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The vision for Land Unit A promotes a mix of land uses served by a multi-modal transportation system. Various planned transportation improvements will facilitate this vision, while accommodating current and future commuters and residents within and around the transit station. The improvements should balance future land uses with supporting transportation infrastructure and services, address the long term needs of the area, design a road network that can accommodate all modes of transportation, and provide infrastructure and facilities that will support intermodal connectivity along the network.

The following recommendations are intended to help improve circulation within, around, and through this area. While the transportation recommendations support the development near the transit station, these recommendations also will facilitate regional travel through the area. The transportation recommendations are divided into eight sections: Land Use/Transportation Balance, Monitoring System, Public Transportation, Road Network and Circulation, Bicycle Facilities, Transportation Demand Management, Parking Management, and Funding of Transportation Improvements and Services.

Land Use/Transportation Balance

Maintaining a balance between the land uses in Land Unit A and the transportation system is essential in order to preserve an acceptable level of accessibility in and around this area as development occurs over time. To maintain a balance, the increase in development should coordinate the provision of transportation infrastructure with programs to reduce vehicle trips.

Within the area, preference should be given to the maintenance of a high level of service for all modes including transit, vehicles, pedestrians and bicyclists. To achieve this, consideration should be given to safety and security, direct pathways, topography, and the achievement of a balance between traffic delay and a pedestrian friendly environment. Impact studies should quantify the LOS for all applicable modes by applying up-to-date standard techniques. It is the intent to maximize the use of non-vehicular modes of transportation in Land Unit A in the future.

Monitoring System

Maintaining a balance between land use and transportation is dependent on a number of factors. The necessary transportation infrastructure, modal split levels, and vehicle trip reduction levels to maintain this balance have been analyzed extensively based on known conditions at the time of developing this Plan guidance. However, these conditions might change in the future which could result in changes in the number, frequency or direction of vehicle trips. For this reason, it is considered essential to monitor built and approved development and vehicle trips in the area over time and determine if the balance of development over time, vehicle trips and delay and the provision of transportation infrastructure have been maintained. This review should occur at least every 5 years or based on changes in circumstances and should be the primary responsibility of the county with survey input and assistance from landowners and tenants where available.

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Public Transportation

Metrorail - The introduction of Metrorail service along the Dulles Airport Access Road is an integral factor to providing increased mobility and reducing vehicle dependency for employees and residents in this area. Focusing the densest development around the Innovation Center Metrorail station is vital to promote the use of public transportation and achieving the vision for Land Unit A.

Local Bus Service - There is existing Fairfax Connector bus service that serves both local riders and people commuting through Land Unit A. These routes will be modified to provide convenient and reliable feeder service to the surrounding area from Innovation Center Station.

Road Network and Circulation

The road network and circulation recommendations provide additional transportation guidance and recommendations for development within Land Unit A. For new streets, right-of-way should be provided for their ultimate configuration including pedestrian and bicycle facilities as identified in the Plan. The streets should provide a level of connectivity and accommodate all modes of transportation to the fullest extent possible. Road planning should balance the efficiency of through movements with the need for reasonable access to existing and planned uses. Existing property access points should be retained to the greatest extent possible.

In the planning and design of transportation projects, it will be necessary to balance the competing needs of many stakeholders starting in the earliest stages of project development. The design of a facility should be safe and function for all users regardless of the mode of travel they choose. Flexibility in design may be considered to achieve plan objectives.

Network Level of Service

An overall Level of Service (LOS) E is the goal for the street network in the Innovation Center TSA. In instances where a LOS E standard cannot be attained or maintained in the TSA with planned development, remedies should be proposed to offset impacts (using approaches described below) with the purpose of improving mobility for all users within the TSA. ~~The purpose is to support implementation of the grid of streets, which is more typical of urban areas and improves mobility for pedestrians and bicyclists.~~

