



2018 STRATEGIC PLAN

VIENNA AS AN EFFECTIVELY MOBILE COMMUNITY

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Background

The Town of Vienna is proactively looking for solutions to its transportation problems through innovative initiatives. The Mobility and Transportation Team has collected data from various sources and organizations and has compiled this report to assist Town Council in putting together goals for the upcoming strategic plan.

Traffic

Vienna, as with most communities in the Northern Virginia area, has issues with traffic. The majority of Vienna's traffic affects Maple Avenue, its main corridor; however, Maple Avenue is not the only area in Vienna with congestion. Vienna also has several side streets that feed into Maple Avenue that suffer from backups and delays because of traffic on Maple Avenue. One of the main reasons for traffic congestion on Maple Avenue is that Vienna has become a pass-through for commuters who are avoiding traffic along I-66 and I-495.

Traffic Signal Timing

The goal of any traffic system is to provide safe, efficient movement of vehicles, bicycles, and pedestrian traffic. As traffic is ever evolving, a progressive plan is required to allow the Town to grow and adapt when necessary.

How we get there:

- Create a communication network between intersections using a fiber optic backbone.
 - Fiber optic cable would run from cabinet to cabinet and would be the backbone for all future upgrades and accessibility to signalized intersections.
 - Having fiber optic cable will allow for many advancements in real-time traffic adjustments, including responses to emergency events.
- Upgrade all intersections to newer cabinets and components.
 - Install new ATC cabinets.
 - Install video detection instead of loops that damage easily during repaving operations.
 - Make all signalized pedestrian crossings *audible* pedestrian crossings.
 - Incorporate larger street name signs into the design plan of new or rebuilt intersections.
- Install video surveillance cameras at every intersection to allow for real-time monitoring of traffic to be monitored by traffic personnel.

- Cameras for live monitoring allow traffic technicians to see problems as they occur so that they can make real-time adjustments if necessary.
 - Cameras also could be used to provide live viewing for the public if integrated into VDOT's existing camera network.
- Acquire a central system that brings information to a traffic center that allows traffic personnel to monitor and adjust signal timing as it is needed.
 - The central system is what ties all the parts together.
 - It can allow all of the pieces to be viewed from a traffic center or allow traffic technicians to access intersections from out in the field, meaning a quicker response to problems.
- Implement an adaptive traffic system that will allow traffic software to adjust signal timing as needed within set parameters.
 - An adaptive traffic system would allow traffic signal timing to be adjusted based on set parameters (such as the higher volume of vehicles than normal, lower volume of vehicles than normal, gaps in traffic, and heavy volume of pedestrian movement).
- Use permanent speed/radar dynamic messaging signs on main roads.
 - Signs alert motorist to their speed.
 - The signs are capable of displaying event messages or traffic alerts warning motorist of accidents or roadwork.
 - The signs are cloud-based, which allows traffic personnel to access them from anywhere and switch from radar to dynamic messaging within seconds
- Develop a web-based transportation portal for citizens.
 - Allows citizens to see camera feeds as they would for VDOT cameras.
 - Allows citizens to see bike share locations and information.
 - Allows citizens to see mass transit options.

Road Widening

Road widening is another option that many areas bring up when discussing easing traffic. Road widening, in theory, creates additional capacity for vehicles. Road widening is not always as simple a solution as some may think. Implementing a road widening project can be costly. Surrounding infrastructure may need to be upgraded or replaced. If the road is a major street with a lot of commercial businesses, there may be an adverse effect because some businesses may lose property to accomplish the expansion. If the Town were to consider road widening along Maple Avenue, capacity could be increased. Maple Avenue could become a six (6) lane road with three (3) lanes on each side and still have a middle left turning lane.

