

### 3.7.2.1 Paul Cantrell Boulevard to International Boulevard

This alternative encompasses the interchange at Paul Cantrell Boulevard and I-526, the intersection at Paul Cantrell Boulevard and Magwood Drive, and the widening of I-526 from Paul Cantrell Boulevard to International Boulevard, refer to Figure 3.21.

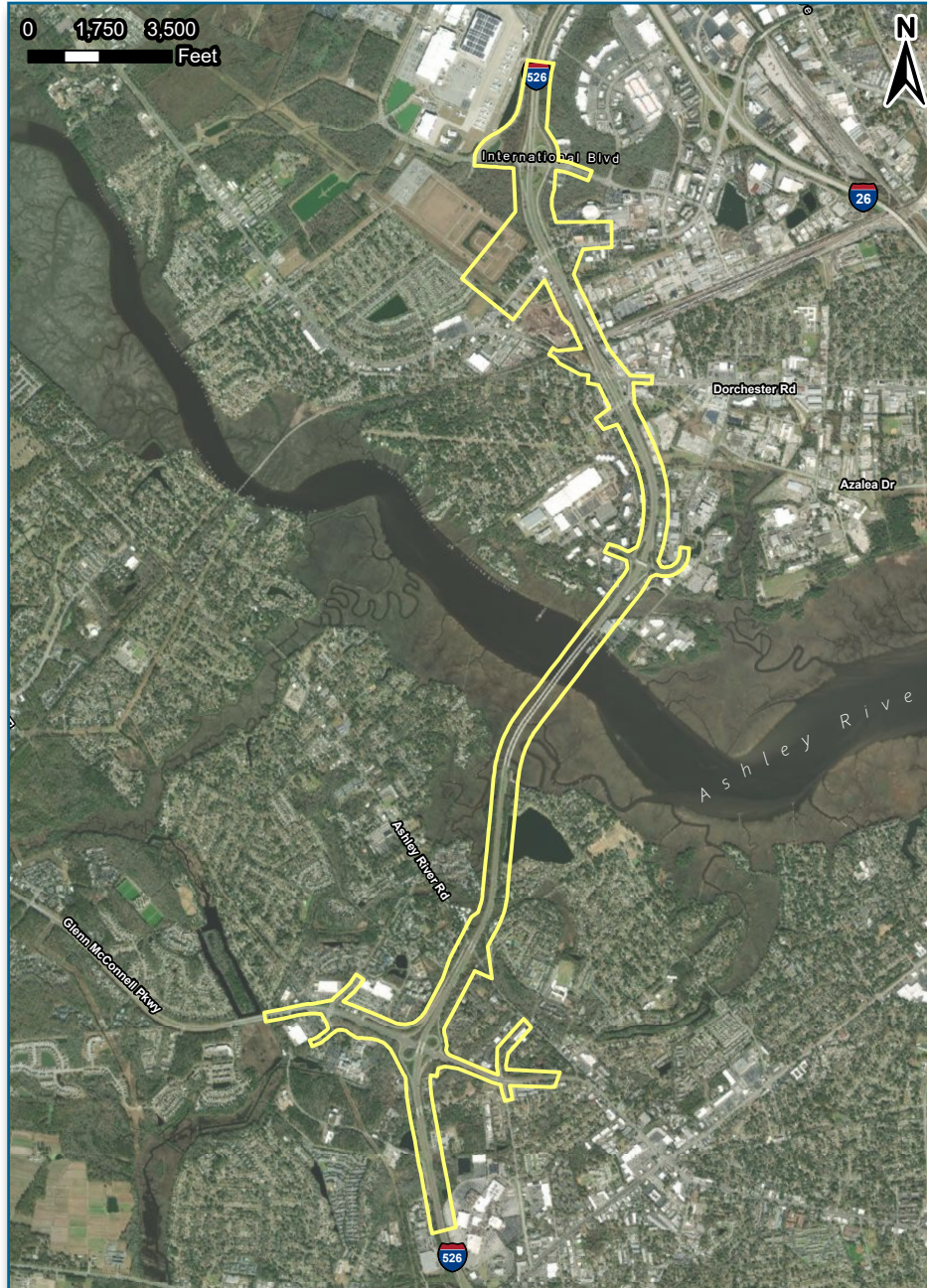


Figure 3.21 I-526 LCC WEST Section from Paul Cantrell Boulevard to International Boulevard

As shown in Table 3.7, the proposed alternative would resolve 15 out of the 16 identified geometric deficiencies as compared to the No-Build Alternative. The proposed alternative would also improve the weighted v/c ratio and the mainline LOS as compared to the No-Build.