As a first approach, the network should be evaluated to determine if capacity and/or increased operational efficiency is possible to achieve without decreasing pedestrian walkability and safety. The widening of roads by adding exclusive turn lanes and/or through lanes will not be desirable in most cases since it will increase street widths at intersections and therefore work against an attractive environment for pedestrians. In lieu of additional lanes, it is preferable to add links to the street grid where applicable and possible to promote the build out of the grid of streets and to create additional diversionary paths for vehicles, and in so doing, to decrease the traffic at problem locations in the vicinity of a proposed development. If this approach does not attain the recommended LOS, other approaches should be considered -, such as:

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- Decrease future site-generated traffic by changing the mix of land use within the parameters of the applicable land use guidelines (e.g., replacing a higher peak hour trip generating land use with a lower one).
- Increase transit use through the provision of additional and improved services.
- Optimize the application of TDM measures which might include greater transit use, walking, and bicycling.
- Condition development on the completion of offsetting improvements
- Financial contributions of significant value dedicated to addressing deficiencies in the TSA may be considered as an offsetting improvement. These should not be used as a credit against other contributions toward off-site transportation improvements.

Road Transportation Improvements – The following list of roadway network improvements are recommended to achieve the vision for Land Unit A and enhance connectivity through the area by creating multiple and enhanced connections.

- River Birch Road Extension to Frying Pan Road
- Additional Centreville Road Crossing at McNair Farms Drive
- New bridge over Dulles Toll Road to Loudoun County
- A grid of streets in the Transit Station Area

A fundamental purpose of this conceptual grid of streets is to provide alternative paths for vehicles and therefore reduce congestion and increase connectivity in this area. An illustration of the enhanced street network is shown on Map “X” below. In planning the grid of streets, consideration should be given to avoid intersections with acute or awkward angles; minimizing exclusive turn lanes; and having block sizes generally within a 400 foot to 600 foot range. Any block longer than 600 feet should contain a mid-block pedestrian connection.

In addition to the list of road transportation improvements above, other intersection improvements may be required within the land unit in order to ensure acceptable traffic operations. Each roadway improvement should be independently evaluated not only for its transportation utility from a cost-benefit perspective, but also for its environmental implications such as effects on storm water management, water quality, noise or parks and its integration into the area’s urban context.

Insert Transportation Recommendations Figure “T2”

Staff evaluated the transportation improvements map and made adjustments to minimize disruption and as much as possible make consistent with approved development plans which include private roads.

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Street Types - Street types respond to the needs of traffic from transit, pedestrians, bicycles, as well as vehicles. Street types in Land Unit A have been identified, with a conceptual overview within the curb (the road and median) by each type’s functionality. The cross-section for each street type contains flexibility to be able to respond to particular needs in different locations. Streetscape diagrams are located in the Urban Design section.

The design guidelines for street types should be followed in the instance of providing new private or public roadway connections or when proposing improvements to the existing roadway network. See Table X for Urban Design Functional Classifications. More Information on Fairfax County Roadway Functional Classifications:

<http://www.fairfaxcounty.gov/dpz/comprehensiveplan/policyplan/transportation.pdf> (beginning on p. 12)
<http://www.fairfaxcounty.gov/dpz/zoningordinance/appendices/apx08.pdf>

Minor arterials primarily function as through traffic carriers. The collector streets collect traffic from the local streets and route them to principle and minor arterials, while the local streets allow internal circulation and connectivity within the area.

Table “X”
Urban Design Functional Classifications (Land Unit A Street Types)

| Fairfax County Roadway Functional Classification | Urban Design Functional Classification | Land Unit A Examples |
|--|--|--------------------------|
| Minor Arterial – Type A | Through Corridor | Centreville Road |
| Minor Arterial – Type B | Avenue | Sunrise Valley Drive |
| Collector Street | Collector | Sayward Boulevard |
| Local Street | Local | Dulles Station Boulevard |

More Information on Fairfax County Roadway Functional Classifications:
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The existing and planned roadways in Land Unit A are categorized as follows according to the Fairfax County Guidelines for Functional Classification of Roadways. The Urban Design section includes the streetscape recommendations.

1. *Minor Arterials (Through Corridors)* -- Some arterials are through corridors and occur on the periphery of Land Unit A. These include Centreville Road and Frying Pan Road which are planned to be improved according to the Transportation Plan Map and the Countywide Bicycle Master Plan. Improvements should incorporate appropriate pedestrian facilities and streetscape including improved pedestrian crossings across Centreville and Frying Pan Roads and across the Dulles Toll Road.