Roundabouts

A conceptual plan was drafted by the Planning and Zoning Department on how roundabouts would look along Maple Avenue. (A formal study has not been conducted to determine any impact roundabouts would have on traffic along Maple Avenue.) The following intersections were conceptualized with roundabouts:

- Maple Avenue W and Nutley Street
- Maple Avenue W and Lawyers Road NW
- Maple Avenue E and Park Street
- Maple Avenue E and East Street

Roundabouts could be used for traffic-calming at challenging intersections. These roundabouts must be designed appropriately to be effective. Roundabouts would be easier to maintain and eliminate the need for electricity to run traffic signals, which can be as much as \$5,000 per signal, according to VDOT. Residents and commuters would have to learn new traffic patterns along Maple Avenue. Roundabouts could offer cost savings but could create potential accident problems if travelers are not aware of or obey the flow of traffic properly.

Radar Speed Signs

Radar speed signs can be highly effective in slowing down drivers. These signs can be permanently mounted or moved from location to location. Research has found that these signs can have a long-lasting effect even after being removed. According to the Texas Transportation Institute, traffic engineers and other traffic safety professionals have ranked these signs as the most effective traffic-calming method for neighborhoods and school zones. In addition to displaying motorists' speed, these signs can record traffic counts and speeds that can be downloaded and studied by engineering staff.

Reversible Traffic Lanes

The idea of reversible lanes allows for the increase of lane capacity in a given direction during peak hours by borrowing capacity from off-peak lanes. In most areas, rather than borrow capacity, the center lane serves as the reversible lane and changes direction with traffic patterns. Reversible lanes

would be a better option for areas that have limited options for improvements. Reversible lanes also are used in emergency situations requiring evacuation or when safety zones are required for maintenance.

Capital Bike Share Program

The Town's Comprehensive Plan has a goal to link the surrounding Metro stations with the Town's central business district and the Washington & Old Dominion Trail with the Town's bike paths and routes. Bike share transportation can help meet this goal. Currently, the Fairfax City-Mason-Vienna bike-share study is evaluating the viability of the bike-share program in an area that extends from the W&OD trail in Vienna south through the City of Fairfax to George Mason University. As shown below this would incorporate a large, densely populated area, which would include Maple Avenue, the W&OD trail, and surrounding communities in Vienna.

The bike-share program is evolving, and many innovative ideas and enhancements have improved convenience to users such as:

- "Dockless" bicycles that can be unlocked and locked from any bike rack location in the service area.
- Battery-powered, pedal-assisted bicycles.
- Maps that make it safe and comfortable to bike Vienna.
- Various membership levels such as single-use, short-term, long-term, and unlimited use.
- Community events that incorporate use of the bike-share program and bikes aimed at different types of residents from ages 8 to 88.
- Workshops and classes to teach skills on how to incorporate bicycling into daily life.

Providing bicycle facilities in neighborhoods, businesses, schools, community centers, parks, and transit services will reduce barriers and encourage ridership among residents, which ultimately benefits the Town as it will reduce congestion for all.

Parking Problems

With the high percentage of vehicle ownership, lack of accessible parking continues to escalate. The Town's challenge is to provide adequate parking to meet its needs for mobility and economic growth while minimizing impacts of parking on neighborhood character and charm as well as encouraging use of other modes of travel. Management of parking should encompass:

- Consideration of commuter parking by providing a commuter lot or parking facility dedicated to Metro riders with nearby shuttle service.
- Convenient parking that will create a “park once and walk” environment.
- New mixed-use parking on Mill Street, Church Street, and at the Patrick Henry Library.
- Preferential residential parking during Town events.
- Seek a balance in providing sufficient parking while keeping appearances within standards of the Town.
- Use of zoning ordinances to promote walkable, transit neighborhoods.
- Parking enforcement coordination within departments – police, parks and recreation, public works
- Promote pedestrian, biking, and ridesharing options to transport residents around Town and to surrounding communities in order to keep more vehicles off the road.

Rideshare Programs

The Town of Vienna can benefit from a Ride Share Program that would offer residents more direct access to key locations within Town. Rideshare programs could bring residents to local shops, businesses, and restaurants. Residents also could use rideshare options to bring them to any of the three local Metro stations that service the Town. The Town would be promoting local businesses and public transportation and potentially keeping more vehicles off the roads.

