Chapter 3: Alternatives Development

An Alternatives Development Technical Memorandum (ADTM), Appendix C, was prepared according to the provisions of the National Environmental Policy Act (NEPA) and corresponding regulations and guidelines of the Federal Highway Administration (FHWA), the lead federal agency (23 Code of Federal Regulations [CFR] 771 and 40 CFR 1500–1508) as well as the requirements of South Carolina Department of Transportation (SCDOT), the project sponsor and lead state agency.

The purpose of the technical memo was to clearly document the alternatives development and screening process for the proposed I-526 LCC WEST Environmental Impact Statement (EIS).

To address the existing and future congestion and operational issues of the I-526 corridor in Charleston County, SCDOT commissioned a study to develop a long-range plan for the corridor. The Corridor Analysis for I-526 Between North Charleston and West Ashley (2013 Corridor Study) was completed in 2013 and is hereby incorporated by reference.[1] The 2013 Corridor Study documents the travel conditions at the I-526/I-26 system interchange and along I-526 between US 17 at Savannah Highway and US 52 at Rivers Avenue. The purpose of the study was to evaluate potential improvement strategies for the corridor in a holistic manner, as opposed to evaluating widening as the sole potential improvement. Several strategies to reduce future congestion were studied, including travel demand management, modal improvements for both passengers and freight, traffic operations improvements, and capacity improvements. The 2013 Corridor Study was used to develop alternatives for the I-526 Lowcountry Corridor (LCC) WEST project, which are discussed in detail in Appendix C.

The Berkeley-Charleston-Dorchester Council of Governments (BCDCOG), which serves as the Charleston Area Transportation Study (CHATS) Metropolitan Planning Organization (MPO), developed the Congestion Management Process (CMP) to assess conditions, identify deficiencies, and make recommendations.[2] The CMP identifies five strategies for the I-526 WEST corridor that were evaluated during the alternative development process. These five strategies from the CMP are outlined below.

- Parallel Pedestrian Facilities/Greenways - the creation or enhancement of access for pedestrians and bicyclists
- Education/Enforcement - addresses dangerous traffic behaviors and improved safety behaviors
- Enhanced Operations - includes ramp metering, traffic signal prioritization, and other technology-based improvements
- Bus on Shoulder/Bus Rapid Transit (BRT) - creates a corridor for buses that is separated, has signal prioritization, and fewer stops
- Congestion Pricing/Tolling - High Occupancy Vehicle(HOV)/Transit (HOT) lane to reflect the price of improved mobility on congested roads

3.1 What are the Steps of the Alternative Analysis?

Step 1: Preliminary Screening of the Range of Alternatives

Alternatives were developed based on the findings of the 2013 Corridor Study, CHATS CMP, SCDOT goals and priorities, further evaluation of the corridor, and input from the public and agencies. The alternatives are general in nature and are evaluated based on the ability to satisfy the purpose and need of the I-526 LCC WEST project.

1 Corridor Analysis for I-526 Between North Charleston and West Ashley, SCDOT, October 2013.
2 Congestion Management Process, Berkeley-Charleston-Dorchester Council of Governments, January 2019

Step 2: Identify Preliminary Alternatives
Alternatives that advance from the preliminary screening are considered Preliminary Alternatives and move on to the next screening.

Step 3: Screening of Preliminary Alternatives
The Preliminary Alternatives are then evaluated by the following screening criteria at a qualitative level:

- Acceptable Level of Service (LOS)
- Compatible with Adjacent Interchange
- Geometric Deficiencies Resolved
- Flexibility with Don Holt Bridge Replacement
- Constructability

If a Preliminary Alternative is unable to meet the criteria above, then it is not considered practicable or feasible. The alternatives that meet the screening criteria are identified as Proposed Reasonable Alternatives.

Step 4: Identify Proposed Reasonable Alternatives
The Preliminary Alternatives that meet the purpose & need of the project, as well as the overall project purpose, are carried forward as the Proposed Reasonable Alternatives.

Step 5: Detailed Impact Evaluation of Proposed Reasonable Alternatives
The Proposed Reasonable Alternatives are being evaluated based on the following evaluation criteria:

- Purpose & Need
  - Traffic
    - Average Annual Daily Traffic (AADT)
    - volume to capacity (v/c) Ratio
    - LOS
- Essential Fish Habitat
- Hazardous Materials
- Cultural Resources
- Noise
- Delineated Wetlands
- Relocations
- Environmental Justice
- Threatened & Endangered Species
- Utilities
- Cost
- Section 4(f) & 6(f)
- Reduce/Eliminate Geometric Deficiencies to Improve Safety
- Hurricane Evacuation Route Compatibility

Step 6: Recommended Preferred Alternative
The Proposed Reasonable Alternative that best balances the potential impacts to the human and natural environment will be recommended as the Preferred Alternative.

The Recommended Preferred Alternative proposes to widen I-526 from Paul Cantrell Boulevard to I-26 to an eight-lane facility (four lanes in each direction). Additionally, the project would reconfigure the interchange of I-26 and I-526 to add directional ramps to increase capacity, add a collector-distributor facility (a way of connecting closely spaced interchanges) to I-526, and expand the existing collector-distributor on I-26 to further improve operations. Improvements would also be made to the interchanges of I-26 and Aviation Avenue and Montague Avenue. The project would make other operational improvements at the interchanges along I-526. Specifically, the interchanges at Paul Cantrell Boulevard (including the adjacent intersection with Magwood Drive), International Boulevard, and N Rhett Avenue/Virginia Avenue would undergo various types of reconfiguration. A detailed description of the proposed changes, along with the traffic engineering analysis of the changes, can be found in Appendix B.

LOS - Way to describe roadway operating conditions based on speed, travel time, maneuverability, delay and safety
v/c Ratio - Compares roadway demand (volume) with roadway supply (capacity)
Source: Highway Capacity Manual

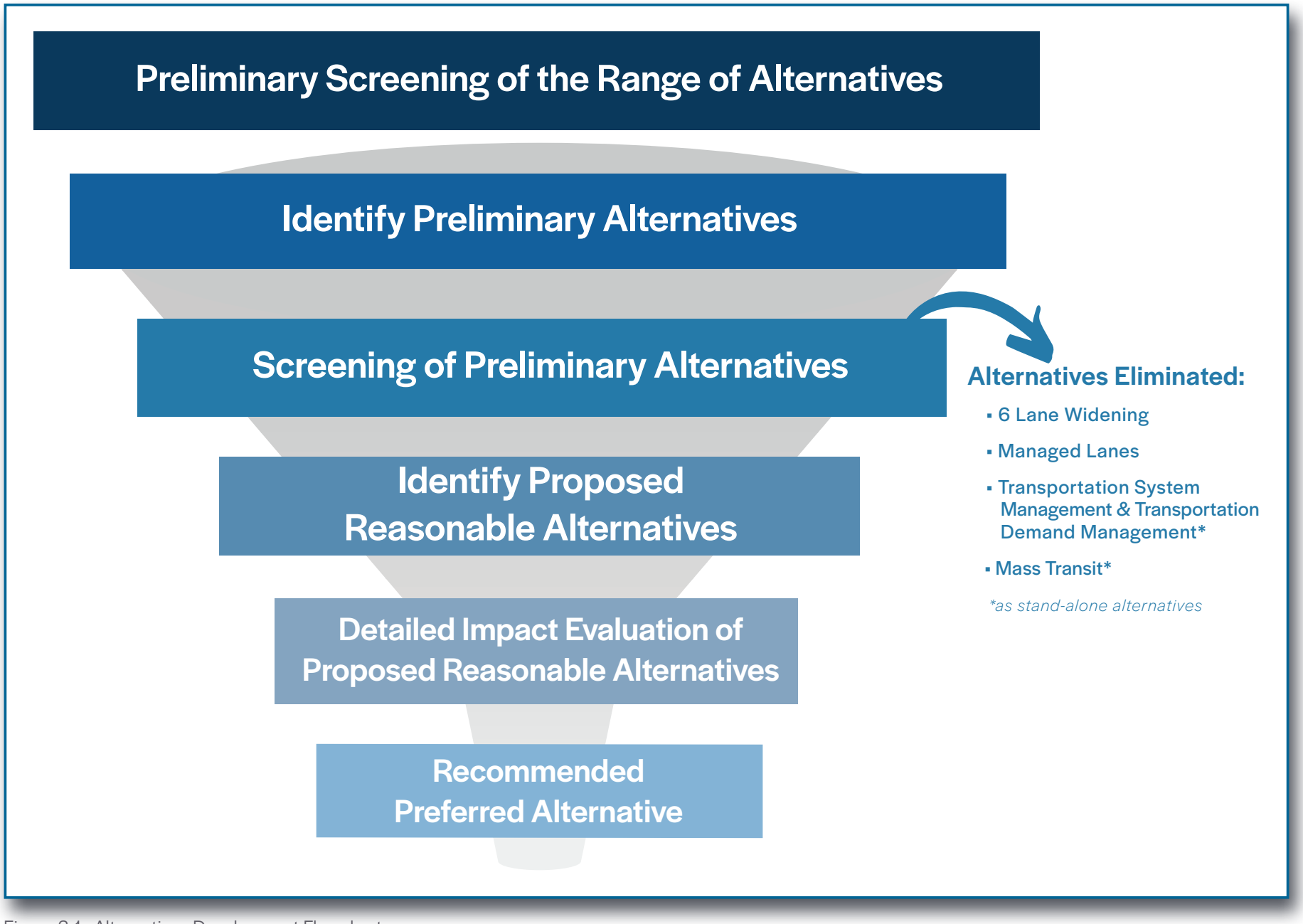


Figure 3.1 Alternatives Development Flowchart

3.2 How were the Range of Alternatives Developed?

NEPA regulations and guidance from FHWA and the Council on Environmental Quality (CEQ) stipulate three primary reasons why an alternative might be determined to be not reasonable and eliminated from further consideration.

- The alternative does not satisfy the purpose of and need for the project
- The alternative is determined to be not practical or feasible from a technical and/or economic standpoint
- The alternative substantially duplicates another alternative

During the development of the range of alternatives for this Draft Environmental Impact Statement (DEIS), the October 2013 Corridor Study was used in conjunction with the following goals and priorities provided by SCDOT, input from the public, comments from the agencies, and coordination with SCDOT staff.

- Provide congestion relief by improving I-26/I-526 interchange and I-526 mainline operation
- Reduce/eliminate geometric deficiencies to improve safety
- Financial constraints of available funding

3.3 October 2013 Corridor Study

In 2013, SCDOT completed a study of I-526 in order to produce a long-range plan for the corridor and is hereby incorporated by reference. The 2013 Corridor Study documented travel conditions along an eight-mile section of I-526 between US 17 (Savannah Highway) and US 52 (Rivers Avenue) including the system interchange between I-526 and I-26. According to the study, increased congestion is forecasted for the I-526 Corridor. The existing route is a four-lane, divided interstate serving as a freeway around the Charleston area connecting West Ashley to Mount Pleasant and is widely used by commuters and various commercial and industrial operations. A number of the recommendations from the 2013 Corridor Study were programmed into the Statewide Transportation Improvement Program (STIP).

The I-526 Corridor has been identified as one of the most congested in the state and has been designated as a "Mega Project" in the State Long-Range Interstate Plan, which indicates construction costs exceed multiple years of the state's interstate program funding.

The purpose of the 2013 Corridor Study was to look at all-inclusive improvement strategies for the corridor which have the best benefit for the public, rather than looking solely at widening as the only potential improvement. Improvement strategies were organized into four categories: 1) Transportation Demand Management (TDM), 2) Modal (transit/freight), 3) Traffic Operations, and 4) Capacity Improvement. TDM improvements consisted of rideshares, employer-based incentives, flexible work schedules, and public outreach programs. Modal improvements included new and improved transit routes and facilities as well as public/private partnerships. Traffic Operation strategies focused on a series of improvements to geometric deficiencies along the corridor, upgrades to pavement marking and signing, and intelligent transportation system (ITS) implementation. Capacity Improvement options incorporated both the widening of I-526 to a six-lane section from Paul Cantrell Boulevard to Rivers Avenue and interchange improvements to I-26/I-526 as well as improvements to other interchanges, collector-distributor (C-D) systems, braided ramps, and barrier-separated lanes.

During the October 2013 Corridor Study, public involvement in the local Charleston community was crucial in developing the alternatives. To engage the community, a project steering committee and a project stakeholder committee were developed as well as a project website, surveys and public information meetings. Appendix C includes more detailed information on the 2013 Corridor Analysis for I-526 Between North Charleston and West Ashley.

3.4 What are the Range of Alternatives?

Based on the 2013 Corridor Study, a wide range of alternatives were developed and analyzed to see if they met the primary purpose and need of the project.[1] The goal of this process is to identify and consider the broadest range of possible alternatives, working to narrow the scope of alternatives to the range of reasonable and practicable alternatives that could meet the overall purpose of the project. Through the process of developing the purpose and need, the Applicant applied the basic project concepts to the full array of available alternatives in order to guide the identification of a "reasonable range" of alternatives as required by NEPA. As described above, under NEPA, reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the Applicant, 46 Federal Regulation 18026 (March 23, 1981). In an effort to address the existing and future congestion and operational issues identified for the corridor, a range of alternatives were developed to include the following:

- No-Build
- Improvements to existing local facilities
  - East Montague Avenue
  - Remount Road
- New location alternatives
  - US 78 to Virginia Avenue
  - Ashley Phosphate Road to Virginia Avenue
  - Bees Ferry Road to Dorchester Road
- Managed Lanes
- Transportation System Management (TSM) and TDM Strategies
- Mass Transit
- Existing Corridor Improvements

3.5 Preliminary Screening of the Range of Alternatives

The Range of Alternatives are evaluated using the purpose and need of the project. Table 3.1 summarizes the preliminary screening and the details are included in Sections 3.5.1 through 3.5.7.