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2. *Minor Arterials - Type B (Avenues)* – A portion of Sunrise Valley Drive that extends south of the bridge is a minor arterial. These types of roadways carry shorter distance through traffic, and carry less traffic volume than Principle Arterials. These types of roadways carry shorter distance through traffic, and carry less traffic volume than Principle Arterials or other roads with higher classification. Some roads may carry higher vehicular traffic in the land unit that is more typical of a minor arterial.

Curb to Curb Area:

- Median width of approximately 14-8 to 22 feet; (may be wider for areas with frequent and/or heavy pedestrian crossings) if provided, to allow for safe pedestrian refuge
- 2-3 travel lanes per direction (11 feet for each lane)
- 5-6 feet for on-road bike lane per direction
 - o If an on-road bike lane is not provided, then 1 extra wide travel lane per direction may be desirable, adjacent to the curb, should be provided to accommodate bikes (14 feet wide). The lane should be marked or signs posted indicating that bicyclists may use the outside lane.
- 8 feet for on-street parallel parking if found desirable
- A target speed of 30-35 miles per hour is desirable.
- 5 foot on road dedicated bike lane per direction

3. *Collector Streets (Collectors)* – Sayward Boulevard is an example of a collector in Land Unit A that routes traffic to major and minor arterials from the local streets.

Curb to Curb Area:

- A median is not preferred; however, if provided the width should be approximately 14-8 to 22 feet
- 1 to 2 travel lanes per direction (11 feet for each lane)
- 5-6 feet for on-road bike lane per direction
 - o If an on-road bike lane is not provided, then 1 extra wide travel lane per direction may be desirable, adjacent to the curb, should be provided to accommodate bikes (14 feet wide). The lane should be marked or signs posted indicating that bicyclists may use the outside lane.
- 8 feet for on-street parallel parking per direction
- A target speed of 30-35 miles per hour is desirable, with the lower end of the target speed for collectors where high pedestrian and bicycle traffic is expected to occur. In some cases 25 miles per hour may be desirable.
- 5 foot on road dedicated bike lane per direction

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4. *Local Streets* (*Local*) – Local streets in this area include the internal circulation roads and the new planned streets which connect the land uses to collector roads and allow internal circulation.

Curb to Curb Area:

- Medians **are not desirable and** should only be required when they are part of the urban design concept and the landscape or open space plan
- 1-2 travel lanes per direction (10-11 feet for each lane)
 - o **The outside lane is a shared travel lane between bicyclists and vehicles. Local streets are low speed facilities that normally may not require bike lanes.**
- 7-8 feet for on-street parking per direction when provided. **(7 feet for residential areas; 8 feet for mixed-used commercial areas)**
- **A target speed of 25 miles per hour is desirable.**
- ~~Local streets are low speed facilities that may not require bike lanes~~