**Geometric Deficiency** is the consideration of the inadequacies of roadway design. For more details refer to Chapter 2, section 2.1.5.

Table 3.7 Proposed Reasonable Alternatives Screening Matrix : Paul Cantrell Boulevard to International Boulevard

		No-Build	Paul Cantrell Blvd to International Blvd
Purpose & Need: 2050 Traffic Analysis	Geometric Deficiencies Resolved	0/16	15/16
	Provides Direct Access to/ from I-526 (Yes/No)	Yes	Yes
	Provides Direct Access to/ from I-26 (Yes/No)	N/A	N/A
	Weighted v/c Ratio	1.74   2.50   2.90   3.11	0.72   0.75   0.72   0.67
	Intersection Delay/LOS	N/A	N/A
	Mainline LOS	F	D/D/C/C
Freshwater Wetland Impact Based on R/W	(Acres)	0	19.3
Critical Area Impact Based on R/W	(Acres)	0	19.6
Critical Area (Ashley River) Bridge Construction Temporary Access Based on R/W	(Acres)	0	9.1
Pond Impact Based on R/W	(Acres)	0	0.03
Freshwater Stream Impact Based on R/W	(Feet)	0	327.0
Floodplains	(Acres)	0	385
Relocations	Residential	0	1 Single-Family Homes; 1 Multi-Family Complexes, 3 Units Total
	Businesses	0	6
	Churches	0	0
	Community Facilities	0	0
	Total	0	10
Environmental Justice	Yes/No	No	No
Threatened & Endangered Species		0	May Affect, Not Likely to Adversely Affect
Essential Fish Habitat	Yes/No	No	Yes
Cultural Resources	Eligibility for Listing on National Register of Historic Places (NRHP)	No Effect	No Effect
Section 4(f) & 6(f)	Yes/No	No	No
Utilities	\$	\$0	\$12,901,540
Cost	\$	\$0	\$108,600,000
<b>Preferred Alternative</b>	<b>Yes/No</b>	<b>No</b>	<b>Yes</b>

This “weighted v/c ratio” was calculated for the purposes of summarizing and comparing the segment v/c ratio results in a simplified manner to rank each. This method weights each individual v/c ratio according to the volume processed in that movement. The weighted v/c ratio is a way to measure the efficiency of the alternatives for moving traffic within the interchange.



### 3.7.2.2 International Boulevard to Rivers Avenue

Table 3.8 shows the detailed evaluation of the four Proposed Reasonable Alternatives from International Boulevard to Rivers Avenue, including the I-526/I-26 interchange and the widening of I-526, refer to Figure 3.22. Alternative 2 is recommended as the preferred alternative between International Boulevard and Rivers Avenue. Although Alternatives 1 and 2 would remove access from Rivers Avenue to I-26 via I-526, they would result in lower relocations and less potential impact to environmental justice populations than Alternative 1A or 2A. Alternative 1 would require a traffic movement or weave that may result in overcapacity and failing LOS in the segment. The over-congestion of this segment in Alternative 1 may cause upstream backups along I-526 eastbound and I-526 westbound. Alternative 2 does not require this traffic movement or weave, reducing the number of vehicles which must weave compared to Alternative 1. This results in traffic operations which are under capacity and with acceptable LOS C. Alternative 2 is the recommended preferred alternative between International Boulevard and Rivers Avenue.