1 The NEPA alternatives analysis required consideration of all alternatives for a project has its roots in the fact that NEPA is a procedural statute, rather than one dictating substantive analysis or mandating a particular outcome. At its core, NEPA is a "stop, look, and listen" statute that is intended to result in an informed agency decision making process. The Guidelines impose a stricter, substantive standard to the range of reasonable alternatives identified under NEPA that is designed to arrive at a practicable alternative that has the least adverse impact on the aquatic ecosystem.

Table 3.1 Preliminary Screening of the Range of Alternatives

	No Build	Improvements to Existing Local Facilities		New Location			Managed Lanes*	TSM/ TDM*	Mass Transit*	Existing Corridor Improvements
		East Montague Ave	Remount Rd	US 78 to Virginia Ave	Ashley Phosphate Rd to Virginia Ave	Bees Ferry Rd to Dorchester Rd				
Satisfies I-526 LCC WEST Purpose & Need	–	✗	✗	✗	✗	✗	✗	✗	✗	✓
Carried Forward as Preliminary Alternatives	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓

* Eliminated as stand-alone alternatives, but components of each carried forward and incorporated in proposed existing corridor improvement alternatives.

3.5.1 No-Build/No Action

While the No-Build Alternative does not meet the purpose and need of the project, it is carried forward as it provides a foundation for comparing the benefits and environmental impacts of the other alternatives.

Under the provisions of NEPA, the effects of not implementing the proposed action must also be considered. The No-Build Alternative provides a baseline for comparing potential environmental impacts with the other reasonable alternatives. Analysis of the No-Build Alternative must discuss the existing conditions as well as what is reasonably expected to occur in the foreseeable future if the proposed action is not constructed. For example, the No-Build Alternative must include nearby transportation projects that can reasonably be expected to be in place for the design year. Reasonably foreseeable projects typically come from the fiscally constrained list of projects in the STIP and in the local MPO long-range plans, as well as other programming documents from the municipalities in which the project occurs.

3.5.2 Improvements to Existing Local Facilities

SCDOT initiated an evaluation of alternate routes that satisfy the purpose and need of the I-526 LCC WEST project. The study evaluated the enhancement of existing roadway facilities along with the creation of new alignment corridors. The enhancements include the development of alternate alignments which could be used to decrease interstate traffic volumes. The corridors listed do not include any options which provide an alternate route between I-26 and the Cooper River, refer to Figure 3.2. Refer to Appendix C for more information about each alternative.

3.5.2.1 Improvements to East Montague Avenue

The improvements to existing East Montague Avenue were eliminated as a potential stand-alone alternative because it does not meet the purpose and need for the I-526 LCC WEST project.

This existing route runs nearly parallel to I-526 from I-26 to Virginia Avenue, and serves as a minor arterial facility connecting I-26 to the Park Circle area. East Montague Avenue, known as the old "Main Street", weaves through two of the city's most historic neighborhoods. Traffic modeling, including the proposed improvements to the existing East Montague Avenue, indicate a 10-24 percent decrease in traffic volumes along the existing I-526 mainline. Although the 24 percent reduction may be substantial enough to meet the purpose and need if it were along the entire corridor, this decrease in traffic volume would only be applicable to approximately 0.5 miles along I-526 from I-26 to Rivers Avenue. As a result, this reduction in congestion standing alone would not be substantial enough to meet the purpose and need of the I-526 LCC WEST project, as I-526 would still operate at a LOS E/F.

3.5.2.2 Improvements to Remount Road

The improvements to existing Remount Road were eliminated as a potential stand-alone alternative because it does not meet the purpose and need for the I-526 LCC WEST project.

This existing route serves the area just north of the I-526 corridor and connects I-26 to the North Charleston Terminal (NCT) and its associated facilities along the Cooper River. Traffic modeling including the proposed improvements to the existing Remount Road indicate a 1-12 percent decrease in traffic volumes along the existing I-526 mainline; this reduction in congestion standing alone would not be substantial enough to meet the purpose and need of the I-526 LCC WEST project, as I-526 would still operate at a LOS E/F.

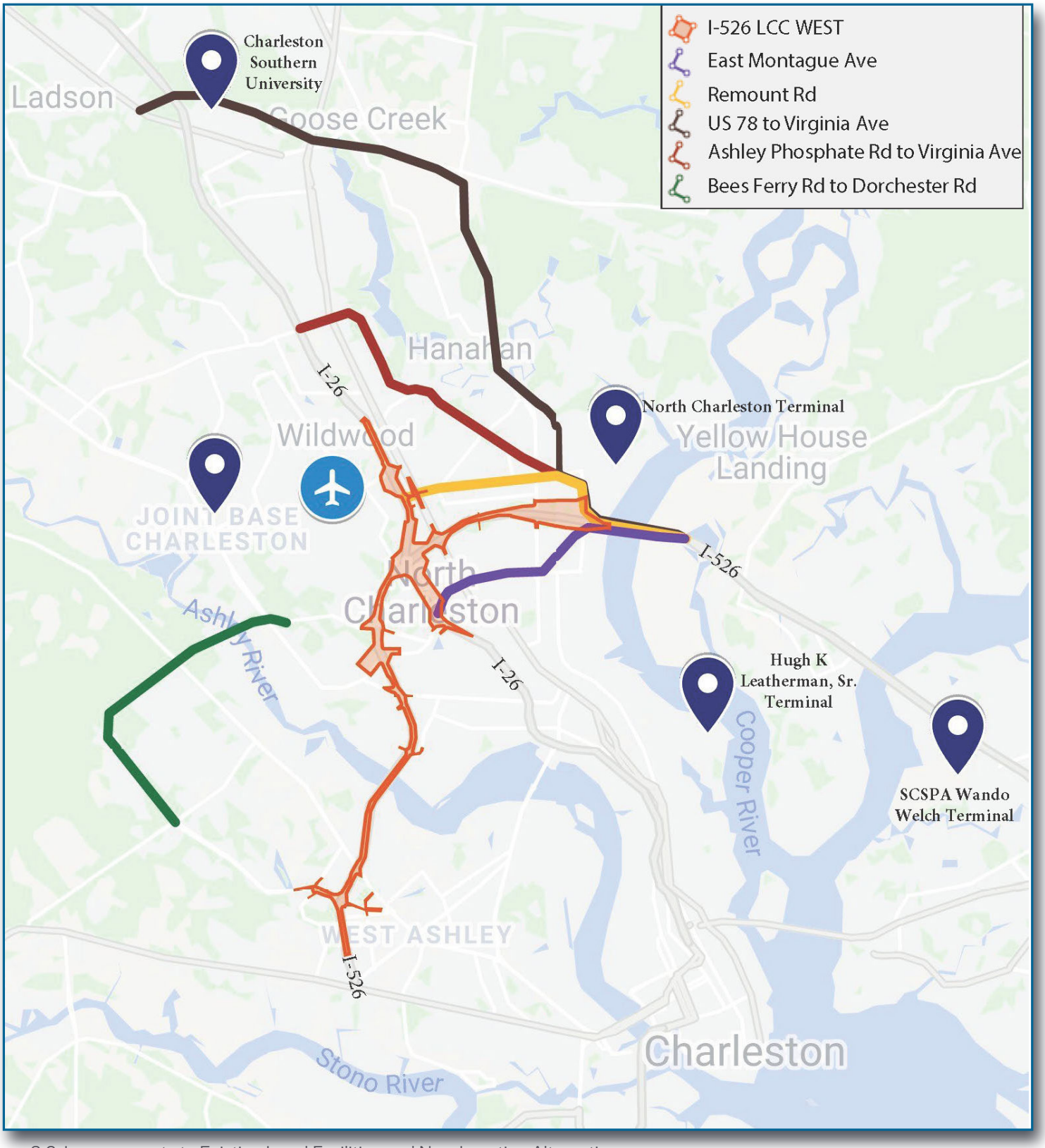


Figure 3.2 Improvements to Existing Local Facilities and New Location Alternatives

3.5.3 New Location Alternatives

During the process of assessing feasible alternate routes, additional route development is restricted by several regional landmarks and environmental features. These include the Charleston International Airport, the Cooper River, the Goose Creek Reservoir, and the Francis Marion National Forest/Bonneau Ferry Wildlife Management Area. Impacts to these points of interest are detrimental to the community as a whole; and any alternate route containing such impacts are deemed unreasonable for improving congestion along I-526. Refer to Appendix C for more information about these landmarks and Appendix B for detailed traffic in the Alternatives Development Traffic Analysis Report.

3.5.3.1 US 78 to Virginia Avenue

This proposed new alignment is established to connect key points along I-26 and I-526 in the vicinity of the existing Cooper River crossing at the Don Holt Bridge. The US 78 to Virginia Avenue route utilizes portions of Red Bank Road and N Rhett Avenue to create a four-lane, controlled access facility with new interchanges. A new location roadway section running north of Charleston Southern University and North Charleston Wannamaker County Park connects US 78 west of I-26 to the Red Bank Road corridor. Upgrading the existing roadway impacts commercial and residential development along Red Bank Road and potentially impacts the NCT facilities of the South Carolina Ports Authority.

The US 78 to Virginia Avenue route is eliminated as a potential stand-alone alternative because it does not meet the purpose and need for the I-526 LCC WEST project.

Traffic modeling, including the proposed new alignment, indicates a 2-10 percent decrease in traffic volumes along the existing I-526 mainline; this reduction in congestion standing alone is not substantial enough to meet the purpose and need of the I-526 LCC WEST project, as I-526 still operates at a LOS E/F.

3.5.3.2 Ashley Phosphate Road to Virginia Avenue

This proposed new alignment is a four-lane, controlled access facility which follows a short section of Ashley Phosphate Road east of I-26, then connects to Railroad Avenue and heads south before traversing on a new location to run parallel to Murray Drive along the existing utility easement. A variety of features are impacted by this proposed route, including, but not limited to, commercial and residential development along Ashley Phosphate Road and Murray Drive, Hanahan Elementary School and Trident Technical College, and the City of Hanahan Recreation Center and its associated park areas. In addition, major utility relocations are required.

The Ashley Phosphate Road to Virginia Avenue route is eliminated as a potential stand-alone alternative because it does not meet the purpose and need for the I-526 LCC WEST project.

Traffic modeling, based on the proposed new alignment, indicates a 7 to 15 percent decrease in traffic volumes along the existing I-526 mainline; this reduction in congestion standing alone does not meet the purpose and need of the I-526 LCC WEST project, as I-526 still operates at a LOS E/F.

3.5.3.3 Bees Ferry Road to Dorchester Road

A third new alignment route was evaluated to the west of I-26 which establishes a new connector across the Ashley River. The proposed roadway is four lanes with controlled access but does not include an interchange at Ashley River Road. The proposed Bees Ferry Road to Dorchester Road alignment requires a new bridge over the Ashley River that could potentially impact the existing Shadowmoss Plantation residential development.

The Bees Ferry Road to Dorchester Road new alignment route is eliminated as a potential stand-alone alternative because it does not meet the purpose and need for the I-526 LCC WEST project.

Incorporating this alignment into traffic modeling results in an estimated 4 percent decrease in traffic volume along I-526 near the Ashley River, while I-526 volumes to the east of I-26 have negligible reduction. Therefore, the proposed connector is also failing to meet the purpose and need of the I-526 LCC WEST project, as I-526 remains at a LOS F.

3.5.4 Managed Lanes

Managed lanes is one of the TDM strategies evaluated. The 2013 Corridor Study included an evaluation of managed lanes in the I-526 corridor and predicted the study area is not a long enough corridor to realize the potential of HOV or HOT lanes, and that a more regional plan including the I-26 corridor should be examined to increase the feasibility of managed lanes.

More recent managed lane studies (included in the current I-26 Corridor Study and the "I-526 West Managed Lane Concept - Independent Operational Segmental Analysis and Technical Memorandum I-26 Corridor Management Plan Managed Lane Operational Plan Analysis Parameters" Kimley-Horn and Associates, Inc. January 31, 2018) concluded that managed lanes may be feasible on I-526 if they extended westward on I-26 at least as far as the US 52 Connector near Ashley Phosphate Road. A regional managed lane study was conducted as part of the I-26 Corridor Study that included all of I-526 and I-26 from US 17 to Exit 187-Ridgeville. A suggested improvement from the plan is the implementation of HOT managed lanes from Exit 199 (US 17 Alt – Summerville) to I-26 Terminus at US 17 and along I-526 the entire section. There are currently no programmed improvements to I-26 between I-526 and the US 52 Connector; therefore, managed lanes cannot be justified based on a committed improvement ensuring their functionality upon completion of the I-526 LCC WEST Project. Whereas managed lanes alone do not meet the project's purpose and need and are therefore not considered a viable stand-alone alternative, the 12-foot shoulders included in the proposed project will be able to accommodate future managed lane options on I-26 or potential bus-on-shoulder transfers between the two interstates.

3.5.5 Transportation System Management and Transportation Demand Management

TDM focuses on lessening travel demand by reducing the number of vehicle trips and vehicle miles traveled on a roadway or redistributing this demand in space or time to decrease system deficiency.

The Transportation System Management (TSM) and TDM strategies evaluated in the 2013 Corridor Study are listed in Table 3.2. A total reduction of 5.2% of total overall traffic can be expected with the implementation of all 10 of the TDM programs evaluated in the 2013 Corridor Study. TSM includes lower cost improvements to improve efficiency and safety. A few examples of TSM consist of improving signal timing, adding high occupancy vehicle lanes as well as adding turn lanes. TDM regional strategies may include strategies such as encouraging drivers to carpool or ride the bus, and/or encouraging employers to allow non-standard work hours or telecommuting options for employees.

The following documents were also reviewed to determine if additional TSM and TDM studies provide better estimates of travel demand reduction. These studies did not reference reductions in travel demand related to single occupancy vehicles.

