

# Corridor Recommendations and Implementation

## INTER-PARCEL CONNECTIVITY

Both alternative Concept A and Concept B segments of the Community Core suggest a system of interconnected local streets and local interconnectivity. The retaining of the frontage road system as parking streets or the introduction of reverse frontage roads behind development along the corridor will aid in limiting the use of short sections of South Military Highway for local traffic. Inter-parcel connectivity places an emphasis on the strategic placement of access at median crossovers, preferably with a traffic signal, that will serve ingress/egress of commercial developments or large residential developments. Anticipatory planning of future development and redevelopment efforts along the South Military Highway Corridor will lead to establishing adequate access and traffic control measures. Inter-parcel connectivity and the frontage road concept both demonstrate an effective methodology to consolidating the number of access points and therefore the number of movement conflicts along the corridor.

## ACCESS MANAGEMENT STRATEGIES

Access management provides two major benefits to the transportation system, the preservation of highway capacity and safety. Access management requires the implementation of policies and roadway features that manage the movement of vehicles along a street. Policies and design solutions are varied and can be adapted to fit different situations. One published document that may help with the selection of appropriate measures for access management policies is the National Cooperative Highway Research Program's (NCHRP) Report 420, Impact of Access Management Techniques. As described in this report, access management is "the process that provides (or manages) access to land development, while simultaneously

preserving the flow of traffic on the surrounding road system in terms of safety, capacity, and speed." This document provides an assessment of access management techniques. Common examples of access management strategies described in the aforementioned document include:

- Establishing adequate signal spacing
- Establishing adequate unsignalized access spacing
- Constructing median treatments
- Providing appropriate median openings
- Providing left-turn lanes
- Providing alternatives to left-turns
- Establishing driveway design criteria

## Signal Spacing

Appropriate signal spacing is critical in being able to provide good two-way vehicle progression along a corridor. It is commonly understood that appropriate spacing of traffic signals can dramatically improve safety and traffic operations. To achieve good signal coordination and provide traffic progression in both directions of travel, traffic signal spacing at multiples of ¼ mile is generally recommended for roadways in developed segments of the corridor, although this does not mean that a signal is warranted every ¼ mile interval. Depending on desired speeds and development along a roadway, signal spacing should be adjusted accordingly. The first priority for a proposed signal should be based on demand. In addition, consideration should be given to the type of property being served whether it is a centralized location of neighborhood use or direct access for industrial development.

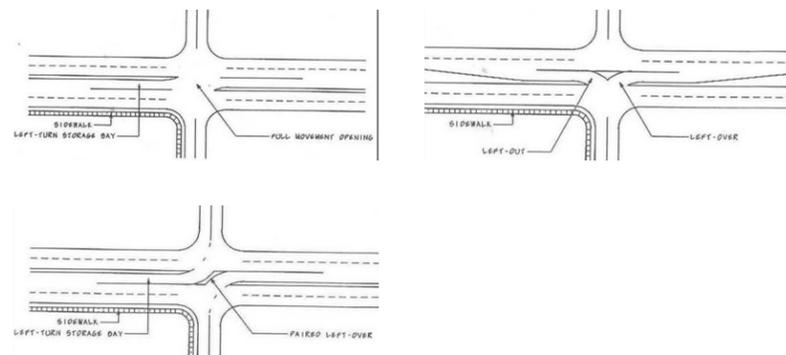
#### Unsignalized Access Spacing

As unsignalized driveways and intersections are planned and constructed, they should be spaced such that those that are likely to be converted into signalized intersections are spaced similar to existing intersections with signals. With the introduction of access streets, several developments can receive direct access to South Military Highway with a single access point.