- The Town of Arlington Texas is phasing out its current bus service over the next four years to provide a partner program with a private startup called VIA. The partnered service “Arlington On-Demand” offers residents the ability to schedule a private van to pick them up at key locations and take them to locations in the downtown Arlington area. Fares range from \$3 a ride or a weekly pass can be purchased for \$10. Arlington subsidizes the cost of the van service with savings on the operation, purchase, and maintenance of its retired buses.
- The Township of Summit, New Jersey subsidizes rideshare programs with both Lyft and Uber to offer free or discounted rides to commuters looking for parking around metro train stations.
- Altamonte Springs, Florida has replaced its public transportation service with Uber rides.
- Charlotte County Florida provides curb-to-curb transportation services.

Walkability

To encourage pedestrian traffic in Vienna, two key attractions to consider are planning for mixed-use developments and a reliable transit system. Once in place, promoting the safety of pedestrians by investing in sidewalks, crosswalks, and road construction projects becomes paramount. Current gaps in the Town network of sidewalks leading to the central business district hamper pedestrian activity. Obstacles such as uneven brick sidewalks and narrow paths make many routes inaccessible. Under the

guidance of Town Council, all new development in Vienna should encompass these goals as described in the Town's Pedestrian Master Plan:

- New construction and upgrades to existing sidewalks, crossings, and other facilities to build a complete network of sidewalks throughout Vienna connecting schools, transit stops, retail centers, the community center, and parks
- Assessment of compliance with the Americans with Disabilities Act (ADA) requirements
- New road construction should include a plan to enhance the pedestrian experience and safety.
- Traffic signals should be designed to adhere to federal and state guidelines that address pedestrian safety.
- Road widening, intersection improvements which address the needs of pedestrians.
- Facilitate pedestrian connections to other neighboring centers like Tysons, Mason, Mosaic District/Merrifield, and public transportation.
- Pedestrian facilities that provide for wellness activities such as recreational walking, running, and bicycling.
- Complete walkway network with sidewalks on both sides of all streets in Vienna.
- The goal for sidewalks should be a minimum of 5 feet wide but wider in main commercial/retail areas (up to 8-10 feet in width) to allow for adequate pedestrian traffic flow. Multi-use trails (VDOT uses the terminology "Shared Use Path") should be a minimum of 8 feet and desirably 10 feet wide.
- Create opportunities for increased use of walking, bicycling, and public transit as an alternative to vehicle trips.
- Promote benefits of walkable neighborhoods and a vibrant pedestrian-driven local economy.
- Work toward Walk Friendly community designation.
- Prioritize sidewalk projects so that available funds are matched with projects that provide the most benefit to the community.
- Determine usefulness of certain types of data collection to improve pedestrian facilities.
- Evaluate the need for new or improved roadway crossings.
- Support, maintain, and enhance development of Geographic Information System (GIS) mapping to provide information on pedestrian connections throughout Town and surrounding areas.
- Evaluate the adequacy of the Town's pedestrian amenities for safety and convenience and develop a plan to address needs.
- Study feasibility of different types of trail and sidewalk materials.
- Ensure that new developments (both commercial and residential) are safe for walking and that non-motorized transportation and recreation facilities identified in this plan are constructed as part of development projects.
- Establish an institutional framework to ensure consistent and high-quality design standards and implementation of improved pedestrian facilities.
- Develop a maintenance and management program that ensures that facilities are maintained in good repair, both through routine seasonal maintenance and spot repairs.
- Work with the county to improve pedestrian connections.
- Pursue additional grant sources and capital funding as necessary to supplement pedestrian facilities.
- Develop materials and conduct educational programs and events that encourage safe walking and bicycling for fun, health, fitness, and transportation.

- Improve enforcement of laws concerning the safe interaction of pedestrians, bicyclists, and motorists in shared environments.