- The Public Transportation element of the CHATS Long-Range Transportation Plan (LRTP), January 2019
- Appendix D of the CHATS LRTP, Transit Needs Assessment, January 2019
- Travel Market Analysis element of the BCDCOG Regional Transit Framework Plan, March 2018
- Corridor Alternatives Evaluation & Recommendations element of the BCDCOG Regional Transit Framework Plan, March 2018
- CMP report, BCDCOG, January 2019

According to the US Census Bureau American Community Survey, the percentage of commuters driving alone to work has only reduced by 0.4 percent between 2013 and 2019. The percentage of carpoolers and public transit users also declined by an average of less than one percent. This data indicated an increase in telecommuters, but not substantial enough to reduce congestion given the current and future traffic demand for the corridor. I-526 from Mount Pleasant to Savannah Highway was identified in the Regional Transit Framework Plan as a high capacity transit (HCT) corridor. This plan establishes the needs and makes recommendations based on public and stakeholder input, operations, and available funding. However, the plan does not provide forecasts. Based on the American Community Survey data through 2019 and the document review described above, the TSM and TDM recommendations from the 2013 Corridor Study are still applicable.

As a standalone alternative, TSM and TDM improvements do not adequately improve the corridor or meet the purpose and need to increase capacity and reduce congestion given the current and future LOS. While TSM and TDM strategies alone do not meet the project's purpose and need and therefore are not being considered as a viable stand-alone alternative, TSM and TDM alternatives to shift commuter behavior are being considered as future regional projects.

Table 3.2 Transportation Demand Management Strategies

Strategy	Traffic Reduction Potential
Carpools/Rideshare Matching Vanpools	2.0%
Transit Pass Incentives Financial Incentives	1.5%
Telecommuting Compressed Work Week	0.1%
Work Flex Time Staggered Work Hours	0.5%
Bike/Walk Enhancements	0.1%
Education, Promotion	1.0%
Total Reduction Potential	**5.2%**

Source: Adapted from *I-526 Corridor Analysis Between North Charleston and West Ashley*, Table ES3
Note: All strategies with the exception of Bike/Walk Enhancements have been funded by FHWA

3.5.6 Mass Transit

The measure of effectiveness for the proposed transit strategies are based on the potential reduction in traffic along the I-526 corridor. Mass transit options are a growing topic of interest in the Charleston area as evidenced by 17% of comments received at the initial public information meeting indicated a desire to have available transit and an additional 3% cited the desire for bus lanes. In addition to public desire, FHWA also recommends that mass transit alternatives be considered on proposed highway projects in urbanized areas with populations of over 200,000 people (FHWA Technical Advisory 6640.8A). Specific modal strategies studied for the I-526 corridor in the 2013 Corridor Study are listed in Table 3.3. If implemented as a stand-alone alternative, expanding and/or improving mass transit infrastructure does not meet the purpose and need of the project by increasing adequate capacity or improving operations. The total potential reduction of these improvement strategies is estimated to be 7.4% with the implementation of short-term transit and freight improvements. The addition of mass transit does not enhance safety, nor improve freight mobility. Because mass transit does not meet the purpose and need as a standalone alternative, it is not carried forward as an alternative for the I-526 LCC WEST Corridor project.

Assumptions have been made about the BRT corridor width for purposes of providing adequate clearances with the I-526 improvement alternatives.

While mass transit is not carried forward as a reasonable alternative based on its ability to meet the purpose and need on its own, Charleston County and BCDCOG are proactively funding a BRT project which will include a bus within a dedicated lane or right of way. The design work for this project is currently being scoped. The BRT corridor crosses the I-526 corridor within the median of Rivers Avenue. The I-526 LCC WEST alternatives are developing an assumed clearance envelope for the BRT corridor where it is expected to pass through the I-526 LCC WEST study area. Infrastructure improvements are needed to support adding additional buses. Continued coordination with Charleston County will be required to fully implement as a successful mass transit system. Table 3.4 shows the travel demand alternatives which have been funded and implemented or are under development.

Table 3.3 Modal Strategies

Strategy	Traffic Reduction Potential
Improve Existing Transit Routes	0.3%
New Transit Routes	1.1%
Improve Connectivity to/from Transit	0.3%
Improve Transit Facilities and Equipment	0.3%
Public/Private Partnerships	0.6%
BRT, Commuter Rail, Light Rail	3.4%
Zoning/Transit Oriented Developments	0.0%
Increase Intermodal Split to Rail	3.5%
Expand Port Operating Hours	0.0%
Construct Near-Terminal Staging Areas	0.2%
Peak-Hour Incentives/Disincentives	0.2%
Truck Routes away from I-526	0.9%
Total Modal Reduction Potential	**7.4%**

Source: Adapted from *I-526 Corridor Analysis Between North Charleston and West Ashley*, Table ES4
Note: The BRT, Commuter Rail, Light Rail strategy is not included in the Total Modal Reduction Potential as it is being funded by Charleston County. The Zoning/Transit-Oriented Developments strategy is also not included.

Table 3.4 Travel Demand Alternatives Evaluated & Implemented from 2013 Corridor Study

Strategy	Status
Carpools/Rideshare Matching Vanpools	Funded & Implemented
Telecommuting Compressed Work Week	Funded & Implemented
Work Flex Time Staggered Work Hours	Funded & Implemented
Education, Promotion	Funded & Implemented
Bus Rapid Transit (BRT)	Project Under Development
Signal Improvements & Re-Timing	Funded & Implemented

3.5.7 Existing Corridor Improvements

Improving the existing I-526 LCC WEST mainline from Paul Cantrell Boulevard to Virginia Avenue is proposed to accommodate the current and future vehicular demands, as well as population and employment increases. This alternative could meet the purpose and need by increasing capacity and thereby reducing congestion. Improving the existing corridor is advanced to the next level of this analysis and multiple options are being developed, including two widening alternatives as well as five interchanges along I-526: the I-526 at Paul Cantrell Boulevard interchange; the I-26/I-526 System interchange; the I-526 at Rivers Avenue interchange; the I-526 at N Rhett Avenue interchange; and the I-526 at Virginia Avenue interchange.

3.6 What are the Preliminary Alternatives and how were they Evaluated?

Based on the screening previously described, the range of alternatives are evaluated based on their ability to meet the purpose and need of the I-526 LCC WEST project. The following alternatives are identified as Preliminary Alternatives:

- No-Build
- Existing Corridor Improvements
  - Mainline Interstate Alternatives
    - 6-lane widening
    - 8-lane widening
  - Interchange Alternatives
    - I-526 at Paul Cantrell Boulevard
    - I-26/I-526 System
    - I-526 at Rivers Avenue
    - I-526 at N Rhett Avenue and Virginia Avenue (Due to proximity, these interchanges are combined.)

The Preliminary Alternatives are evaluated using the purpose and need of the project and the following criteria at a qualitative level:

- Acceptable LOS
- Compatible with Adjacent Interchange
- Geometric Deficiencies Resolved
- Flexibility with Don Holt Bridge Replacement
- Constructability

Table 3.5 summarizes the screening of the Preliminary Alternatives and the details are included in Sections 3.6.1 through 3.6.3.

Table 3.5 Screening of the Preliminary Alternatives

	No Build	Mainline		I-526 at Paul Cantrell Blvd					Paul Cantrell Blvd at Magwood Dr							I-26/I-526 System				I-526 at Rivers Ave		I-526 at N Rhett/Virginia Ave			
		6-lane	8-lane	1	2	3	4	5	1	2	3	4	5	6	7	1	2	3	4	1	2	1	2	3	4
Acceptable LOS	✗	✗	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Compatible with Adjacent Interchange	–	–	–	✗	✓	✗	✓	✓	✗	✓	✗	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
Geometric Deficiencies Resolved	✗	–	–	✓	✓	✓	✓	✓	–	–	–	–	–	–	–	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓
Flexibility with Don Holt Bridge Replacement	✓	✓	✓	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	✓
Constructability	–	✓	✓	✓	✗	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✗	✓
Carried Forward as Reasonable Alternatives	✓	✗	✓	✗	✗	✗	✗	✓	✗	✗	✗	✗	✓	✗	✗	✓	✓	✗	✗	✓	✓	✓	✓	✗	✗

3.6.1 No-Build

The No-Build alternative fails to meet the majority of the criteria identified as required to meet the purpose and need of the project. Notwithstanding, the No-Build alternative is retained and carried forward as a Preliminary Alternative for further comparison in the alternatives practicability analysis in order to ensure a complete environmental impact evaluation, as well as provide a baseline comparison to other alternatives. For additional information on the No-Build alternative, refer to Section 3.5.1.

3.6.2 Mainline Interstate (I-526) Alternatives

3.6.2.1 6-Lane Widening

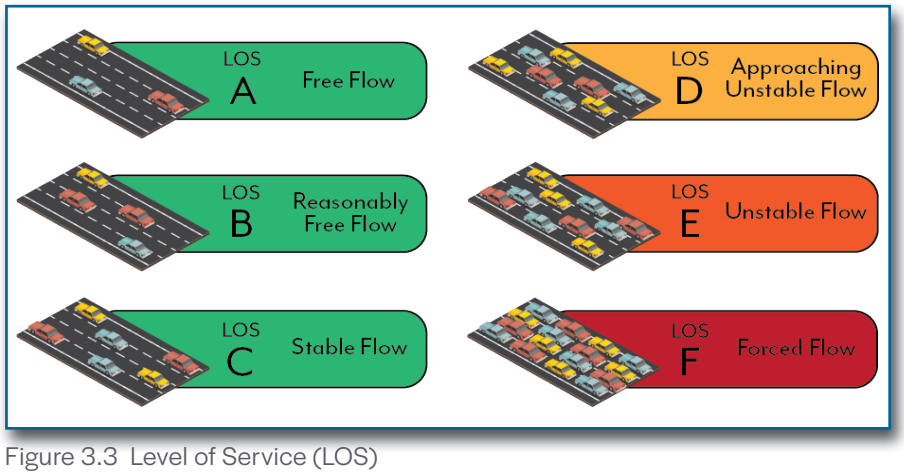


Figure 3.3 Level of Service (LOS)

The 2013 Corridor Study recommended adding one lane in each direction on I-526, resulting in a 6-lane cross section through the study area. Subsequently, the CHATS model was updated to reflect higher regional growth, resulting in higher predicted traffic volumes in the corridor. The 6-lane widening alternative (3 lanes in each direction) is determined to be inadequate in providing an acceptable improvement in capacity. Based on traffic analysis, the 6-lane widening does not meet the purpose and need of the project to increase capacity and improve operations. Portions of I-526 would operate at a LOS E or F approximately five years after construction. As shown in Table 3.6, traffic analysis is being used to compare the 6-lane and 8-lane alternatives. The 6-lane widening alternative is not carried forward for further evaluation because of a failing LOS. Refer to Figure 3.3 for description of LOS.

Table 3.6 Traffic Analysis of I-526 LCC WEST

Segment Description	2015 AADT	No Build 2050 AADT	LOS	Build 2050 AADT	LOS	
					6-Lane	8-Lane
Sam Rittenberg to Paul Cantrell Blvd	39,400	59,800	C	68,500	B	B
Paul Cantrell Blvd to Leeds Ave	79,200	106,900	F	136,900	F	D
Leeds Ave to Dorchester Rd	78,800	106,400	F	134,000	F	D
Dorchester Rd to Montague Ave	80,700	108,900	F	127,300	E	C
Montague Ave to International Blvd	67,400	91,000	F	109,600	D	C
International Blvd to I-26	89,000	120,200	F	126,700	E	C
I-26 to Rivers Ave	77,200	104,200	F	116,100	D	C
Rivers Ave to N Rhett Ave	75,600	104,400	F	126,700	E	C
N Rhett Ave to Virginia Ave	80,500	122,200	F	148,400	F	D
East of Virginia Ave	68,900	110,100	F	133,800	F	D

3.6.2.2 8-Lane Widening

West of I-26: Paul Cantrell Boulevard (Glenn McConnell Parkway) is a major arterial/expressway facility near the western end of I-526. The I-526 interchange at Paul Cantrell Boulevard is a logical terminus for the I-526 LCC WEST because of the volume of traffic that enters eastbound I-526 and exits westbound I-526 at this point. In the eastbound direction, the mainline widening begins at this location with a two-lane entrance ramp adding the lanes which comprise the four-lane eastbound lanes toward I-26. In the westbound direction, the widened four-lane mainline concept ends at this interchange. A new bridge carries the westbound lanes of Paul Cantrell Boulevard over the intersection with Magwood Drive and touches down on Glenn McConnell Parkway.

The westbound exit ramp from I-526 is being widened and uses this new bridge to bypass the Magwood intersection, which currently causes traffic to back up onto I-526. The 8-lane widening of I-526 extends from Paul Cantrell Boulevard to I-26.

At I-26/I-526 System Interchange: Two of the four eastbound mainline lanes on I-526 serve as the westbound connection to eastbound and westbound I-26. The remaining two lanes extend through onto the existing alignment over I-26 and continue eastbound. In the westbound direction, two lanes are proposed as the ramp lanes from eastbound I-26.

East of I-26: The volume of traffic entering eastbound I-526 from I-26 is similar to the volume of through traffic coming over I-26. Similarly, the westbound I-526 traffic approaching I-26 is well balanced between the volume of traffic that continues west on I-526 and that which is destined for either eastbound or westbound I-26. For these reasons, the extension of C-D roads from the system interchange eastward toward the Cooper River works well in reducing the weaving- related congestion that is currently prevalent today on I-526 from I-26, through the Rivers Avenue, N Rhett Avenue and Virginia Avenue interchanges.

I-526 east of Rivers Avenue: The eastern project terminus of Virginia Avenue is being selected based on the closely connected N Rhett Avenue interchange and the extensive traffic that backs onto I-526 from N Rhett Avenue. I-526 east of Rivers Avenue is on an elevated structure until it reaches Daniel Island. The existing structure continues to carry two through lanes for eastbound and westbound traffic on I-526, while the new C-D roads provide the needed additional capacity. The C-D roads also provide critical access after a major seismic event if the existing I-526 structure is not serviceable. The portion of elevated structure between Rivers Avenue and the Don Holt Bridge is not designed to resist seismic forces.