#### Median Openings

Median openings are identified in one of two categories - full or directional. A full median opening accommodates all turning movements whereas a directional opening accommodates only specific movements through channelization. Examples of different types of median openings include:

- Full movement
- Left-over, left-out
- Paired left-over
- Left-out
- Right-in right-out (RIRO)



#### Median Crossover Width

Median crossover width is an important roadway feature that can significantly affect roadway access. Narrow medians do separate oncoming traffic. However, narrow median crossovers do not provide adequate shelter for turning vehicles or pedestrians. The physical conditions and the impact to traffic operations were observed at several locations along the South Military Highway Corridor. This can be observed on a daily basis. Since the majority of the corridor already benefits from the presence of medians, safety issues associated with median crossover width are a primary factor.

The ideal width of the median is dependent on the presence of turn-lanes in the median, and the vehicle composition and vehicle queuing needs for vehicles trying to perform a left-turn or U-turn from the median or trying to cross the highway from a side street. The lack of turn-lanes further fuels the need to not only introduce turning lanes but to also consider the widening of median crossovers as a part of the improvements needed along the corridor.

#### Crossover Spacing and Consolidation

As with driveway spacing, proper crossover spacing is important to the overall function of the South Military Highway corridor. In some instances, the proper spacing of medians may result in the opportunity to eliminate some median crossovers, and consolidate left-turning vehicles to specific intersections. The Virginia Department of Transportation's (VDOT) access management policy requires full median openings be spaced a minimum of 900 feet apart when the design speed is 50 mph. The City of Chesapeake crossover spacing for a Principal Arterial with a design speed of 50 mph is also 900 feet but with a roadway classification of Minor Arterial this spacing is reduced to 700 feet. This is a direct reflection of roadway volume and

the reduced potential to disrupt traffic flow on a lower roadway classification.

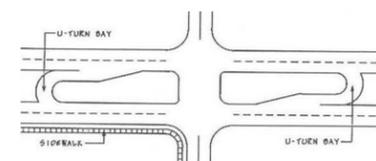
#### Left-turn Lanes

Providing adequate left-turn lanes and appropriate storage length is important for roadway capacity and safety. Left-turn lanes remove through vehicles from turning traffic, improve the visibility of oncoming traffic to left-turning vehicles, and reduce rear-end collisions. Turn-lanes and in particular left-turn lanes benefit highway operations. The NCHRP report cites several studies documenting delay reductions associated with left-turn lanes, and indicates that the "capacity of a shared lane is about 40 percent to 60 percent of that of a through lane." It is estimated that the provision of left-turn lanes on a four-lane arterial can increase capacity by as much as 33 percent.

#### Alternatives to Left-turns

In some instances it is necessary to control where left-turns can be made in a corridor. In other cases left-turns must be restricted altogether. In these cases, the left-turn movement can be displaced to a more suitable location with a lesser impact. There are numerous alternatives that can be applied in these situations. Examples include:

- Median U-turn
- Jug Handle



#### Driveway Design

Entrances to parcels must be designed, or the lack of design involves three components that create unnecessary vehicle delays and conflicts:

- Location
- Design
- High Occurrence

Drivers are forced to slow down for vehicles entering an existing driveway, decreasing the capacity of the mainline. By relocating, removing and combining driveways, this segment of South Military Highway would achieve an increase in safety and efficiency.

Access management provides vehicular access to land development in a manner that preserves the safety and efficiency of the transportation system. It applies traffic engineering principles to the location, design, and operation of access drives serving activities along the highway. Access management can improve safety and traffic operations by:

- Limiting the number of vehicle conflict points
- Increasing distance between conflict areas
- Reducing the number of turning vehicles from through traffic lanes
- Reducing conflicting vehicle volumes

As one can see, a wide variety of access management techniques can be implemented to manage roadway access. Measures will need to vary by roadway classification, existing conditions, and adjacent land uses. In the case of South Military Highway applicable techniques must keep in mind the corridor's mobility function (to accommodate relatively large volumes of traffic at moderate speeds within

and through the region).

The City of Chesapeake has an existing Access Management Policy and Plan for South Military Highway per Chapter 16 -Access Management Public Facilities Manual. However, the current access control plan was approved in 1985 and covers the segment from I-64 to Deep Creek Boulevard. It is recommended that with the adoption of the new 2026 Comprehensive Plan and the adopted 2026 Land Use Plan the City of Chesapeake should consider updating and extending the current access control plan. It is suggested that the plan be extended to address the South Military Highway Corridor study area beginning with the South Military Highway/I-64 Bower's Hill interchange in the west and extending to the South Military Highway/I-464 interchange in the east.