Figure 3.22 I-526 LCC WEST Section from International Boulevard to Rivers Avenue

Table 3.8 Proposed Reasonable Alternatives Screening Matrix : International Boulevard to Rivers Avenue

		No-Build	International Blvd to Rivers Ave			
			1	2	1A	2A
Purpose & Need: 2050 Traffic Analysis	Geometric Deficiencies Resolved	0/11	8/11	8/11	9/11	9/11
	Provides Direct Access to/ from I-526 (Yes/No)	Yes	Yes	Yes	Yes	Yes
	Provides Direct Access to/ from I-26 (Yes/No)	N/A	No	No	Yes	Yes
	Weighted v/c Ratio	1.09	0.74	0.71	0.77	0.74
	Intersection Delay/LOS	N/A	N/A	N/A	N/A	N/A
	Mainline LOS	F	C	C	C	C
Freshwater Wetland Impact Based on R/W	(Acres)	0	28.5	28.5	28.5	28.5
Critical Area Impact Based on R/W	(Acres)	0	0	0	0	0
Critical Area (Ashley River) Bridge Construction Temporary Access Based on R/W	(Acres)	N/A	N/A	N/A	N/A	N/A
Pond Impact Based on R/W	(Acres)	0	0	0	0	0
Freshwater Stream Impact Based on R/W	(Feet)	0	13,327.1	13,327.1	13,327.1	13,327.1
Floodplains	(Acres)	0	419	419	422	424
Relocations	Residential	0	35 Single-Family Homes; 15 Mobile Homes; 14 Multi-Family Complexes, 41 Units Total	34 Single-Family Homes; 11 Mobile Homes; 16 Multi-Family Complexes, 44 Units Total	39 Single-Family Homes; 16 Mobile Homes; 19 Multi-Family Complexes, 55 Units Total	39 Single-Family Homes; 16 Mobile Homes; 19 Multi-Family Complexes, 55 Units Total
	Businesses	0	9	9	10	10
	Churches	0	1 - Enoch Chapel Methodist	1 - Enoch Chapel Methodist	2 - Enoch Chapel Methodist, Life Changers Covenant Ministries	2 - Enoch Chapel Methodist, Life Changers Covenant Ministries
	Community Facilities	0	2 - Highland Terrace-Liberty Park Community Center, Russelldale Community Center	2 - Highland Terrace-Liberty Park Community Center, Russelldale Community Center	2 - Highland Terrace-Liberty Park Community Center, Russelldale Community Center	2 - Highland Terrace-Liberty Park Community Center, Russelldale Community Center
	Total	0	103	101	124	124
Environmental Justice	Yes/No	No	Yes	Yes	Yes	Yes
Threatened & Endangered Species		No Effect	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect
Essential Fish Habitat	Yes/No	No	No	No	No	No
Cultural Resources	Eligibility for Listing on NRHP	No Effect	No Adverse Effect	No Adverse Effect	No Adverse Effect	No Adverse Effect
Section 4(f) & 6(f)	Yes/No	No	Yes Highland Terrace-Liberty Park Community Center - 4(f) & 6(f); Russelldale Community Center - 4(f)	Yes Highland Terrace-Liberty Park Community Center - 4(f) & 6(f); Russelldale Community Center - 4(f)	Yes Highland Terrace-Liberty Park Community Center - 4(f) & 6(f); Russelldale Community Center - 4(f)	Yes Highland Terrace-Liberty Park Community Center - 4(f) & 6(f); Russelldale Community Center - 4(f)
Utilities	\$	\$0	\$37,082,500 (includes Alternative 1 or 2 at N Rhett/Virginia Ave interchange)	\$37,082,500 (includes Alternative 1 or 2 at N Rhett/Virginia Ave interchange)	\$43,582,500 (includes Alternative 1 or 2 at N Rhett/Virginia Ave interchange)	\$43,582,500 (includes Alternative 1 or 2 at N Rhett/Virginia Ave interchange)
Cost	\$	\$0	\$950,000,000	\$979,000,000	\$1,068,000,000	\$1,066,000,000
<b>Preferred Alternative</b>	<b>Yes/No</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	<b>No</b>	<b>No</b>



### 3.7.2.3 Rivers Avenue to Virginia Avenue

The five Proposed Reasonable Alternatives from Rivers Avenue to Virginia Avenue, including the I-526 at N Rhett interchange, and the widening of I-526, are shown in Table 3.9 and Figure 3.23. Alternative 2A is estimated to have the lowest potential impact to wetlands, streams, and relocations as compared to the other four alternatives. Alternative 2A is the recommended preferred alternative between Rivers Avenue and Virginia Avenue.

