighborhood Minor Streets
- Pedestrian and Bicycle Priority Streets
- Alleys
- Private Streets

A more thorough description and examples of street sections of these new classifications are included in the [Appendix](#).

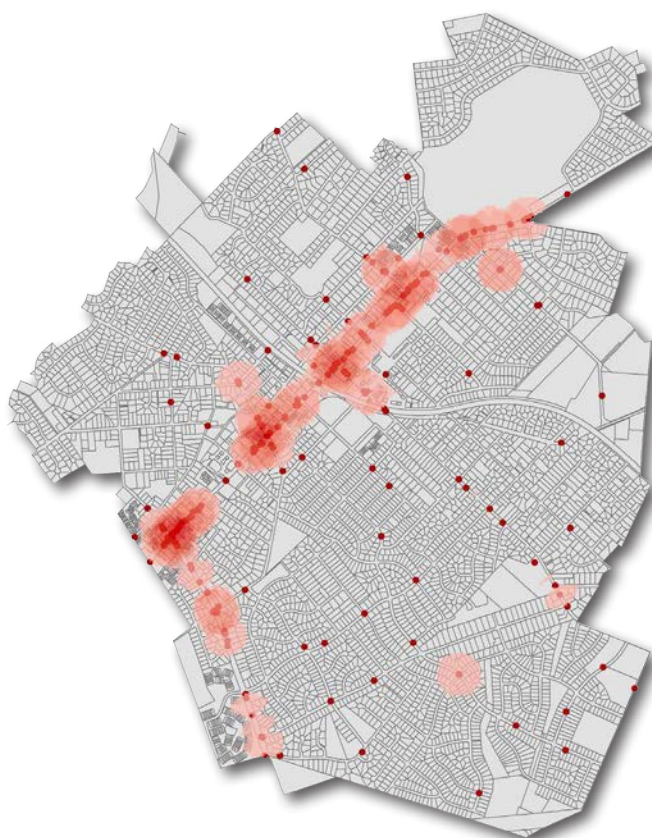
STREET INVENTORY

Sources: VDOT, Fairfax County, Town of Vienna



- Indicates Crash
- Indicates Concentration of Crashes

Total Number of Crashes	210
Crashes with Bicycles Involved	8
Crashes along Maple Avenue	85
Crashes along Nutley Street SW	22
Crashes along Park Street SE	15
Number of Fatalities	0



[Click Here for 2013-2015 Crash Data](#)

2014 Vehicle Crashes Heat Map (Excludes I-66)
 Source: Town of Vienna, Virginia Department of Motor Vehicles

Challenges

Protecting neighborhood streets from cut-through traffic is an on-going concern for many Town residents. In addition to increasing automobile traffic volumes, the number of people walking and bicycling in the Town is also increasing. This combination of factors is leading to growing concerns about safety and continuing demand for traffic calming measures.

While there is concern over rising traffic volumes, there is still a desire to maintain easy accessibility by automobile. Drivers want convenient access and business owners similarly want customers to be able to come to their establishments without excessive delay. Moving forward, the Town will need to create a balance between accessibility for travel by automobile in the commercial areas of the Town while at the same time, manage traffic volumes and speeds in residential areas.

Traffic Safety

Increases in the speed and stress of traffic will add greater safety concerns as the Town deals with unsafe conditions along its streets. Various techniques have been and should continue to be used to help protect residents and the public as they travel around Vienna (see [Page 83](#)). There should be an emphasis placed on safety on Maple Avenue given the high percentage of crashes taking place along the principal arterial.

Street Design

Safety for drivers, passengers, pedestrians, and the general public begins with good street design. The design of streets is important in maintaining visibility of pedestrians and cars, creating a safe speed, and providing for safe ways for all users to utilize the Town's street network without creating conflicts between users of different modes of transportation.