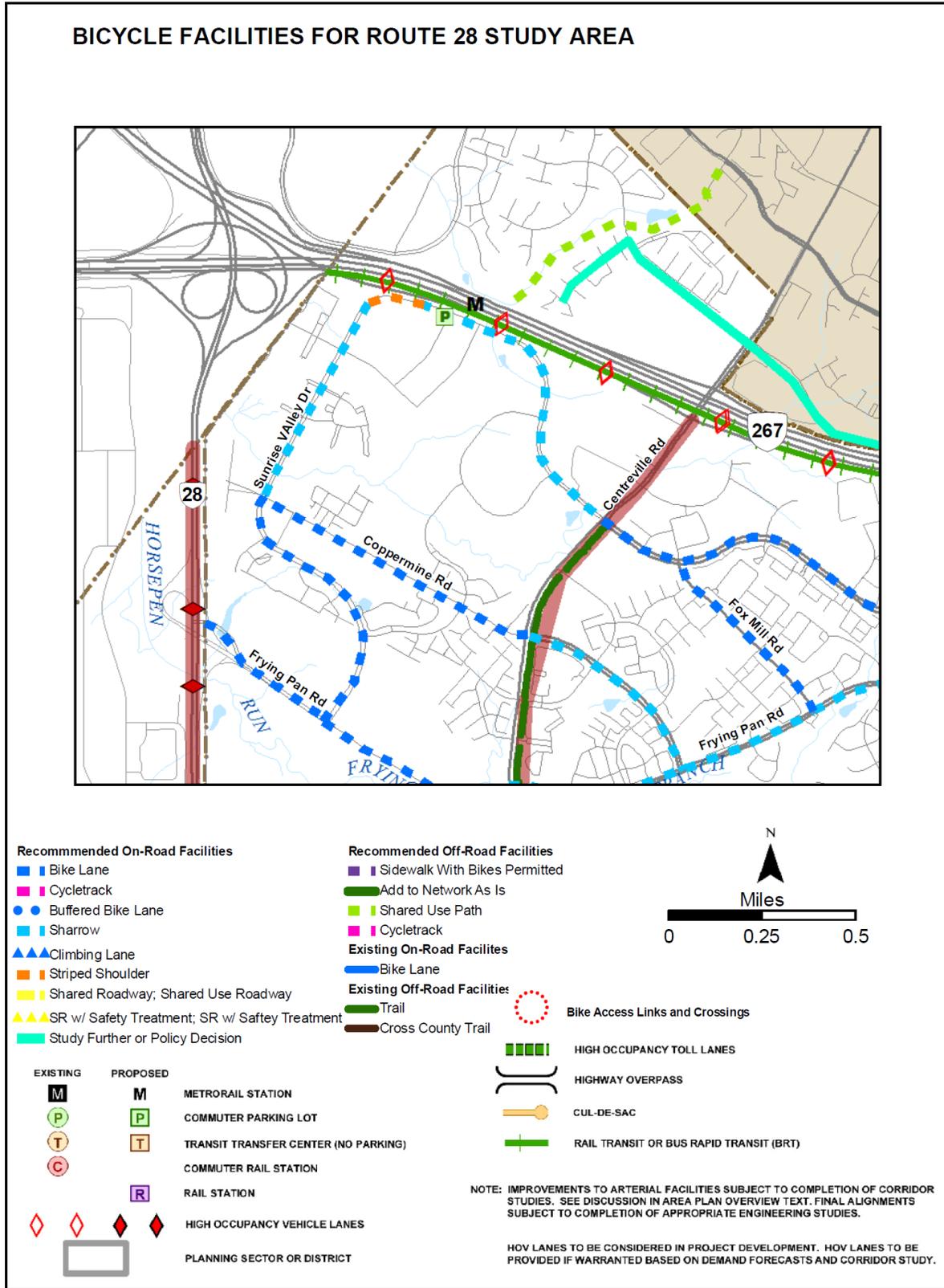
| |
|--|
| Note: Transportation staff prefers to see “when provided” removed. |
|--|

The above guidance is for roads associated with redevelopment or new development. Flexibility should be provided for roads that transition to existing roads. In addition, if new roads cross environmentally sensitive land there should be flexibility in road design.

Bicycle Facilities

Bicycle and pedestrian facilities should be provided on roads consistent with the figure below. Bicycle facilities are described in the text located in the Street Types Guidelines under the Road Network and Circulation section above. In an effort to encourage bicycling in Land Unit A, safe, secure, and convenient bicycle parking should be provided. The number of bicycle parking spaces should be determined based on the planned land uses.

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Transportation Demand Management

Transportation Demand Management (TDM) refers to a variety of strategies aimed at reducing the demand on the transportation system, particularly ~~to~~ at reducing single occupant vehicles during peak periods, and expanding the choices available to residents, employees, and visitors. Examples can be found in the County’s Policy Plan. The result is a more efficient use of the existing transportation system. TDM is a critical component in achieving the Plan’s goal of land use and transportation balance.