The 8-lane widening alternative is being carried forward for a detailed impact evaluation. The additional two lanes in each direction meets the project purpose and need.

3.6.3 Interchange Alternatives

3.6.3.1 I-526 at Paul Cantrell Boulevard

The interchange at the I-526 and Paul Cantrell Boulevard contributes to the congestion along on I-526 LCC WEST. Figure 3.4 shows the alternative carried forward for the interchange of Paul Cantrell Boulevard at I-526. Refer to Appendix C for figures of the following interchange alternatives that were not carried forward.

Alternative 1: Triple Lefts to I-526 eastbound with Improved Loops

- Failed to provide an acceptable LOS
- Not compatible with adjacent interchange
- Not carried forward

Alternative 2: Semi-Directional Ramp to I-526 eastbound with Improved Loops

- Constructability issues with the westbound off-ramp system and the eastbound directional flyover on-ramp
- Not carried forward

Alternative 3: Diverging Diamond Interchange

- Not compatible with adjacent interchange
- Not carried forward

Alternative 4: Single Point Interchange with Semi-Directional Ramp to I-526 eastbound

- Constructability requires extensive redesign and construction of the interchange
- Not carried forward

Alternative 5: Semi-Directional Ramp to I-526 eastbound with Improved Loop Ramps and Left Turn to I-526 eastbound

- Acceptable LOS
- Compatible with adjacent interchange
- Carried Forward

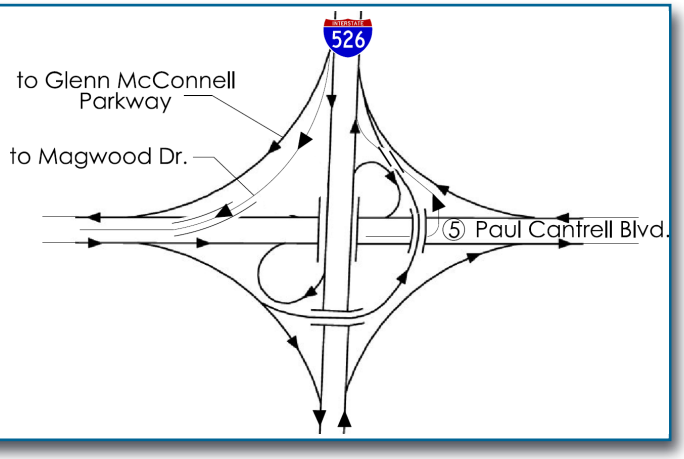


Figure 3.4 I-526 at Paul Cantrell Boulevard Alternative 5

Prior to selection of an alternative for I-526 & Paul Cantrell Boulevard based on further analysis, the project goals were refined by SCDOT. These goals prioritized (1) I-526 mainline capacity, (2) improvement of the I-26 & I-526 system interchange, and (3) ensuring queues from ramp termini and adjacent intersections did not spill back onto the mainline. These priorities led to the selection of a modified Alternative 5, such that the westbound off-ramp system (with two-lanes to the separated overpass and one lane to the Paul Cantrell Boulevard surface street) was retained, but the eastbound directional flyover on-ramp was eliminated. The existing signalized intersection of Paul Cantrell Boulevard & I-526 EB on-ramp was retained. Refer to Figure 3.5 for the modified Alternative 5.

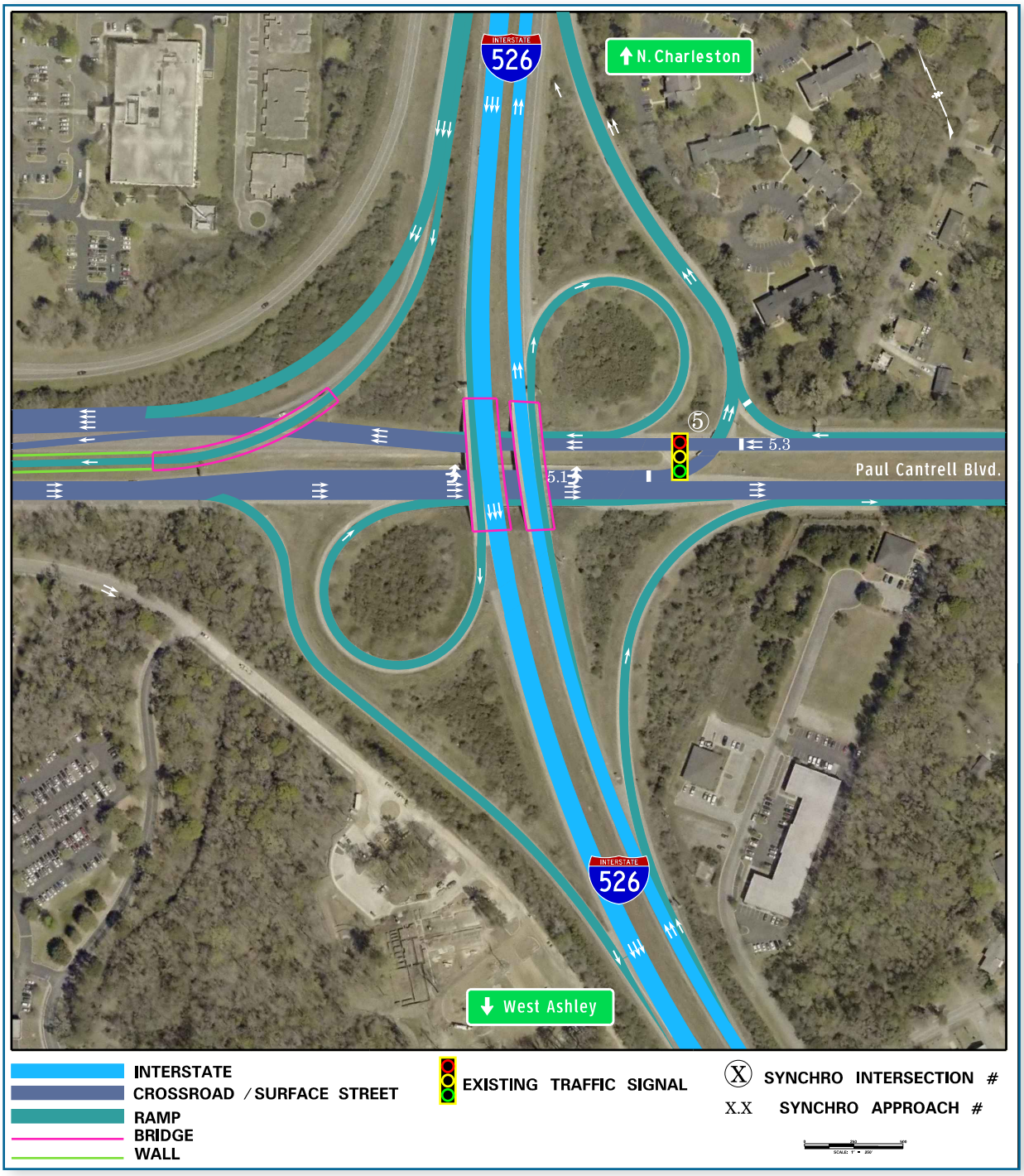


Figure 3.5 I-526 & Paul Cantrell Boulevard Interchange Improvement Alternative (Carried Forward)

3.6.3.2 Paul Cantrell Boulevard at Magwood Drive

Due to the proximity of Magwood Drive to the I-526 at Paul Cantrell interchange, alternatives were developed and screened to mitigate the existing congestion. Figure 3.6 shows the alternative carried forward for the intersection of Paul Cantrell Boulevard at Magwood Drive. Refer to Appendix C for figures of the following interchange alternatives that were not carried forward.

Alternative 1: Diamond
- Not compatible with adjacent interchange
- Not carried forward

Alternative 2: Diamond with Braided Ramps
- Constructability issues with the replacement of the westbound overpass bridge to provide a free-flow exit
- Not carried forward

Alternative 3: Single Point Interchange
- Not compatible with adjacent interchange
- Not carried forward

Alternative 4: Compressed Diamond with Phase Overlap
- Not compatible with adjacent interchange
- Not carried forward

Alternative 5: Interchange with Separated Overpass Bridge
- Acceptable LOS
- Compatible with adjacent interchange
- Carried forward

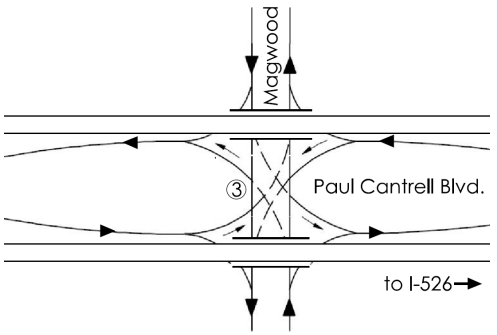


Figure 3.6 Paul Cantrell Boulevard at Magwood Drive Alternative 5

Alternative 6: Maximized At Grade Intersection
- Does not provide acceptable LOS
- Not carried forward

Alternative 7: Continuous Flow Intersection
- Does not provide acceptable LOS
- Not compatible with adjacent interchange
- Not carried forward

Prior to selection of a preferred alternative for Paul Cantrell Boulevard & Magwood Drive based on further analysis, the project goals were refined by SCDOT. These goals prioritized (1) I-526 mainline capacity, (2) improvement of the I-26 & I-526 system interchange, and (3) ensuring queues from ramps did not spill back onto the mainline. These priorities altered the alternative screening process for this interchange, leading to the selection of a modified Alternative 5, such that the westbound overpass bridge was retained (to provide free-flow for traffic exiting I-526) but the eastbound overpass bridge was eliminated (as it did not contribute to the three priorities). This geometry is shown in Figure 3.7.

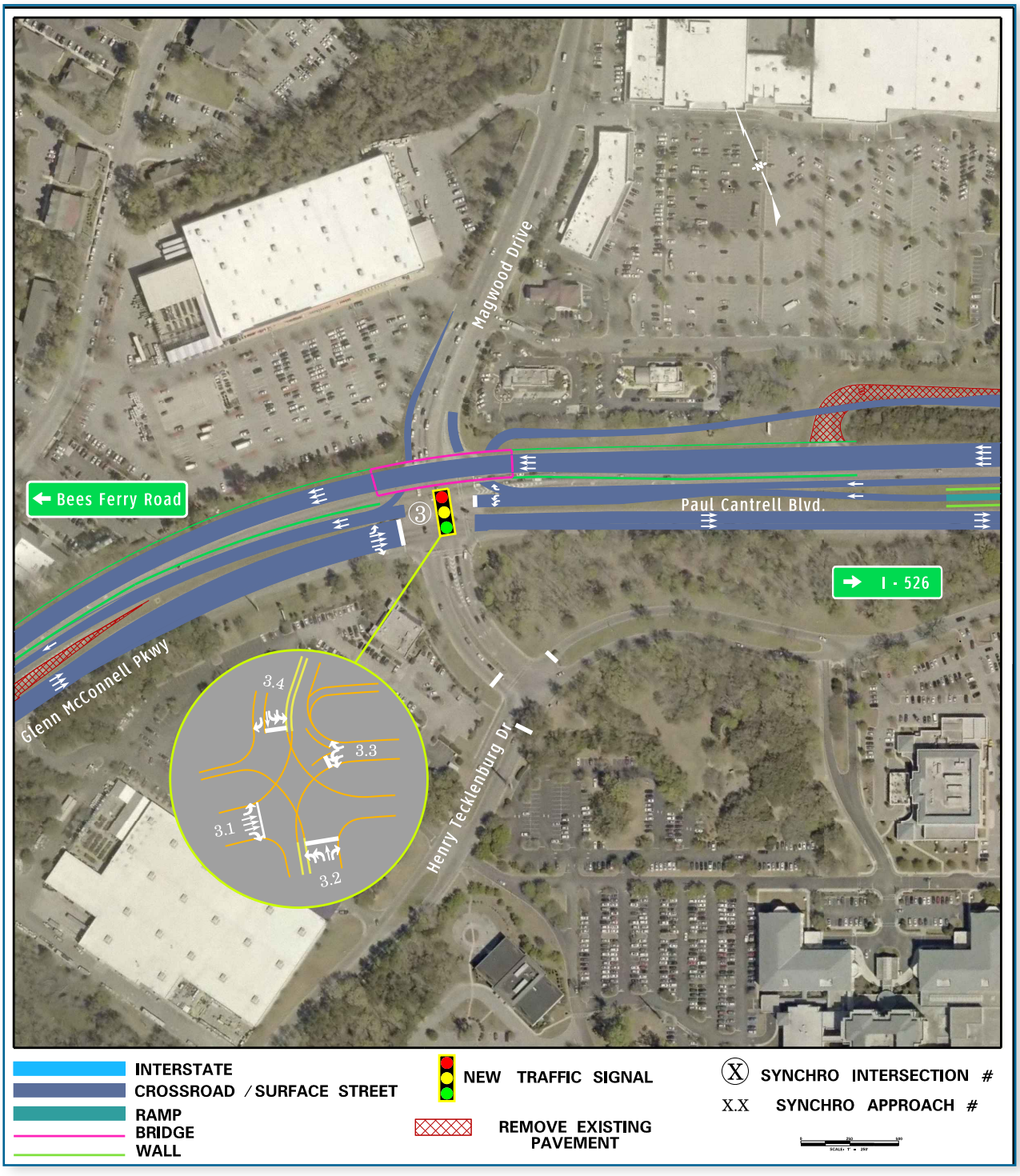


Figure 3.7 Paul Cantrell Boulevard & Magwood Drive Interchange Improvement Alternative (Carried Forward)

3.6.3.3 I-26/I-526 System Interchange

Alternatives were developed based on separating movements that create congestion caused by closely spaced ramps and inadequate lengths of merges and weaves. Refer to Appendix C for figures of the following interchange alternatives that were not carried forward.