OPTIONS FOR TRANSPORTATION IMPROVEMENTS TO INCREASE SAFETY



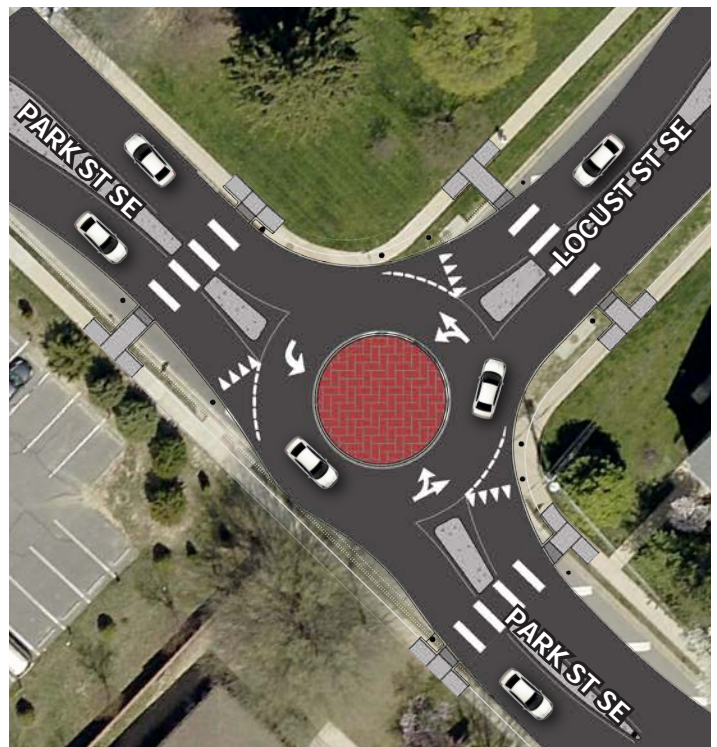
Signs: Pedestrian crossing signs at Marshall Road SW



Hybrid Signals: Rapid flashing beacon at Lawyers Road and Blair Road NW



Pedestrian Signals: HAWK signal at the mid-block of the 300 block of Maple Avenue West



Street Design: Approved design of mini-roundabout at Locust Street SE and Park Street SE

Traffic Enforcement

The other aspect of traffic safety is enforcement. It is important that drivers in the Town adhere to speed limits and traffic laws, so as to decrease the number of crashes. The Town of Vienna Police Department actively enforces traffic laws and monitors traffic violations throughout the Town, with a particular emphasis placed on the traffic areas of high volume and rush hour congestion. One of the Police Department's techniques is to analyze, prepare, and utilize all traffic data available and present these analyses to Town Council and Town management.

Traffic Calming

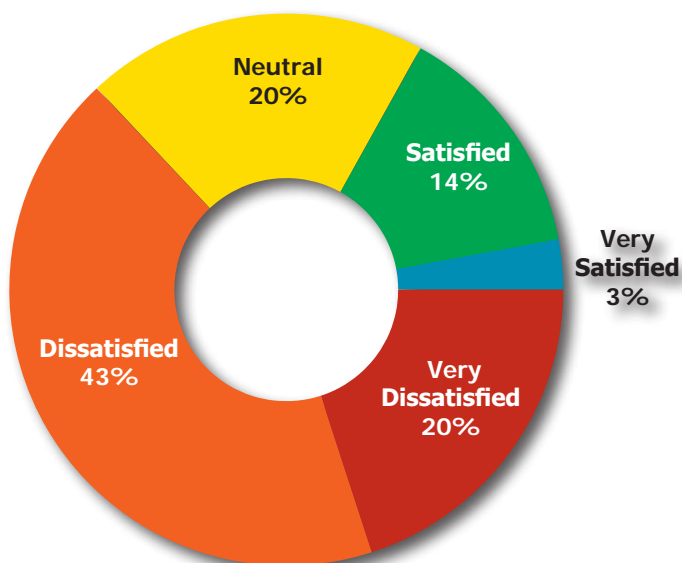
In 1998, the Town Council favorably considered a study of local traffic behavior and sought recommendations on ways to control speeding, limit cut-through traffic in residential areas, and ease rush hour congestion and intersection gridlock.