The objective of a successful TDM Program for Land Unit A will be to reduce the number of single occupant vehicle trips while promoting the use of alternative modes of transportation or other programs to reduce the impact on the transportation network. These reductions are based on Institute Transportation Engineers’ (ITE) trip generation rates and are to fall within the ranges shown in Table X, the TDM Trip Reduction Goals Table X. In the TOD area recommendations are for reductions of by at least 35% for Land Unit A 1, Tier 1 the area within one-quarter mile of the Innovation Center Station and at least 30% for Tier 2, the area between one-quarter and one-half mile from the station. TDM goals lower than those shown in Table X may be considered, on an interim basis, prior to the opening of the Innovation Center Metrorail Station.

Table X: TDM Vehicle Trip Reduction Goals for Commercial and Residential Development

| Development | | 0-1/4 Mile | 1/4 to 1/2 Mile | Beyond 1/2 Mile |
|-------------|----------|------------|-----------------|-----------------|
| Office | TDM Goal | 45%-35% | 40%-30% | 35%-25% |
| Residential | TDM Goal | 45%-35% | 40%-30% | 25%-15% |

Note: The percent reduction is from the latest ITE peak hour trip generation rates

A large component of TDM will be the implementation of formal TDM programs by the various stakeholders within Land Unit A. Property owners wishing to develop under the plan, through the rezoning process, should consider joining a local Transportation Management Association (TMA) prior to establishing a TDM program. At a minimum, development proposals should include the following elements associated with their TDM program in addition to the minimum goals stated above:

1. Indication of the trip reduction goals to be achieved at each phase of development and the measures to be used in the program.
2. TDM implementation plans with monitoring provisions.
3. Provision of remedies if a TDM fails to achieve its objective within a reasonable period of time.

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Parking Management

To facilitate the achievement of TDM goals and encourage transit use, shared parking for uses which have different peak demand periods, instituting paid parking, or other parking reduction strategies are encouraged. For development within a half mile of the metro station a commitment to parking levels that is supportive of achieving the TDM goals is encouraged. A parking plan should be submitted along with a development application that demonstrates that the amount of parking that is provided is sized to support the development. These strategies can serve to reduce trips and more efficiently organize and use the area.

Table X: Target Parking Rates for Areas Within One Half Mile of Station

| <u>Use</u> | <u><1/2 Mile from Metro Target Parking Rate</u> | <u>Optional 10% Reduction <1/4 Mile from Metro Target Parking Rate</u> |
|--|--|---|
| <u>Residential or Lodging Unit</u> | | |
| <u>Townhouses</u> | <u>2.0</u> | <u>1.8</u> |
| <u>Multifamily 0-1 Bedroom</u> | <u>1.3</u> | <u>1.2</u> |
| <u>Multifamily 2 Bedroom</u> | <u>1.5</u> | <u>1.4</u> |
| <u>Multifamily 3+ Bedroom</u> | <u>2.0</u> | <u>1.8</u> |
| <u>Hotel</u> | <u>1.08</u> | <u>1.0</u> |
| <u>Commercial Spaces/1,000 Sq. Ft.</u> | | |
| <u>>125,000 Sq. Ft.</u> | <u>2.2</u> | <u>2.0</u> |
| <u><125,000 Sq. Ft.</u> | <u>2.3</u> | <u>2.1</u> |
| <u>Retail</u> | <u>3.2-3.8*</u> | <u>No Minimum*</u> |

*For uses not specifically listed above, the minimum parking space requirement set forth in sections 11-103, 11-104, 11-105 and 11-106 shall apply as follows: For development within a half mile of the metro station, the first 5,000 square feet of gross floor area located on the ground or street level for the following uses should not be included in the calculation of required parking: personal/business services, fast food restaurant, quick service food store and/or eating establishment. Beyond 5,000 square feet the minimum number of parking spaces required should be based on eighty percent (80%) of the specified rates set forth in such Sections.

Funding of Transportation Improvements and Services

Funding these transportation improvements through Federal, State and County sources should be pursued; however, some combination of public and private sector funding will be necessary to cover the costs associated with these improvements and to expedite implementation. Additionally, these improvements may be implemented in stages by the private sector as development occurs. Further detailed examination of these funding options for each improvement identified and those that have not been identified is needed before a preferred funding approach is selected.