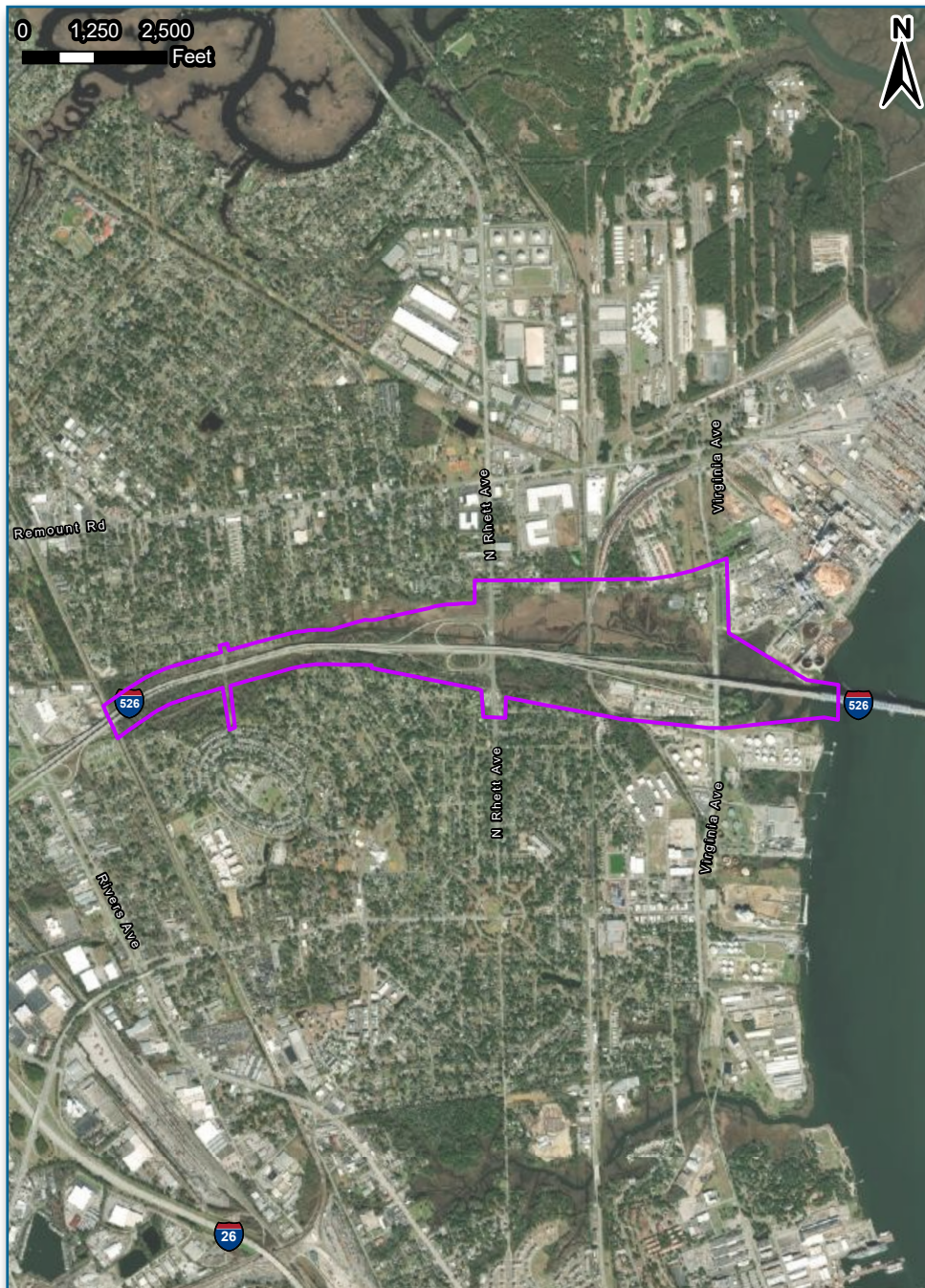


Figure 3.23 I-526 LCC WEST Section from Rivers Avenue to Virginia Avenue

Table 3.9 Proposed Reasonable Alternatives Screening Matrix : Rivers Avenue to Virginia Avenue