In 2002, the Transportation Safety Commission issued [The Citizens Guide to Traffic Calming in Vienna](#), which explains the process, including public input, used by the Commission and the Town Council to consider potential traffic calming improvements. The Guide is currently in the process of being rewritten.

In the commercial areas, the Town's efforts are designed to ease traffic flow, keep intersections clear, and promote safety. Re-timing traffic signals along Maple Avenue and Nutley Street SW, rumble strips at appropriate intersections, and increased police presence are other elements of the Town's traffic calming efforts. The Town should continue to explore the traffic calming benefits of neighborhood traffic circles and single lane roundabouts.

Traffic Congestion

Commuter traffic dominates automobile traffic through Vienna on Maple Avenue. The Town's close proximity to Tysons, Washington, D.C., the



2014 Town Survey: Household Satisfaction with Traffic Flow on Maple Avenue

Source: ETC Institute for the Town of Vienna

growing technology industry along the "Dulles Corridor," and important regional transportation facilities place it in the path of people trying to get from home to work, and back again. Residents in the Town have continually raised concerns about and are mostly dissatisfied with the traffic flow on Maple Avenue.

While there is concern over rising traffic volumes, there is still a desire to maintain easy accessibility by automobile. Maple Avenue is a principal approach to Tysons, one of the region's largest employment and retail centers, and is also a heavily traveled route to Washington, D.C. Commuters utilizing Interstate 66 and the Vienna-Fairfax-GMU Metrorail Station also contribute substantially to rush hour traffic congestion on Nutley Street SW.

Commuter traffic on Maple Avenue and Nutley Street SW, also affects Vienna's collector and arterial streets. Currently, backups on Maple Avenue and Nutley Street SW, coupled with the preference given to these two streets by traffic signal timing, delay traffic on cross streets, such as the Nutley Street SW, and Courthouse Road SW, intersections. It frequently takes more than one traffic signal cycle for motorists on Marshall

Road SW, and Tapawingo Road SW, to cross or turn left onto Nutley Street. Other intersections that have back-ups during rush hour include:

- Courthouse/Lawyers Rd at Maple Ave W
- Park St at Maple Ave E
- East St at Maple Ave E.

Residential areas continue to bear the brunt of commuter traffic, as drivers seeking to avoid the clogged major roadways “cut through” neighborhoods in search of faster routes, often creating a safety problem with excessive speeds. The Town has responded with traffic calming measures and innovative intersections designs such as neighborhood mini-roundabouts to address these issues.

Short of changing the entire character of the Town by major road expansions, the Town has only limited options for reducing congestion primarily through demand and system management methods noted earlier. Because of the heavy volume of traffic on Maple Avenue and surrounding collector streets, it is no longer reasonable to consider routes around Maple Avenue that would pass through established residential neighborhoods.

As mentioned previously in this chapter, a study has been recently completed assessing the timing of signals along Maple Avenue and signals will be adjusted accordingly to improve the flow of traffic. The use of automated performance measures for traffic signals has shown promise in other small jurisdictions and could yield some improvement in traffic congestion along Maple Avenue.