In general, the City of Chesapeake access management policy is consistent with median spacing and access management strategies set forth by VDOT. In some instances the City ordinance or entrance standards and median cross-over spacing exceed those of VDOT. For effectiveness, access management must consider both road design principles as well as land use planning principles. The relationship that will exist between the transportation system of South Military Highway and the adjacent land uses will require coordination between VDOT and the City of Chesapeake. This coordination effort will be necessary to establish and sustain orderly growth patterns that will minimize the impacts of land use on the transportation system.

#### Access Improvement Recommendations

- Median between I-64 Off-Ramp/Cavalier Boulevard intersection and cross-over at I-64 On-Ramp toward Virginia Beach: Eliminate utilities within the median

- Westbound Military Highway at I-64 (Toward Suffolk) On-Ramp: Construct an exclusive right-turn lane with 200 feet of storage and 200 foot taper
- Military Highway between State Street and George Washington Highway (U.S. Route 17): Consider exclusive full-width left-turn lanes at median crossover locations
- Military Highway between State Street and George Washington Highway (U.S. Route 17): Consider one-way frontage roads
- Military Highway between Cavalier Boulevard and Bower's Hill: Consider the construction of exclusive full-width left-turn lanes and consider the median crossover consolidation or the elimination of some median crossovers
- Military Highway at Deep Creek Boulevard: Eliminate full-movement median crossover and construct Deep Creek Boulevard right-out only

#### Intersection Recommendations

- Military Highway at I-64 (Toward Virginia Beach) On-Ramp: Construct exclusive eastbound right-turn lane
- Military Highway at Cavalier Boulevard: Extend eastbound left-turn lane and improve the radius for southbound right-turn movement to better accommodate truck traffic
- Military Highway at Canal Drive: Extend eastbound left-turn lane
- Military Highway at George Washington Highway: Extend westbound left-turn lane, extend eastbound left-turn lane, and reconstruct intersection to incorporate full-width right-turn lanes into intersection

- Modify I-664 Off-Ramp at Bower's Hill: Short ramp exits to stop controlled T intersection, queuing during peak periods backs up onto the Interstate, and traffic approaching from the west (U.S. Highway 13/58/460) and north (I-664) oriented toward eastbound Military Highway can access at the West Military Highway Off-Ramp or at the I-64/Military Highway interchange (Exit 297) planned for signalization; therefore, it is recommended that this ramp be closed.

In addition to the detailed access management and intersection recommendations, there are several other issues that require attention. These additional elements may not directly improve the capacity of the roadway but will improve the feel of the roadway, enhance communication, improve visibility, and thus allow motorists to move through the corridor with ease and ultimate improved safety.

#### SIGNAL TIMING

In addition to specific recommendations identified at each intersection, the entire South Military Highway should be up graded to operate as a coordinated signal system. This will improve the overall operation on a daily bases as well as allow for incident management plans to be implemented to accommodate incidents at the High Rise Bridge along I-64.

With a coordinated system in place, the City will have the flexibility to vary the system boundaries by time of day or under incident conditions. It is anticipated that the traffic signals serving the I-464/Military Highway interchange will be operated independently under normal commuter conditions. However, they will be coordinated with the other signals when incident management plans are in place.

Preliminary AM and PM peak hour signal timing plans have been prepared using Synchro 6.0 Professional to address existing conditions for review and consideration by the City of Chesapeake (See included CD). The signal timing analysis represents signalized intersection analysis for the corridor as a whole and an effort to best progress traffic along the mainline during these peak periods. The analysis also includes:

- 2026 volumes on Existing Geometry
- 2026 volumes Community Core Concept 1A
- 2026 volumes Community Core Concept 1B
- 2026 volumes Cavalier Interchange ALT 1
- 2026 volumes Cavalier Interchange ALT 2

Additionally, the data files contained on the CD are intended to demonstrate existing and future network deficiencies as well as demonstrate short term and long term solutions that enhance and sustain traffic operations along the corridor.