Alternative 1: Semi-Directional Interchange

- C-D roads added to the north and south side of I-526 through Rivers Avenue interchange and on N Rhett/Virginia Avenue
- Eastbound I-526 to westbound I-26 directional ramp moved to cross over I-26 north of I-526
- Carried forward as it meets an acceptable LOS, resolves existing geometric deficiencies and is compatible with adjacent interchanges

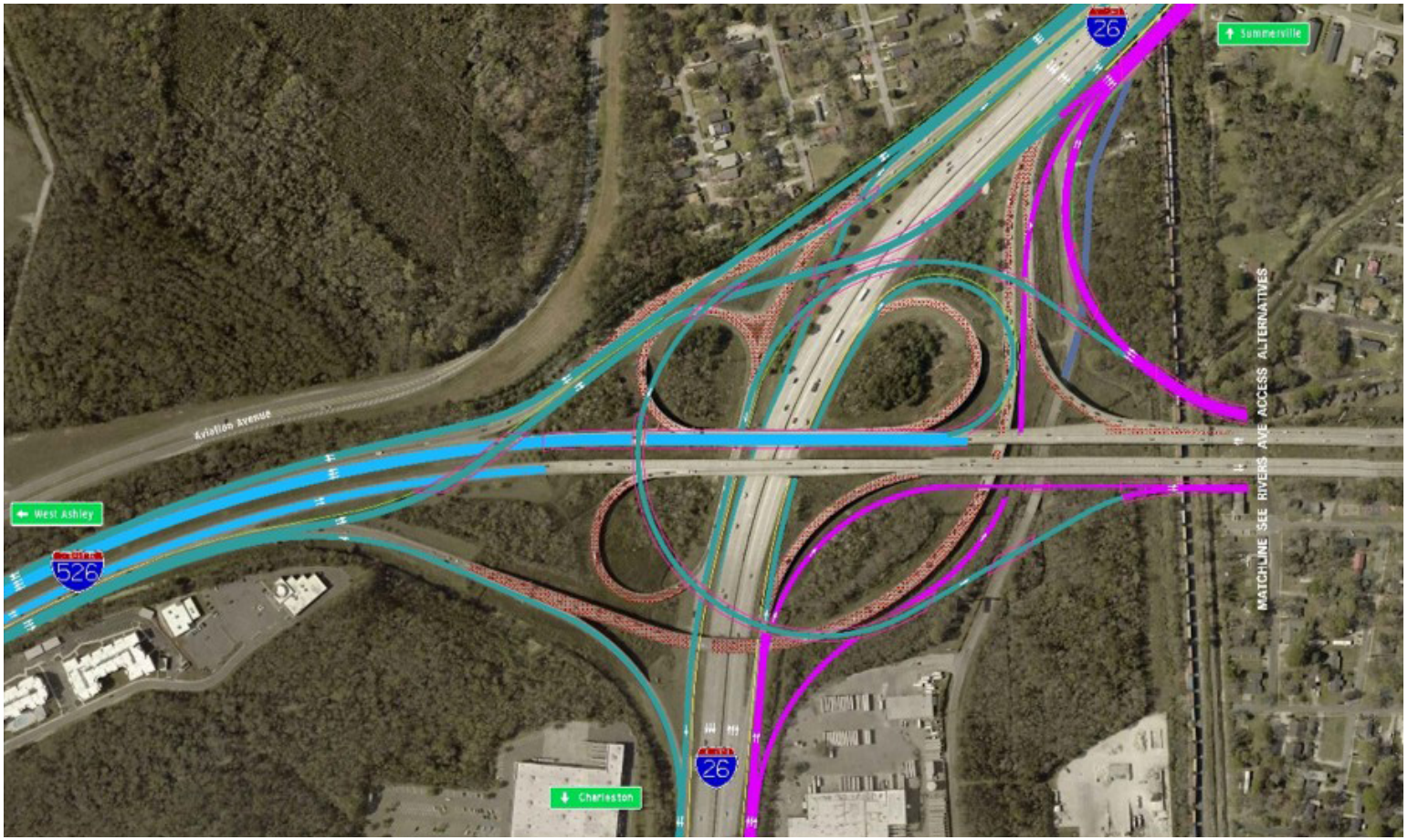


Figure 3.8 I-26/I-526 Alternative 1

Alternative 2: Semi-Directional Interchange with 1 Loop Ramp Retained

- C-D roads added to the north and south side of I-526 through Rivers Avenue interchange
- Eastbound I-526 to westbound I-26 uses existing directional ramp
- Carried forward as it has an acceptable LOS, resolves existing geometric deficiencies and is compatible with adjacent interchanges

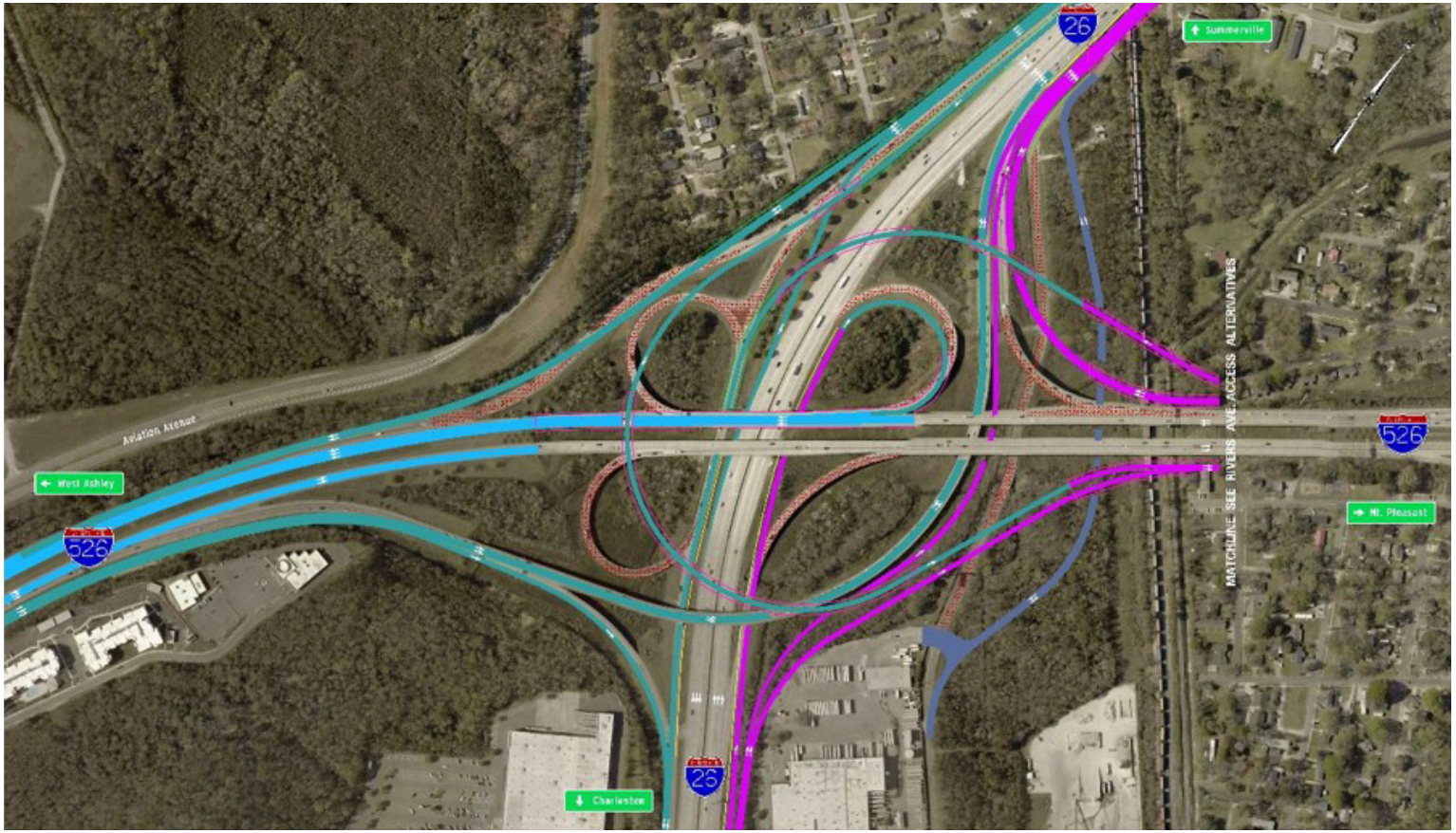


Figure 3.9 I-26/I-526 Alternative 2

Alternative 3: Semi-Directional Turbine Interchange

- Not carried forward due to significantly larger footprint and impacts to federal properties as well as airport flight paths.

Alternative 4: Semi-Directional with 3 Levels of Ramping

- Westbound I-26 to westbound I-526 loop ramp replaced with a directional ramp, creating 3-level-high interchange
- Not carried forward due to complex constructability

3.6.3.4 I-526 at Rivers Avenue

One interchange alternative was developed from the 2013 Corridor Study, the Partial Cloverleaf Rebuild. This alternative was developed based on separating movements that create congestion caused by closely spaced ramps and inadequate lengths of merges and weaves. The second alternative is a basic build scenario that proposes new C-D roads, but no improvements to the existing interchange.

Rivers Avenue: Relocated Partial Cloverleaf

- New C-D system constructed over Rivers Avenue
- Additional ramps constructed between Rivers Avenue and C-D system to maintain access to I-26 via I-526 from Rivers Avenue
- Carried forward as it has acceptable LOS, resolves geometric deficiencies and is compatible with adjacent interchanges

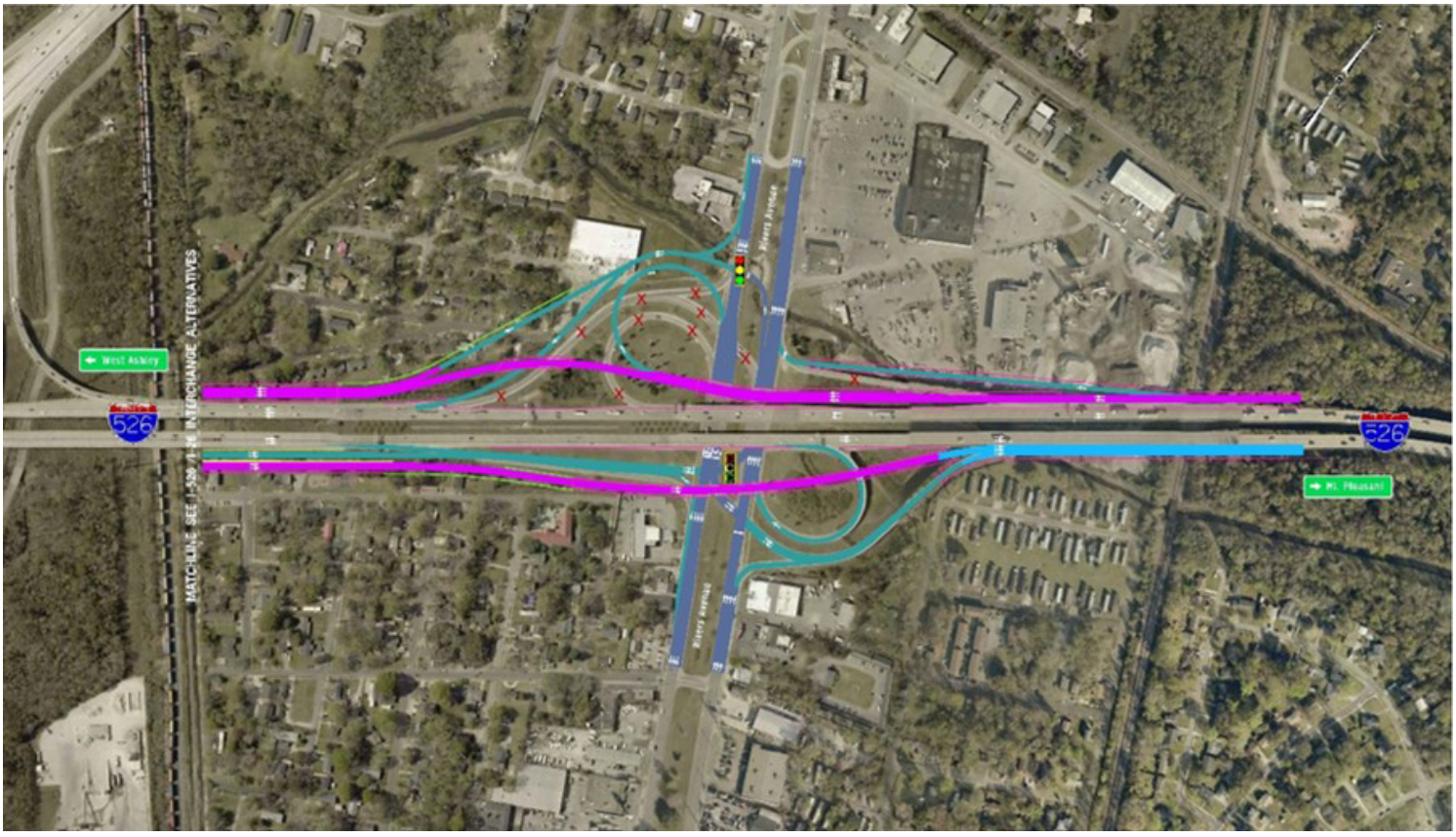


Figure 3.10 I-526 at Rivers Avenue Relocated Partial Cloverleaf

Rivers Avenue: Basic Build

- New C-D roads constructed over the existing eastbound and westbound Rivers Avenue interchange
- Direct access from Rivers Avenue to I-26 via I-526 is removed; access I-26 from the I-26 at Remount Road interchange to the north or at I-26 at Montague Avenue to the south
- Carried forward as it has acceptable LOS, resolves geometric deficiencies and is compatible with adjacent interchanges

Figure 3.11 I-526 at Rivers Avenue Basic Build

3.6.3.5 I-526 at N Rhett/Virginia Avenue

Traffic patterns between the Don Holt Bridge and I-26 led the development of the N Rhett/Virginia Avenue interchange alternatives. Traffic projections indicate one-third of westbound traffic exits at N Rhett/Virginia Avenues, one-third exits to I-26 and one-third continues west on I-526 past I-26. Eastbound traffic over the Don Holt Bridge shows similar forecast comparisons with one-third originating west of I-526, one-third coming from I-26, and one-third from N Rhett/Virginia Avenues. Entering and exiting traffic at Rivers Avenue comprises a nominal portion of the traffic in each direction. A key component of the N Rhett/Virginia Avenue interchange concept development is providing connections to the C-D roads in a manner that accommodates forecasted traffic patterns.