Maple Avenue Alternatives

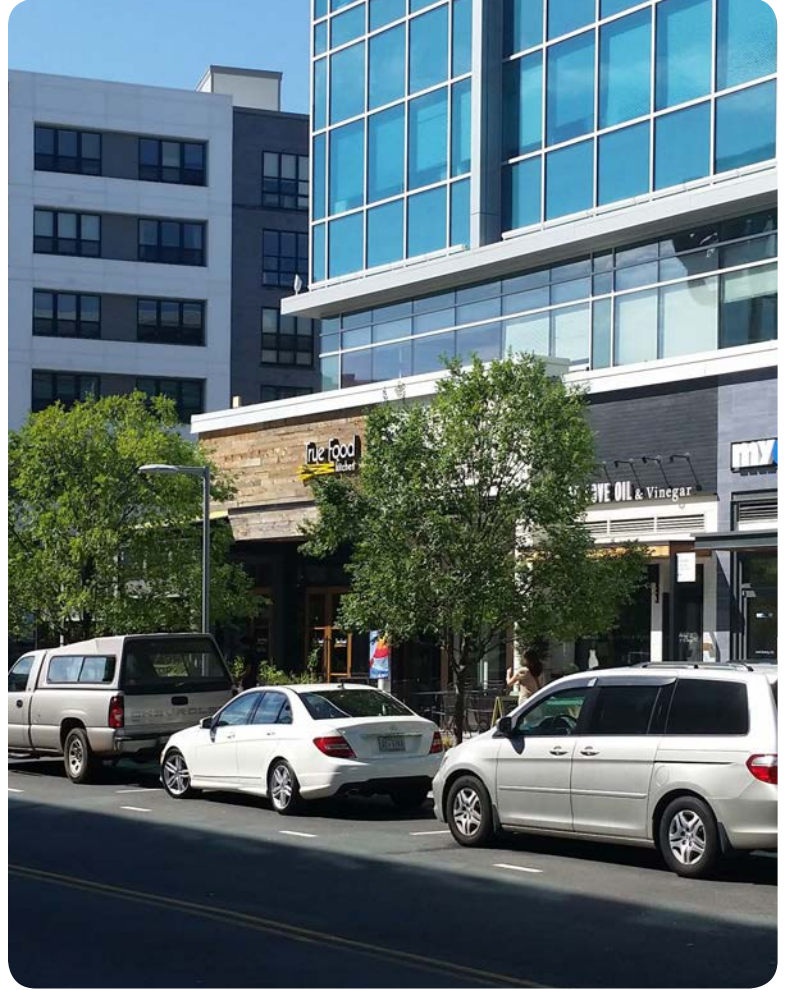
Alternatives to the current configuration of Maple Avenue should be studied for potential increases in the traffic flow, the incorporation of multiple modes of transportation, and the ability for creating a better sense of place. Alternatives include, but are not limited, to the following:

- **Advanced traffic control technology** can improve the management of all modes of transportation along Maple Avenue. This can include prioritization for pedestrians, bicyclists, and transit services as a part of a community-focused approach. Concept development can be coordinated with the VDOT Northern Virginia East-West Integrated Corridor Management Study to define specific infrastructure and applications to meet the Town of Vienna’s goals.
- **Landscaped medians** offer safety and aesthetic improvements by separating oncoming traffic and allowing for greening and beautification of Maple Avenue. Medians can also collect and store stormwater. However, landscaped medians limit turning motions.
- **Landscaped medians with parking lanes** allows for the utilization of two lanes for on-street parking, which can help create a buffer between pedestrians on the sidewalk and automobile traffic on Maple Avenue. Parking lanes also can increase the number of public parking spaces, but can significantly reduce the vehicular capacity of Maple Avenue.
- **Reversible center lanes** can potentially allow for an increase in rush hour traffic flow by utilizing a reversible center lane which can switch directions, depending on the AM/PM peak traffic patterns. Reversible center lanes have been used in Washington, D.C. and Silver Spring, Maryland and allow for increases in roadway capacity in the peak hour direction.
- **Roundabouts** can potentially increase traffic flow and reduce the number of traffic crashes. A series of roundabouts can also help create a sense of place and create more distinct gateways to the Town. Insurance Institute for Highway studies showed that roundabouts, on average, reduce overall vehicular collisions by 37%, reduce vehicular injuries by 75%, reduce vehicular fatalities by 90%, and reduce pedestrian collisions by 40%.

EXAMPLES OF LAYOUT ALTERNATIVES ALONG MAPLE AVENUE



Landscaped Medians



On-street Parking



Reversible Center Lanes

Objective 1 - Manage the impact of increased traffic in neighborhoods from direct and indirect effects of regional and local vehicular traffic.

Implementation Strategies

- Update existing "Citizens Guide to Traffic Calming in Vienna" to reflect change in the state of the practice since it was originally adopted in 2002.
- Periodically review and update the Comprehensive Plan to stay attuned to the needs of the community.
- Discourage the use of cul-de-sacs and encourage grid layouts so as to allow for better traffic flow.
- Encourage innovative and creative solutions to traffic calming in residential neighborhoods.
- Continue enforcing truck routes, as regulated by the [Town Code](#).