#### GILMERTON BRIDGE

The City of Chesapeake must actively pursue and designate the Urban Transportation improvement funds required to support the replacement and construction of the new Gilmerton Bridge. The new Gilmerton Bridge should continue to be designed and constructed to ultimately accommodate six travel lanes.

The replacement of the Gilmerton Bridge is a critical first step in the planned reinvestment and aesthetic improvement of the corridor. The new Gilmerton Bridge will help redefine the eastern gateway of the South Military Highway Corridor.

#### GEORGE WASHINGTON HIGHWAY

During the charrette process numerous participants discussed the need to improve George Washington Highway (U.S. Route 17) between South Military Highway and Canal Drive to a four-lane roadway. This segment is currently a two-lane facility with an exclusive left-turn lane at the southbound approach to South Military Highway. Conversations with local residents and the City and through additional data gathering, revealed that this section had at one time been a funded project but was taken off the list due to other higher priority needs in the region.

Intersection analysis revealed that with the additional laneage intersection LOS conditions could be improved to address existing and future demand. Additional laneage will better accommodate traffic traveling to/from the I-64/Deep Creek interchange in the south and other areas of Chesapeake and Portsmouth to the north. The additional capacity will require less green time being allocated to traffic along George Washington Highway and allow more green time to be allocated back to South Military Highway. Improving this segment of the George Washington Highway to a four-lane facility will add capacity and when combined with signal timing modifications at the intersection will enhance traffic operations and traffic progression through the intersection and along this portion of the South Military Highway corridor.

#### PEDESTRIAN AND BICYCLE FACILITIES

Today, South Military Highway is not a designated bike route. Lack of such facilities causes bicyclists and pedestrians to use the roadway or shoulder for recreational purposes and travel to and from work.

From our meetings with the steering committee members, local citizens, and representatives from the Chesapeake Bicycle\Trails Committee, it is recommended that designated (Class II) bike lanes be incorporated into the future corridor roadway design. These bike lanes should be constructed adjacent to the travel lanes beginning at the I-64/Cavalier Boulevard interchange in the west and continue through the planned Community Core and end in the area immediately east of the Gilmerton Bridge.

Along the western (Bower's Hill) segment of the corridor, it is recommended that bike lanes or multi-use paths be located beyond the roadway section to provide a buffer to the higher travel speeds, traffic volumes, and truck traffic. While representatives from the Bicycle/Trails Committee revealed that adjacent Class II bike lanes along this particular segment are preferred, the accommodation of separated multi-purpose paths will better serve multiple user interests along this part of the corridor.

It is noted that per the Chesapeake 2026 Comprehensive Plan bike facilities should be designed and maintained with the intended user in mind. Off-road paths are more appropriate for recreational users, while bike lanes adjacent to the roadway are more appropriate for the experienced cyclist. In the spirit of the Chesapeake 2026 Comprehensive Plan it is recommended that bicycle facilities should be considered with all future transportation projects.

Currently, the corridor is essentially void of such pedestrian facilities creating additional safety hazards for motorists and pedestrians. Sidewalks are critical transportation routes in a community and are a fundamental pedestrian component in street design. As new development\redevelopment, especially within the Community Core area comes to fruition, there will be an increased need to provide side-

walks for pedestrian mobility among land uses. To support the success of the proposed Community Core particularly for those businesses abutting residential neighborhoods and located along the parking streets, sidewalks offer the opportunity to establish an active pedestrian environment.

It is also recommended that intersections along the corridor be upgraded with corresponding corridor improvements to include sidewalks and ADA compliant curb ramps. Additionally, a minimum five-foot clear-zone should be provided along sidewalks conforming to ADA minimum passing space for a wheel chair. ADA requires a wheelchair passing space at intervals of no more than 200 feet on a walkway.