The forecasted traffic patterns support the use of C-D roads to provide additional capacity between I-26 and the Cooper River.

The capacity of the existing N Rhett/Virginia Avenue interchange is limited by geometric deficiencies. The existing loop ramps of the interchange have a 25-mph design speed with very short weave distances in both eastbound and westbound directions. To address these deficiencies and respond to future traffic demand, interchange improvement alternatives were developed for this interchange as part of the I-526 LCC WEST project. The major design constraints considered during alternative development included existing CSX and Norfolk Southern rail lines running adjacent to and underneath the interstate, as well as Filbin Creek, a major tributary to the Cooper River, flowing adjacent to the I-526 mainline and crossing under I-526 just west of N Rhett Avenue.

Four alternatives were developed for the initial screening process to accommodate anticipated traffic demand to a design LOS D or better. Traffic volumes utilizing Virginia Avenue on- and off-ramps, particularly trucks accessing the South Carolina Ports Authority's (SPSPA) NCT and other industrial land uses have expressed the need to retain access. Refer to Figure 3.12 and 3.13 for descriptions of the alternatives carried forward. Refer to Appendix C for figures of the following interchange alternatives that were not carried forward.

Alternative 1: On-ramp from N Rhett Avenue to I-526 eastbound and westbound through one intersection along N Rhett Avenue with separate access to Virginia Avenue

- Compatible with adjacent interchange
- Flexible with Don Holt bridge replacement
- Does not provide direct access between Virginia Avenue and I-526 (traffic must travel through N Rhett Avenue intersection)
- Carried forward

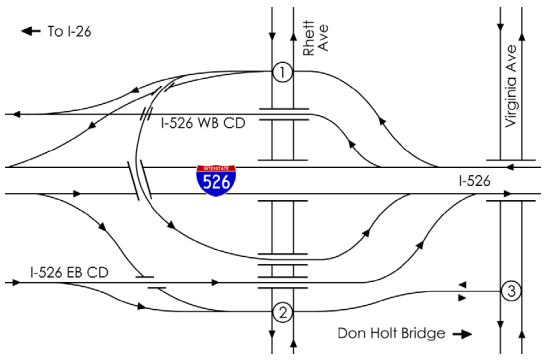


Figure 3.12 I-526 at N Rhett/Virginia Avenue Alternative 1

Alternative 2: Diamond Interchange with access to Virginia Avenue

- Compatible with adjacent interchange
- Flexible with Don Holt bridge replacement
- Does not provide direct access between Virginia Avenue and I-526 (traffic must travel through N Rhett Avenue intersection)
- Carried forward

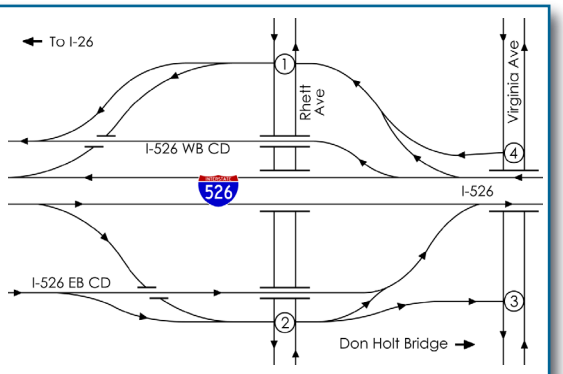


Figure 3.13 I-526 at N Rhett/Virginia Avenue Alternative 2

Alternative 3: Improve existing Loop Ramps

- Not compatible with adjacent interchange
- Does not provide direct access between Virginia Avenue and I-526 (constructability issue due to removing the direct access to/from I-526 and Virginia Avenue, requiring these movements to be made via parallel routes)
- Not carried forward

Alternative 4: Directional ramps from northbound to southbound N Rhett Avenue traffic

- Not compatible with adjacent interchange
- Does not provide direct access between Virginia Avenue and I-526 (traffic must travel through N Rhett Avenue intersection)
- Not carried forward

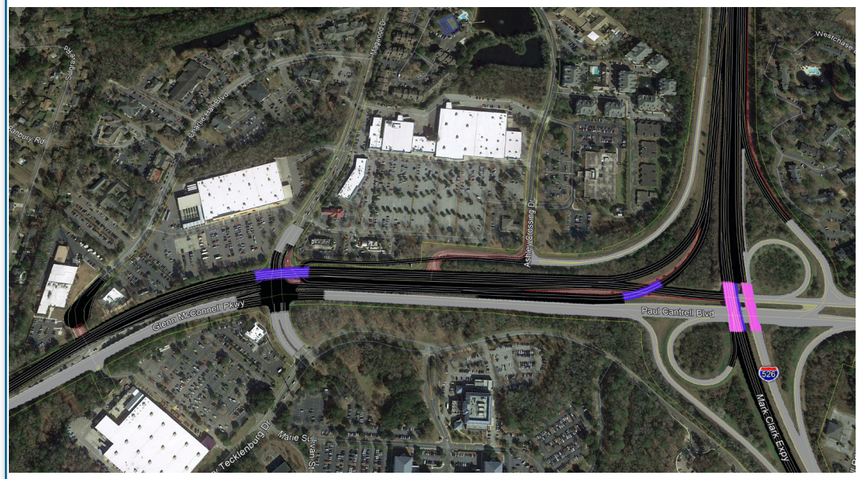
3.7 What Proposed Reasonable Alternatives were Presented at the Public Information Meeting?

Based on the screening previously described, the preliminary alternatives are evaluated based on their ability to meet the purpose and need, as well as additional criteria. Prior to the public meeting the following alternatives were identified as Proposed Reasonable Alternatives:

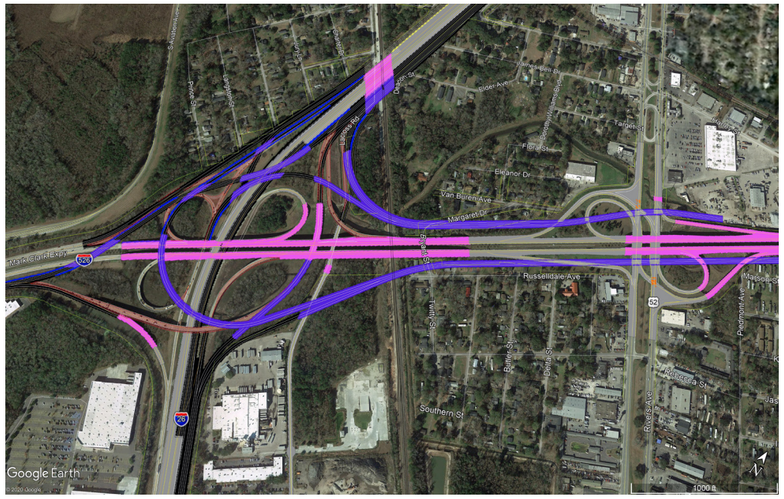
- No-Build
- Existing Corridor Improvements
  - > Mainline Interstate Alternatives
    - 8-lane widening
  - > Interchange Alternatives (Refer to Figure 3.14)
    - One alternative at I-526 at Paul Cantrell Boulevard that includes the intersection at Magwood Drive
    - Due to proximity of I-526 at I-26 and Rivers Avenue, these interchanges are combined. Four alternatives are being carried forward as Reasonable Alternatives
    - Two alternatives at I-526 at N Rhett/Virginia Avenue

Preliminary Alternatives Screening Criteria:

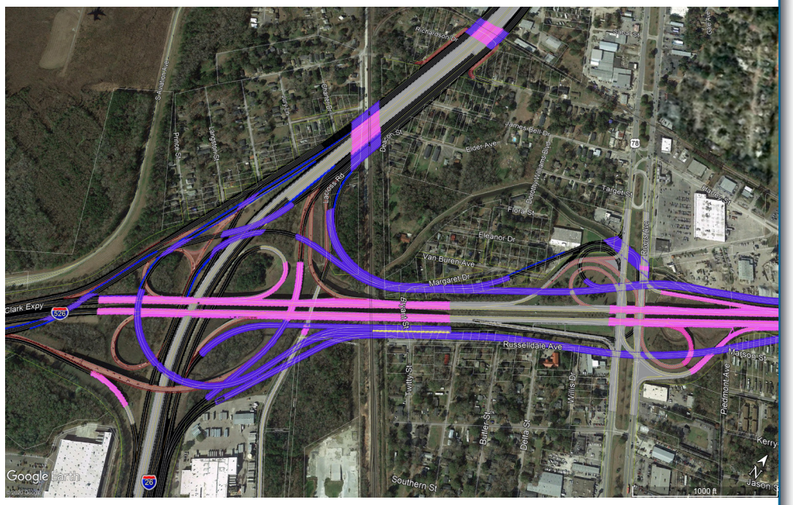
- Acceptable LOS
- Compatible with Adjacent Interchange
- Geometric Deficiencies Resolved
- Flexibility with Don Holt Bridge Replacement
- Constructability



I-526 at Paul Cantrell Blvd

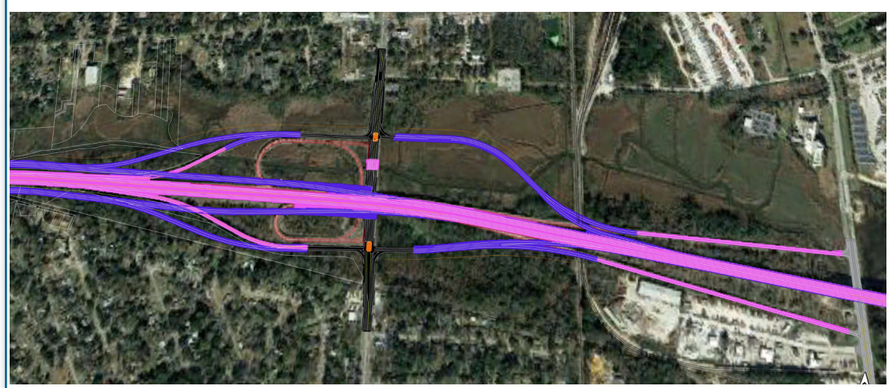


I-526 at I-26 and Rivers Ave: Alternative 1

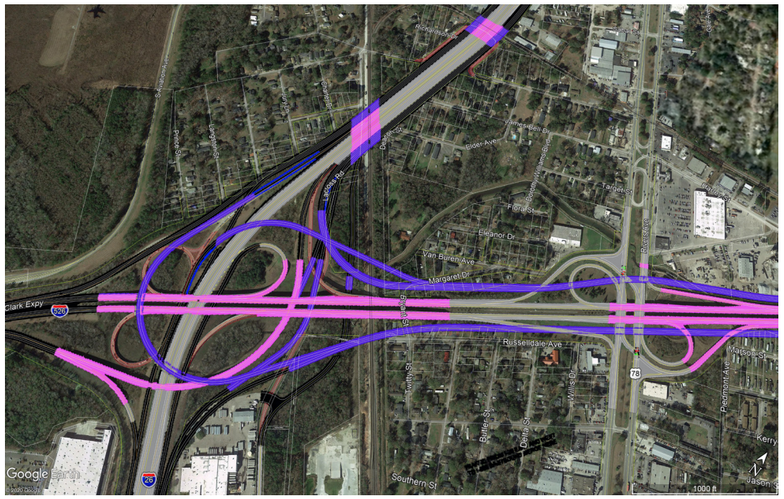


I-526 at I-26 and Rivers Ave: Alternative 1A

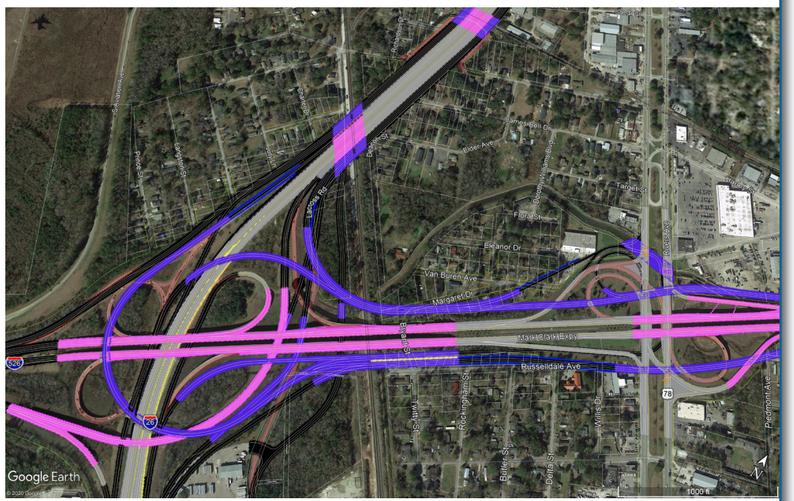
I-526 at N Rhett/Virginia Ave: Alternative 1



I-526 at N Rhett/Virginia Ave: Alternative 2



I-526 at I-26 and Rivers Ave: Alternative 2



I-526 at I-26 and Rivers Ave: Alternative 2A

Existing Bridges

Proposed Bridges

Figure 3.14 I-526 LCC WEST Proposed Reasonable Interchange Alternatives

3.7.1 Public Input on Proposed Reasonable Alternatives

Following the I-526 LCC WEST Public Information Meeting (PIM), feedback was received about the I-526 / North Rhett Avenue and I-526 / Virginia Avenue interchange alternatives. Joint Base Charleston, the South Carolina Ports Authority, and the City of North Charleston expressed concerns over the removal of direct access between Virginia Avenue and I-526 in the proposed alternatives. In the two alternatives presented at the I-526 WEST PIM, access to/from Virginia Avenue from/to I-526 required processing through the ramp terminal intersections on N Rhett Avenue. Alternatives 5 and 6 were developed to include a Texas U-Turn style ramp that traveled from Virginia Avenue, back to the west and under I-526 adjacent to N Rhett Avenue to provide direct access to I-526 eastbound. Access from I-526 westbound would also utilize the U-Turn ramp for direct access to Virginia Avenue. Existing access from Virginia Avenue to I-526 westbound was retained and new ramps will provide access from I-526 eastbound to Virginia Avenue. For more information about the PIM refer to Chapter 6.