Typical neighborhood in Vienna with low volume traffic



A standard street section to be used in conjunction with defined street typology

Objective 2 - Connect streets to their land use and multi-modal function.

Implementation Strategies

- Create street typology that in addition to functional classification addresses all functions with the transportation network and land use of the Town
- Create standard street sections (such as those identified in the [Appendix](#)) to be used for the street typology.

Objective 3 - Street (re)design should accommodate all users of the transportation system where ever practicable and encourage alternatives to driving.

Implementation Strategies

- In conjunction with a new street typology and standard street sections, establish a Complete Streets policy for the Town.



All modes of transportation need to be considered when redesigning existing streets and building new streets

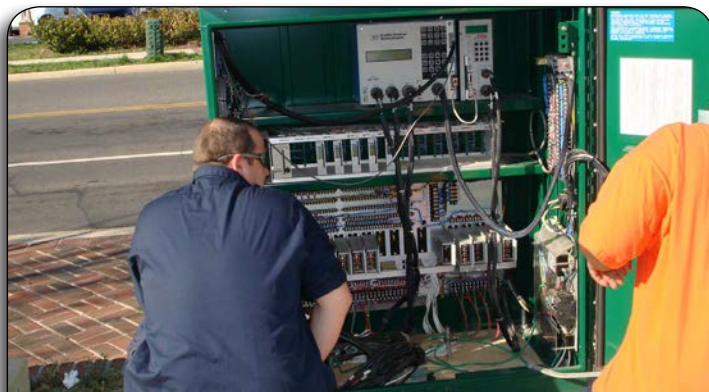
Objective 4 - Manage streets to eliminate fatalities and serious injuries sustained in traffic crashes and reduce the number of minor accidents.

Implementation Strategies

- Promote traffic safety by vigorously enforcing traffic laws throughout the Town, using roving radar patrols, placing the speed trailer at strategic, problematic locations, and by monitoring traffic light violations at major intersections along Maple Avenue and Nutley Street SW.
- Establish and coordinate a transportation safety plan, coordinated between the Transportation Safety Commission, Police Department, and Public Works.
- Maintain and keep roads in good condition.



The Police Department regularly sets speed trailers on roads where speeding may be common



Staff maintaining signals along Maple Avenue

Objective 5 - Incorporate engineering design methods to enhance the human and natural environment.

Implementation Strategies

- Require that new development and redevelopment be designed to minimize the number of access points to Maple Avenue and Nutley Street SW.
- Install and maintain an optimized traffic signal system on Maple Avenue and Nutley Street SW.
- Coordinate the Town's engineering design policies to link street design, stormwater management, lighting, street trees, sidewalks and other streetscape elements.
- Produce a report on how the Town can take advantage of and accommodate implementation of future technologies. Examples include
 - ◊ Electric vehicle charging stations in development projects.
 - ◊ Configuration of parking facilities for adaptive reuse if demand for automobile parking decreases over time.
 - ◊ Connected vehicle technologies.
 - ◊ Connected infrastructure both in the context of vehicle to infrastructure technology, as well as real-time monitor of engineering systems like snow plowing, traffic signals, stormwater flow, and pollution levels.



Electric charging stations should be encouraged in the Central Business District

Objective 6 - Mitigate the effects of regional development and traffic changes on the Town's arterial streets.

Implementation Strategies

- Monitor plans and impacts of development and traffic improvements in Fairfax County on the Town's transportation system.
- Actively engage with Fairfax County Supervisors of bordering magisterial districts with respect to land use changes, and with the office of Virginia Department of Transportation's Commissioner for Northern Virginia on matters of state and federal transportation projects.
- Study the application of innovative intersection designs and technology (roundabouts, advanced traffic controllers, raised intersections, etc.) to improve operational safety and reliability on all classes and types of intersecting streets.
- Initiate a Maple Avenue Commercial Corridor study to examine intersection and roadway design as well as traffic control technology and strategies that would meet the Maple Avenue Vision goals and objectives and other Town goals.