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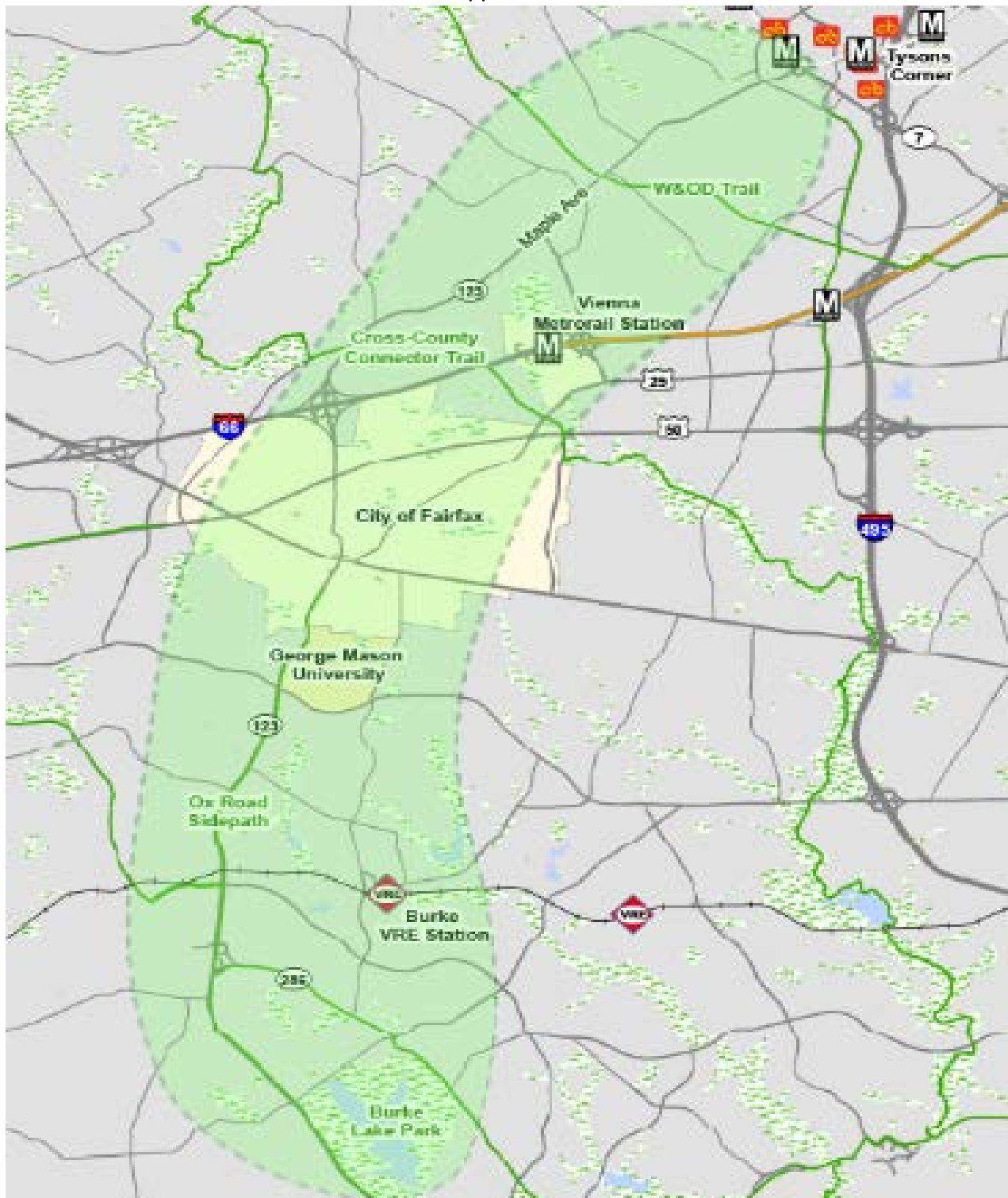
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Appendix



Proposed Fairfax County Capital Bike Share Map



Maple Avenue West and Nutley Street Intersection

Scale: 1" = 40'



Maple Avenue West and Lawyers Road NW Intersection

Scale: 1" = 40'



Maple Avenue East and Park Street Intersection

Scale: 1" = 40'