#### SIGNAGE

New signage and way finding techniques need to be responsive to the varying land use characteristics present throughout the corridor. Signage should be introduced that supports both existing and future local businesses, assists community members, guides truck traffic through the corridor, and is easily understandable.

- Uniform service signs (gas, food, lodging, etc.) should be located only around the major intersections and at the end points of the study area corridor
- Road signs (speed limit, traffic controls, etc.) should be posted at regular intervals as required by law
- The City may consider the introduction of historical signs and/or markers within the commercial/retail core of the corridor
- Gateway treatments such as landscaping or monument signs should be introduced at the end points of the study area to further define the varying character of the area

#### LIGHTING

Lighting along the corridor should be designed and installed that is consistent with the surrounding land uses and varying character of the corridor. Lighting for the corridor should meet VDOT lighting design guidelines, standards to support efficient and safe vehicular and pedestrian movement.

Numerous charrette participants noted the lack of lighting at the I-64/Cavalier Boulevard interchange and indicated that installation of lighting at this location should be a priority. It is also understood that the City of Chesapeake was in the process of developing a lighting plan and preparing to install lighting along the Bower's Hill segment of South Military Highway. This effort was put on hold until recommendations and findings were identified as a part of this study. As expected the lack of lighting along this segment was voiced and listed as a safety concern. Therefore, it is recommended that the City of Chesapeake proceed expeditiously with reinitiating their lighting design and installation effort for this segment of Bower's Hill based on the right-of-way necessary to accommodate the proposed four-lane typical section and associated multi-use paths.

In the planned commercial/retail core segment of the corridor, site lighting should be designed and installed to minimize the visibility of light sources and glare from public view or adjacent sites. In particular, overhead glow should be minimized as much as possible. Additionally, pedestrian lighting fixtures within the Community Core should be consistent in an effort to establish a sense of character or place.

Lighting in the Gilmerton area of the corridor will be dictated by lighting fixtures associated with the replacement of the Gilmerton Bridge. Lighting between the Gilmerton Bridge and the Community Core area should meet VDOT design guidelines.

## REPAVING

The South Military Highway Task Force Study and the recent design charrette process identified the need to repave the corridor. Currently pavement conditions include cracking, fragmenting, and complete pavement failure along some edges of the roadway. It is very evident that the pavement of South Military Highway corridor has been neglected and not maintained on a consistent basis.

Realizing the Gilmerton Bridge will not be constructed for another five years and the funding and potential to improve South Military Highway to a six-lane facility in the time period is very unlikely, resurfacing of the corridor should be emphasized. Repaving the corridor presents a near term improvement that will offer an improved driving surface, establish a commitment to investment by the City, and address some of the aesthetic concerns the corridor presents. New pavement with new striping and marking begins to present a cleaner/new feel to the roadway. Repaving or resurfacing of the corridor should be a priority to the City.

## LANDSCAPING

With future roadway improvements, it is recommended that gateway treatments (landscaping, monument signs, etc.) be constructed to further define the character and boundaries of the corridor. It is recommended that gateway signs with appropriate landscaping be implemented that define the entrances to the Community Core area. In addition to existing Zoning Ordinance requirements, the City should implement landscape and streetscape standards that define the character of the core and enhance the overall aesthetic qualities of the corridor.

Implementation of planned and maintained landscaping will provide several benefits. Such landscaping benefits include:

- Preserve and enhance the visibility of traffic along the South Military Highway Corridor
- Enhance the visual quality of the corridor
- Shade parking lots, reduce heat generation from asphalt
- Reduce the volume and improve the quality of stormwater runoff

Where stormwater management features will be required as a part of future roadway design, the City should consider landscaping opportunities that include recreated wetlands and reforestation zones (particularly along the Bower's Hill and Gilmerton segments of the corridor) to achieve the desired function. Existing landscaping or working landscapes such as fields, wetlands, wooded areas, or agricultural areas should be preserved where possible. Also, landscaping features should integrate with stormwater management plan needs to ensure consistency with a master drainage plan for the corridor.