Roundabouts should be studied as part of a Maple Avenue specific corridor study

Transit

The Town is served by several transit providers and services, including Metrorail, Metrobus, and Fairfax Connector services (see [Page 91](#)).

Metrorail

The Washington Metropolitan Area Transit Authority (WMATA) operates the Metrorail system within the Capital Region. The Vienna-Fairfax-GMU Metrorail Station is located less than a quarter of a mile from the southwest Town limits. It serves as the end of the Orange Line and a major park-and-ride facility, with access to downtown Washington, D.C. The station also serves as a hub for a variety of local and regional bus services. The Tysons Corner Metrorail Station is also located in close proximity to the Town. This station is located on the Silver Line, which provides access to downtown Washington, D.C., Reston and, upon completion of Phase II, Dulles International Airport. Several other Metrorail stations along both the Silver and Orange Lines are also located in close proximity to the Town.

Bus Service

The Town, which does not operate its own transit service, is served by two bus service providers. WMATA operates Metrobus, which includes the 2T and 15M routes. The 2T route links Tysons and Dunn Loring by way of central Vienna, passing through residential areas and traveling along a portion of Maple Avenue East. The 15M route links Tysons, the Vienna-Fairfax-GMU Metrorail Station, downtown Fairfax City and George Mason University. This route passes through Vienna along the length of Maple Avenue.

In addition, the Town is served by Fairfax Connector, a public bus service run by Fairfax County. Several routes serve the Town, including the 432, 461, 462, 463 and 466. These routes serve a variety of destinations, including surrounding Metrorail stations, primarily during rush hour periods. The 463, which connects the



The Vienna Station has multiple bike lockers which enable riders to bike to metro and safely store their bicycles.

Tysons Corner Metrorail Station and the Vienna-Fairfax-GMU Metrorail Station by way of Maple Avenue, has service throughout the day.

Current & Future Needs

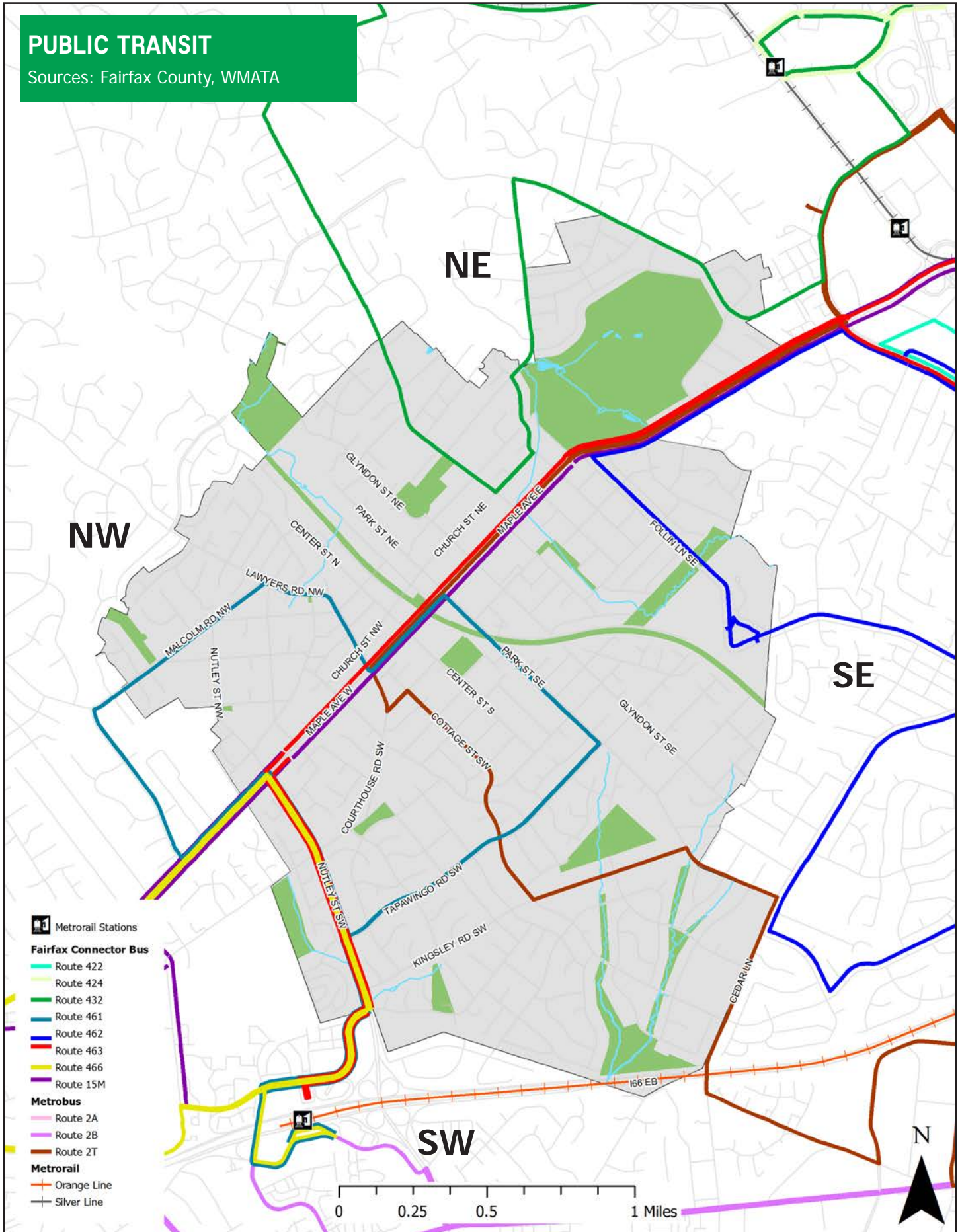
Many Town residents rely on public transit to access employment and shopping, both locally and within the region. As such, it remains important for the Town to increase frequency and reliability of transit service. This includes both bus and rail. Further, transit provides an opportunity to reduce automobile travel, reducing the number of vehicles on Town streets and improving traffic on major corridors.