A Texas U-turn is a lane that enables vehicles traveling on one side of a one-way frontage road or ramp to U-turn onto the opposite frontage road or ramp, typically crossing over or under a freeway. If this movement is determined to be a significant volume of traffic, it can reduce the delay at two signals in a typical diamond interchange.

In addition to public comments regarding direct access from I-526 and Virginia Avenue, regulatory agencies also expressed concerns with alternatives avoiding and minimizing impacts to environmentally sensitive areas within the alternative corridors. In an effort to evaluate an alternative that both met the purpose and need of the project and minimized impacts, an alternative that was a combination of reasonable alternatives 6 and 2 was developed. Alternative 2A, Alternative 5, and Alternative 6 were developed as proposed Reasonable Alternatives for the I-526 at N Rhett/Virginia Avenue interchange. Therefore, a total of five alternatives are being carried forward at the N Rhett/Virginia Avenue interchange. Refer to Figures 3.16 through 3.18 for Alternatives 2A, 5, and 6.

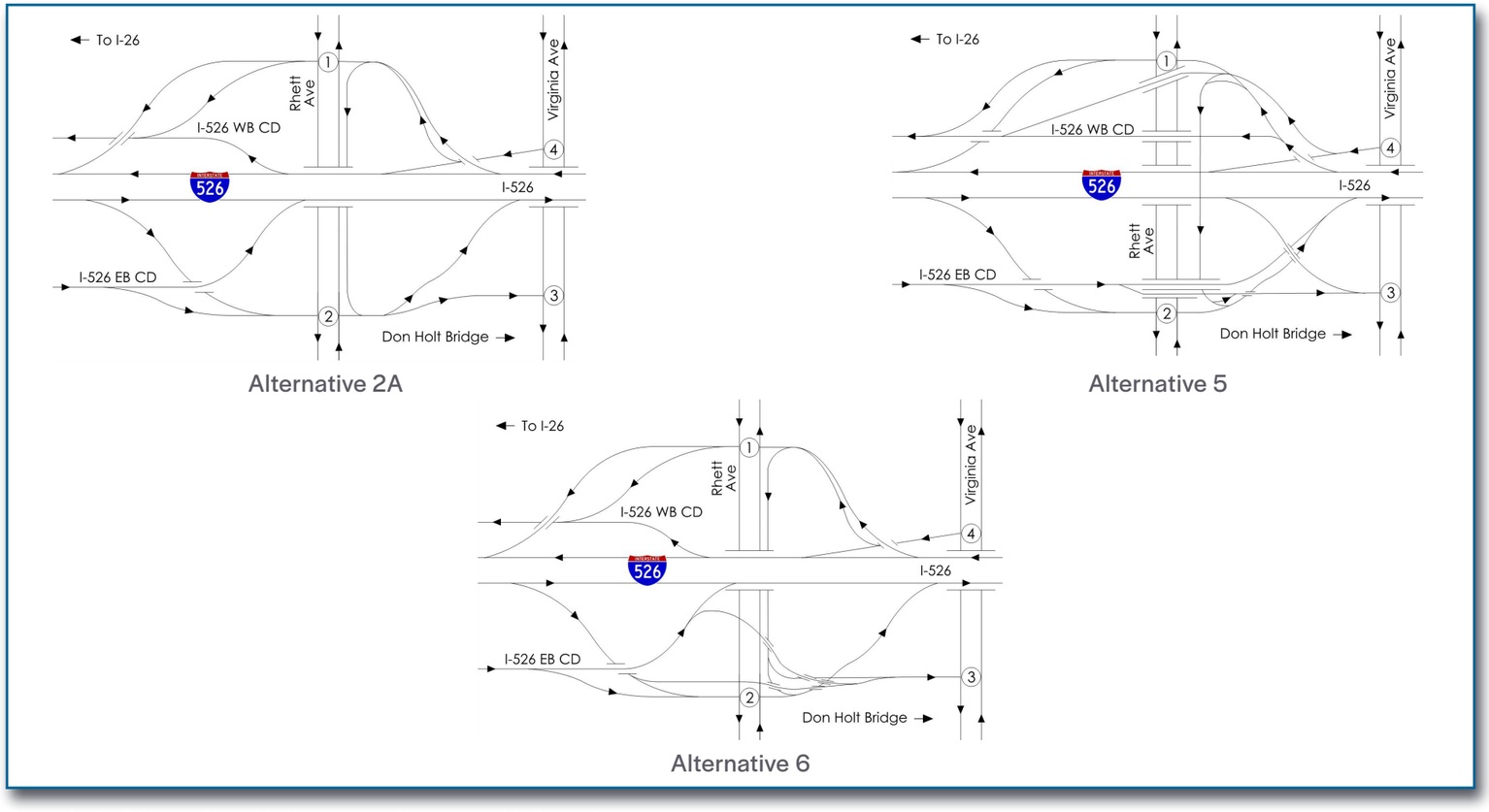


Figure 3.15 I-526 at N Rhett/Virginia Avenue Alternatives 2A, 5, and 6

During the November 21, 2019 PIM and the Virtual Public Information Meeting (VPIM), the public were encouraged to provide feedback on the proposed reasonable alternatives.

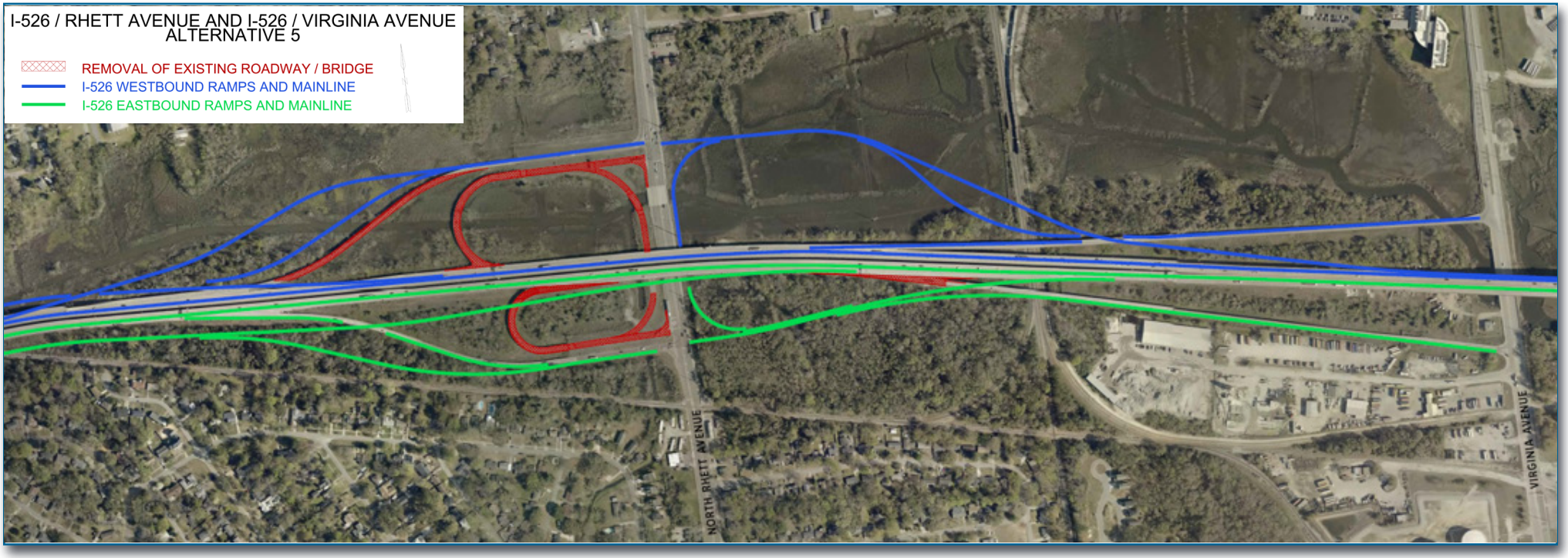


Figure 3.16 I-526 at N Rhett/Virginia Avenue Alternative 2A

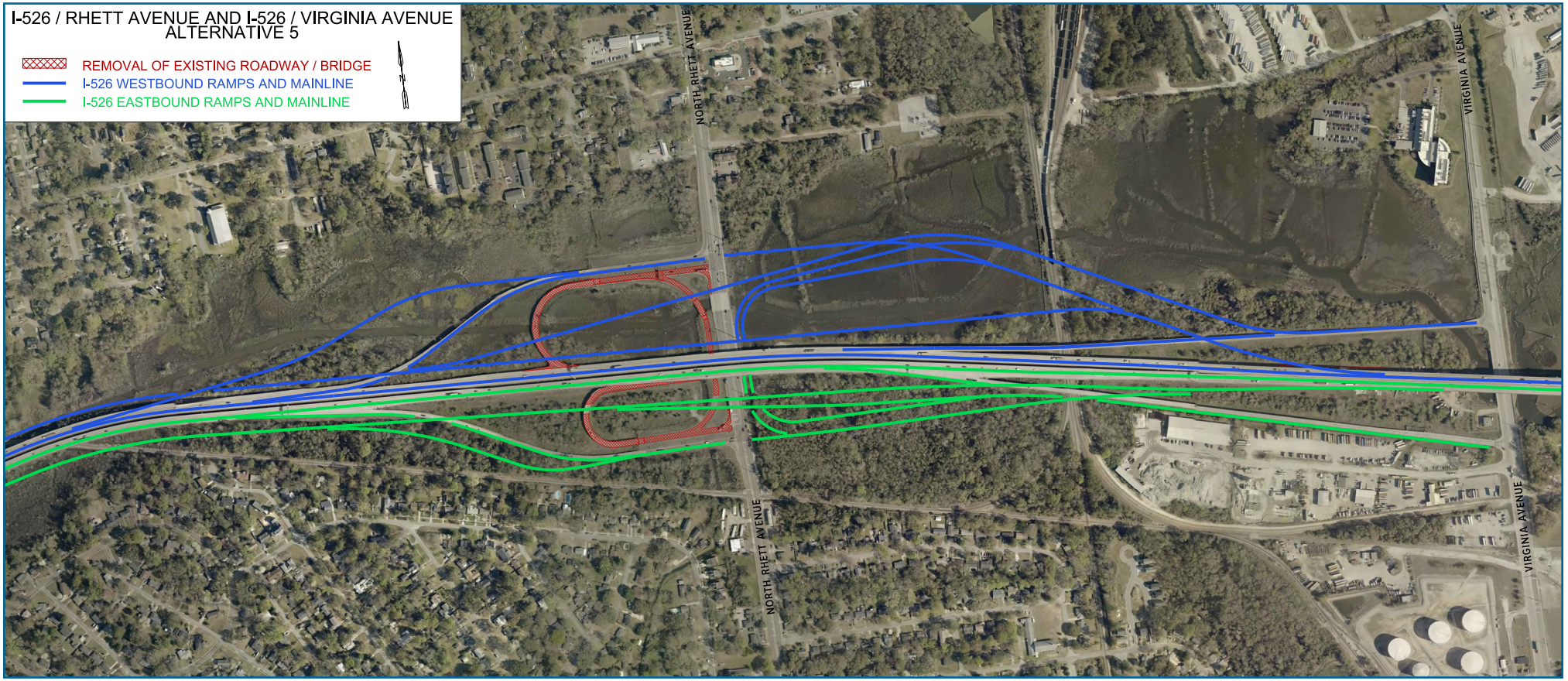


Figure 3.17 I-526 at N Rhett/Virginia Avenue Alternative 5

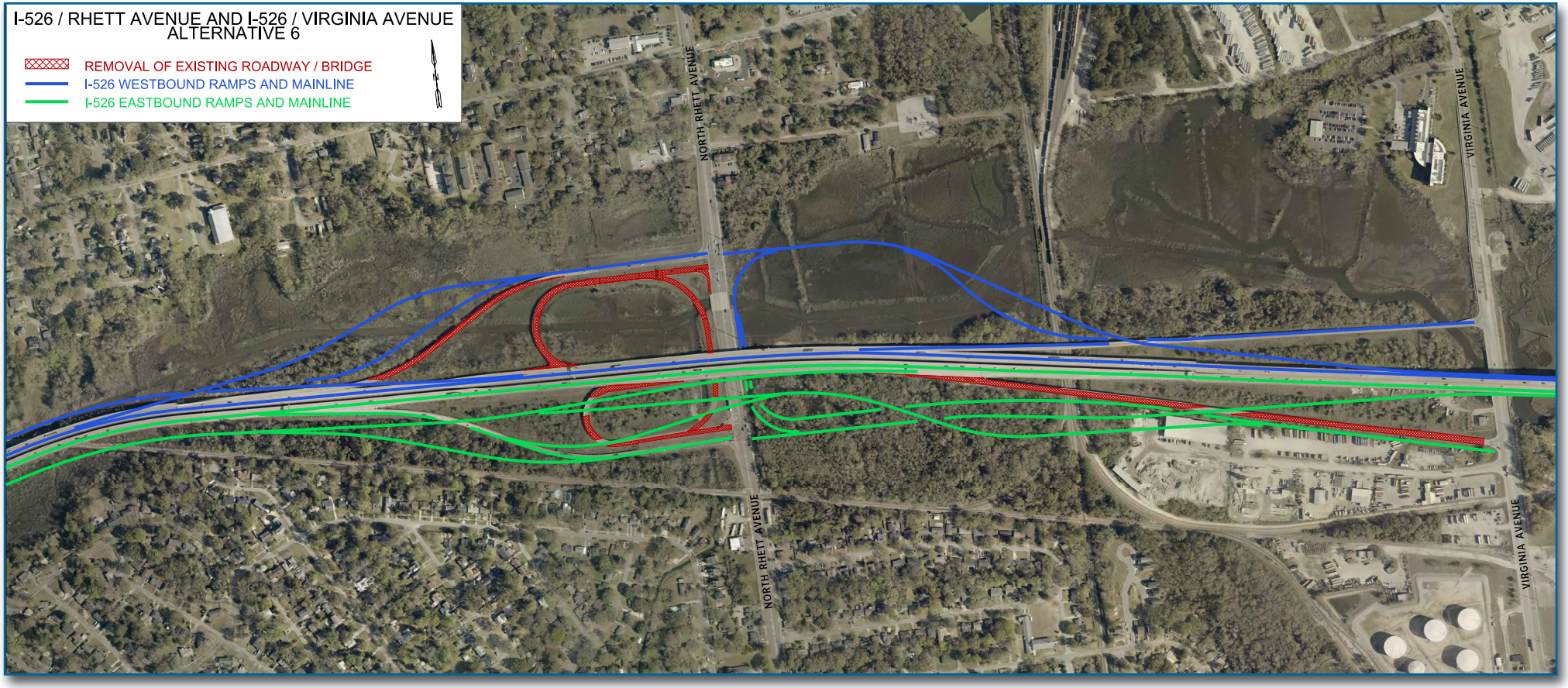


Figure 3.18 I-526 at N Rhett/Virginia Avenue Alternative 6

3.7.2 Detailed Impact Evaluation of Proposed Reasonable Alternatives

In summary, the Proposed Reasonable Alternatives include the following:

- No-Build
- Mainline Interstate 8-lane widening
- Interchange Alternatives
  - > One alternative at I-526 at Paul Cantrell Boulevard that includes the intersection at Magwood Drive
  - > Four alternatives at I-526 at I-26 and Rivers Avenue
    - Alternative 1
    - Alternative 1A
    - Alternative 2
    - Alternative 2A
  - > Five alternatives at I-526 at N Rhett/Virginia Avenue
    - Alternative 1
    - Alternative 2
    - Alternative 2A
    - Alternative 5
    - Alternative 6

In order to perform a detailed impact evaluation on the above alternatives, the widening of the mainline to 8-lanes was combined with the interchange alternatives into the following three sections and shown in Figure 3.19.

- Paul Cantrell Boulevard to International Boulevard
- International Boulevard to Rivers Avenue
- Rivers Avenue to Virginia Avenue

The following two typical sections are representative of the proposed mainline widening and would be applicable to all Proposed Reasonable Alternatives, refer to Figure 3.20.

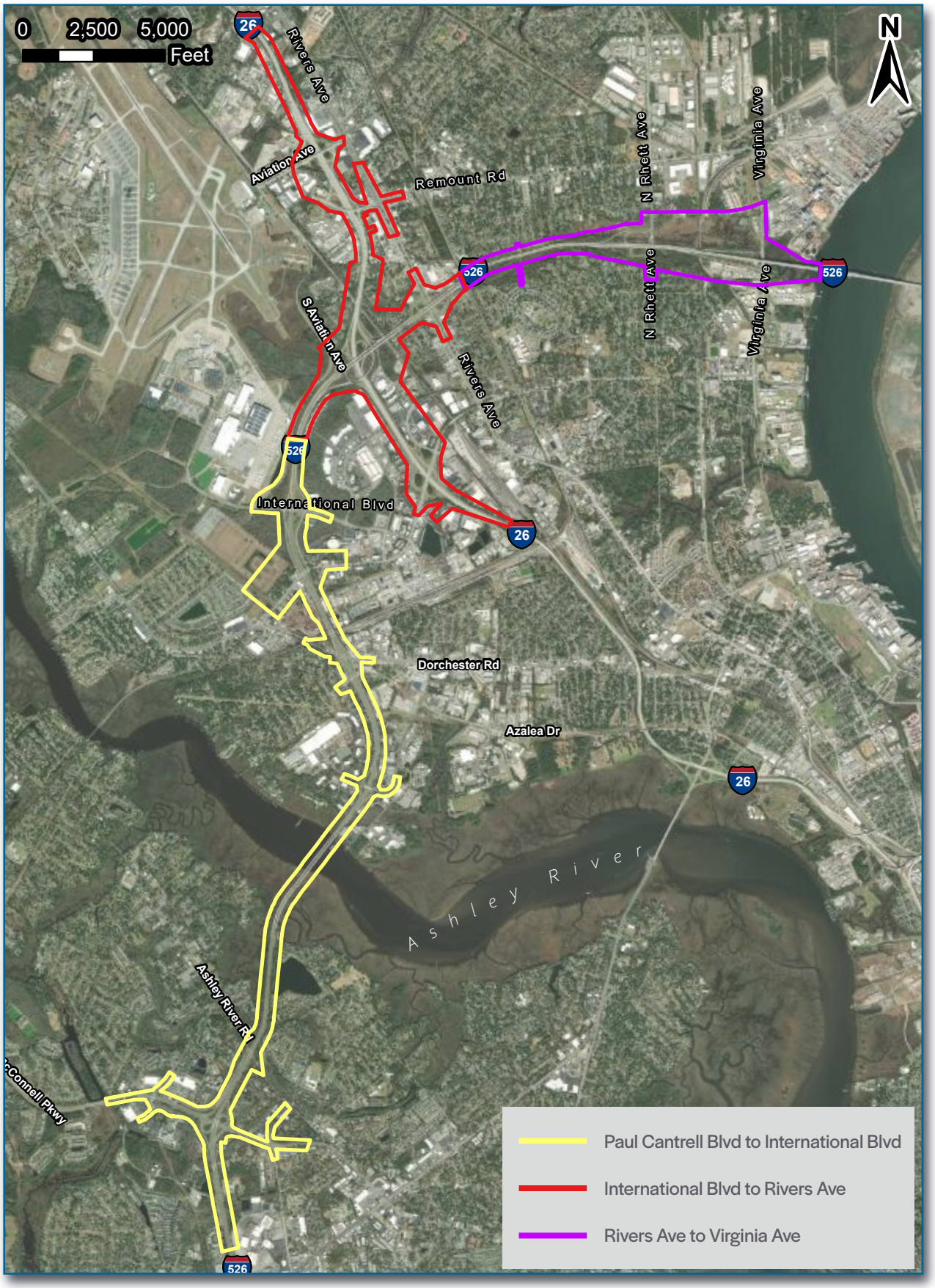
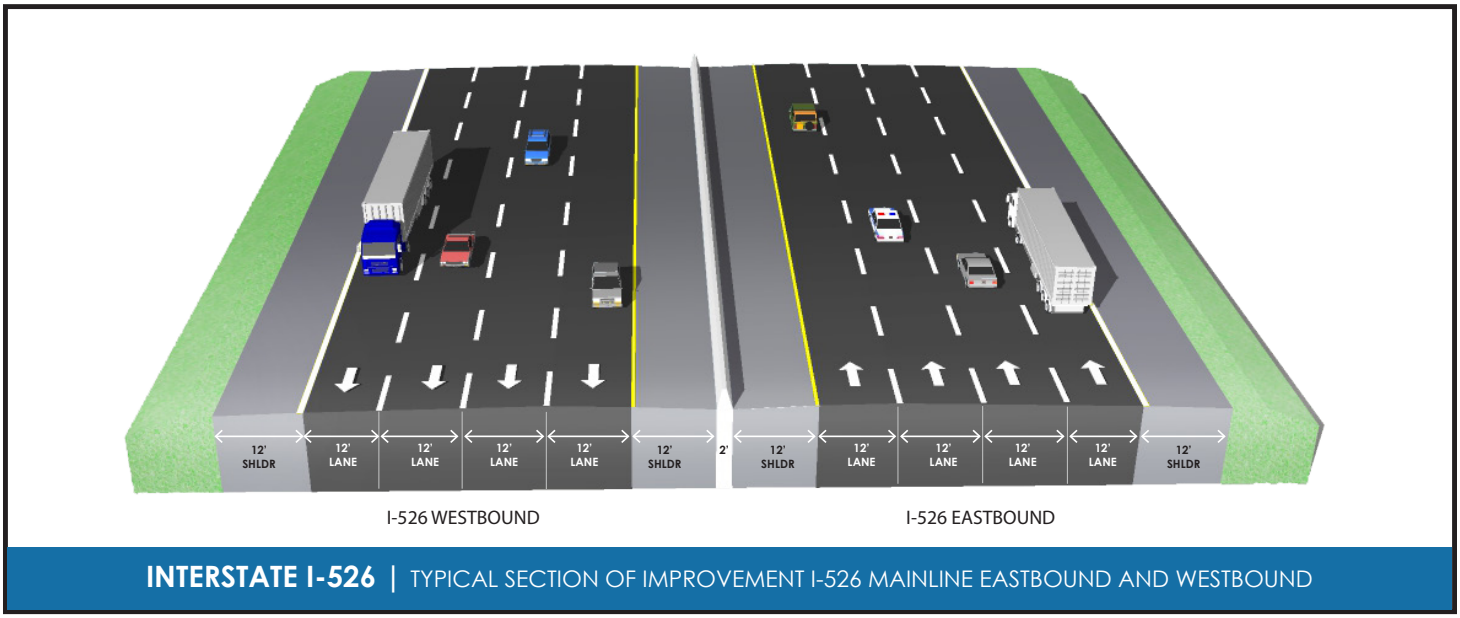


Figure 3.19 Proposed Reasonable Alternatives Sections of I-526 LCC WEST



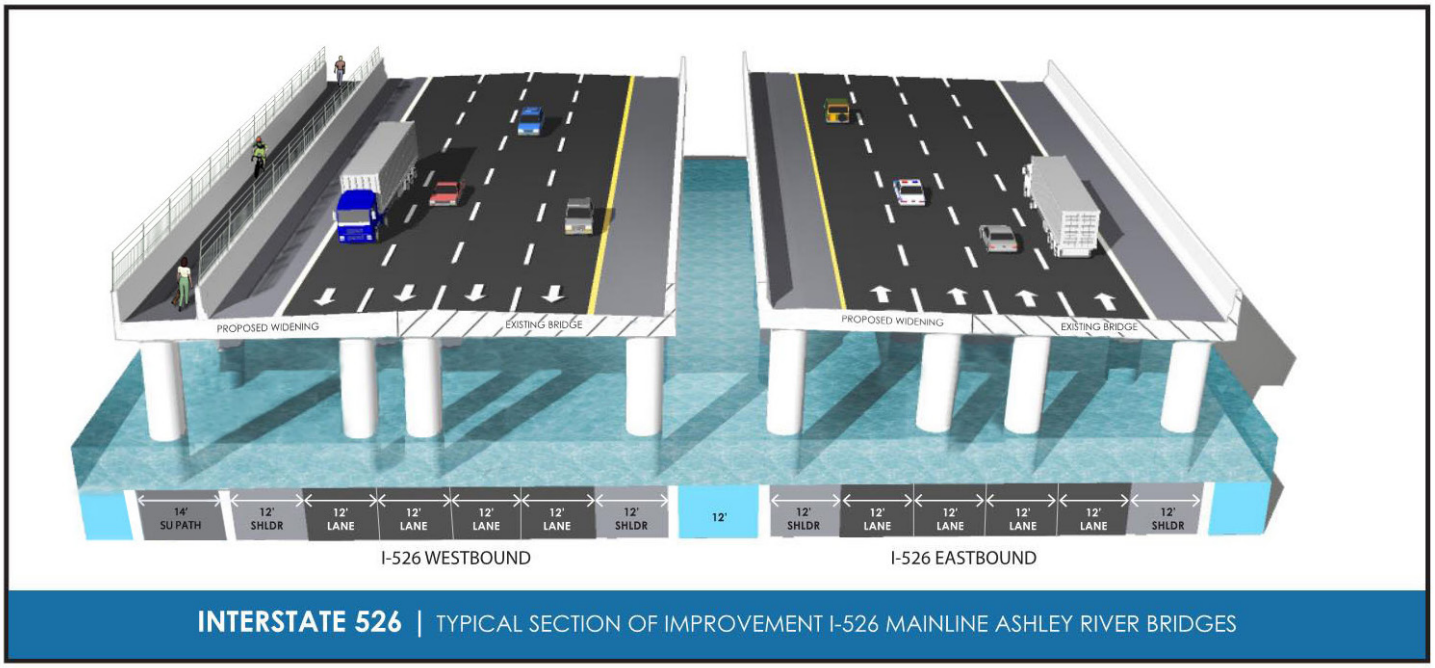


Figure 3.20 Proposed Reasonable Alternatives Mainline Typical Sections

Each section was then evaluated based on the following criteria:

- Purpose and Need: 2050 Traffic Analysis
  - > Geometric Deficiencies Resolved
  - > Provides Direct Access to/from I-526
  - > Provides Direct Access to/from I-26
  - > Weighted v/c Ratio
  - > Intersection LOS/Delay
  - > Mainline LOS
- Wetlands
  - > Freshwater Impact Based on Right-of-Way
  - > Critical Area Impact Based on Right-of-Way
  - > Critical Area (Ashley River) Bridge Construction Temporary Access Based on Right-of-Way
  - > Pond Impact Based on Right-of-Way
  - > Freshwater Stream Impact Based on Right-of-Way
- Relocations
  - > Residential
  - > Businesses
  - > Churches
  - > Community Facilities
- Environmental Justice
- Threatened & Endangered Species
- Essential Fish Habitat
- Cultural Resources
- Section 4(f) & 6(f)
- Utilities
- Cost

Weighted v/c Ratio = Weights each individual v/c ratio according to the volume processed in that movement