The magnitude and character of landscaping implemented for the corridor should be reflective of the three areas that exist along the roadway. Landscaping should define the distinct characteristics of the corridor and further promote a sense of place while fulfilling necessary function. Landscaping along the corridor should offer a buffer between inconsistent land uses especially residential land uses and local businesses.

In addition to aesthetic quality enhancements and stormwater management benefits, it is expected that as with resurfacing, investment in landscaping along the corridor will reflect a commitment to investment on behalf of the City.

## OTHER CONSIDERATIONS:

### LIGHT RAIL TRANSIT (LRT)

As future need and conditions warrant, the City should study the feasibility of introducing light rail transit (LRT) into the corridor in coordination with Hampton Roads Transit (HRT).

### INDUSTRIAL CORRIDOR OVERLAY DISTRICT (ICOD)

The City of Chesapeake has adopted Transportation Corridor Overlay District (TCOD) policy that applies to Route 104 (Dominion Boulevard) and Route 168 (Battlefield Boulevard). We understand that the intent of the TCOD is to preserve the economic development potential of the two corridors by creating opportunities for high quality, attractive development. A key component of the TCOD development is accessibility to the interstate system and primary regional transportation infrastructure systems (I-464, I-64, Rail lines, Southern Branch of the Elizabeth River, etc.). Accessibility provides new opportunities for people in terms of where to live, work, and shop. Although the overlay approach for the South Military Highway corridor is appropriate, the intentions for development/redevelopment management in this area are slightly different from those for the TCOD growth corridors.

As a part of the needs assessment conducted during this study, and extensive public input during the design charrette indicated the need to promote commercial-retail, light industrial and heavy industrial development opportunities within the corridor. That intent, combined with the geographic location of the corridor and surrounding area land uses shape the need to establish, via an Industrial Corridor Overlay District (ICOD), guidelines for development along the improved roadway.

The ICOD builds off of the TCOD principle that opportunities are created by existing transportation infrastructure and planned transportation improvements and it is vital to preserve such opportunities. The South Military Highway corridor is a vital link at the local and regional level due to its access relationships with I-464, U.S. Route 17 (George Washington Highway), I-64, I-664, and U.S. Route 58. South Military Highway will play a role in providing access to the future Pleasant Grove Parkway through the I-64 interchange at Cavalier Boulevard.

It is understood that interstate, rail, and deep water accessibility combined with more intense land uses are what will shape the future of the corridor. The defining difference is that the South Military Highway corridor is currently characterized by existing light and heavy industrial land uses at each end of the corridor with the intent to support and grow such uses into the future. Simultaneously, the Community Core segment will focus on community oriented commercial and retail services. Commitment to investment in the corridor combined with a vision for future land uses supports the concept of the ICOD.

The ICOD establishes a policy framework intended to define and manage new development and redevelopment efforts along the corridor. The area in which this policy framework will be defined is a one-mile buffer (1/2 mile to the north and 1/2 mile to the south the roadway) beginning immediately west of the I-464/South Military Highway interchange and ending in the east at the I-664 off-ramp in Bower's Hill. The proposed ICOD will be administered through the rezoning and conditional use permit (CUP) process. This provides the City with some discretion over the approval of conditional use permits and rezoning applications. The policy framework will pro-

vide the opportunity to implement shaping guidelines that lead to the generation of additional tax revenue for the City. Existing accessibility, existing zoning, and a vision create the potential to establish a vibrant and thriving community and corridor.

In addition to the economic development benefits, investment in transportation infrastructure improvements is intended to enhance the safety, function, and capacity of the corridor. As a major regional transportation facility, the establishment of the proposed ICOD for this section of the South Military Highway corridor, represents an opportunity for significant community investment that will contribute to public health, safety, and welfare. Improvements to the corridor will facilitate access to jobs and schools and support the movement of goods and services.

Therefore, it is recommended that the City of Chesapeake consider the establishment of an Industrial Corridor Overlay District.