The Silver Line extension of the Metrorail system provides access to Tysons, Reston and ultimately Dulles International Airport. The existing Orange Line serves as a major commuter line to downtown Washington, D.C. The Town should continue to promote enhanced bus service to the surrounding Metrorail stations, during rush hour, as well as during the day. Enhanced daytime service can provide an opportunity for local businesses to attract patronage from Tysons and Dunn Loring/Merrifield. Enhanced service can also help increase mobility for seniors and those with disabilities.

Finally, the Town should continue to evaluate plans for transit service on the I-66 corridor. Any plans for expansion or reconfiguration of I-66 should promote transit to reduce the number of single-occupancy trips.

PUBLIC TRANSIT

Sources: Fairfax County, WMATA



Objective 1 - Explore opportunities for public transportation system improvements and other steps that would reduce congestion, noise, and air pollution.

Implementation Strategies

- Analyze alternate transportation modes to match development trends.
- Collaborate with WMATA and Fairfax Connector regarding service that serves through commuters on Maple Avenue as well as circulatory service between Tysons and Vienna that connects business and customers.
- Encourage mass transit patronage whenever possible, with emphasis placed on the needs of the Town's residents and commuters, and on increasing use of the nearby Metrorail stations.
- Support additional parking at the Vienna-Fairfax-GMU Metrorail Station as a means of ameliorating overflow commuter parking on streets in residential neighborhoods.
- Encourage and promote safe routes to schools in accordance with federally supported programs.
- Encourage businesses to provide accessible and secure racks for parking bicycles on site.



A commuter parking garage located at the Vienna Metro Station

Indicators

- Decrease in crashes along Maple Avenue and other streets with high number of crashes
- **Decrease in traffic flow delays along Maple Avenue**
- Increase in number of bicyclists and pedestrians walking and biking to and from work and school
- Reduced use of automobiles for short trips
- Increase in use of public transportation options
- Limited effects on the Town's transportation network from regional redevelopment and travel trends