Maple Avenue East and East Street Intersection

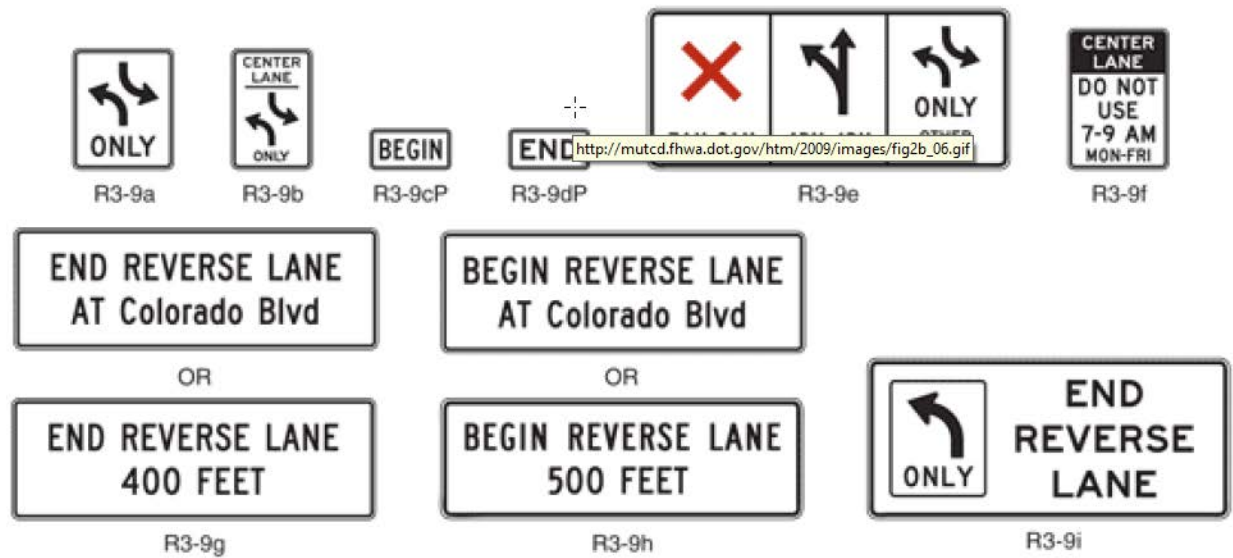
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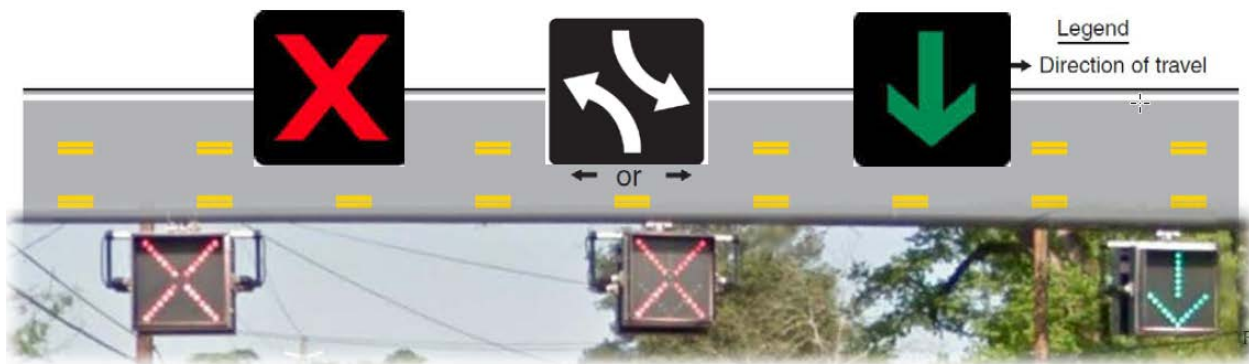
Maple Avenue Corridor Roundabout Conceptual Plan



Solar Powered Radar Signs



Reverse lanes static sign examples



Dynamic Lane Use Control Signals Examples



Town of Arlington Texas Ride Share - VIA