		No-Build	Rivers Ave to Virginia Ave																			
			1				2				2A				5				6			
Purpose & Need: 2050 Traffic Analysis	Geometric Deficiencies Resolved	0/3	3/3				3/3				3/3				3/3				3/3			
	Provides Direct Access to/from I-26 (Yes/No)	Yes	526 EB to Virginia No	526 WB to Virginia No	Virginia to 526 EB No	Virginia to 526 WB No	526 EB to Virginia No	526 WB to Virginia No	Virginia to 526 EB No	Virginia to 526 WB No	526 EB to Virginia No	526 WB to Virginia Yes	Virginia to 526 EB Yes	Virginia to 526 WB Yes	526 EB to Virginia Yes	526 WB to Virginia Yes	Virginia to 526 EB Yes	Virginia to 526 WB Yes	526 EB to Virginia Yes	526 WB to Virginia Yes	Virginia to 526 EB Yes	Virginia to 526 WB Yes
	Provides Direct Access to/from I-26 (Yes/No)	N/A	N/A				N/A				N/A				N/A				N/A			
	Weighted v/c Ratio	1.14	1.00				0.99				0.91				0.86				0.91			
	Intersection Delay/LOS	N/A	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			EB C/22.7	WB F/155.8	EB D/37.3	WB F/195.3	EB F/102.9	WB D/43.8	EB E/67.1	WB D/37.8	EB C/30.1	WB B/18.6	EB C/30.7	WB B/11.6	EB C/30.3	WB B/18.4	EB C/31.1	WB B/11.6	EB C/30.3	WB B/18.4	EB C/31.1	WB B/11.6
Mainline LOS	F	C/D				C/D				C/D				C/D				C/D				
Freshwater Wetland Impact Based on R/W	(Acres)	0	54.5				51.3				49.9				57.3				50.8			
Critical Area Impact Based on R/W	(Acres)	0	2.3				2.3				2.4				2.8				2.7			
Critical Area (Ashley River) Bridge Construction Temporary Access Based on R/W	(Acres)	N/A	N/A				N/A				N/A				N/A				N/A			
Pond Impact Based on R/W	(Acres)	0	0				0				0				0				0			
Freshwater Stream Impact Based on R/W	(Feet)	0	5,159.6				5,169.1				4,977.6				5,197.4				5,205.9			
Floodplains	(Acres)	0	166				162				153				173				166			
Relocations	Residential	0	1 Single-Family Home				1 Single-Family Home				1 Single-Family Home				1 Single-Family Home				1 Single-Family Home			
	Businesses	0	3				3				1				3				3			
	Churches	0	0				0				0				0				0			
	Community Facilities	0	0				0				0				0				0			
	Total	0	4				4				2				4				4			
Environmental Justice	Yes/No	No	Yes				Yes				Yes				Yes				Yes			
Threatened & Endangered Species		No Effect	May Affect, Not Likely to Adversely Affect				May Affect, Not Likely to Adversely Affect				May Affect, Not Likely to Adversely Affect				May Affect, Not Likely to Adversely Affect				May Affect, Not Likely to Adversely Affect			
Essential Fish Habitat	Yes/No	No	Yes				Yes				Yes				Yes				Yes			
Cultural Resources	Eligibility for Listing on NRHP	No Effect	No Effect: No Potentially Eligible Resources				No Effect: No Potentially Eligible Resources				No Effect: No Potentially Eligible Resources				No Effect: No Potentially Eligible Resources				No Effect: No Potentially Eligible Resources			
Section 4(f) & 6(f)	Yes/No	No	No				No				No				No				No			
Utilities	\$	\$0	See Utility Costs Under I-526/I-26/Rivers Avenue Alternatives				See Utility Costs Under I-526/I-26/Rivers Avenue Alternatives				+ Approx. \$3.5 Million in Transmission Line Relocations				+ Approx. \$3.5 Million in Transmission Line Relocations				+ Approx. \$3.5 Million in Transmission Line Relocations			
Cost	\$	\$0	\$336,000,000				\$338,000,000				\$341,000,000				\$473,000,000				\$461,000,000			
Preferred Alternative	Yes/No	No	No				No				Yes				No				No			



### 3.8 Recommended Preferred Alternative

Table 3.10 shows the Recommended Preferred Alternative sections. Following the designation of the Recommended Preferred Alternative, the design has been further evaluated by the project team and the potential impacts have been revised in Table 3.11. The final selection of an alternative will not be made until the alternatives' impacts and comments on the DEIS and from the public hearing have been fully evaluated.

Table 3.10 Proposed Reasonable Alternatives Screening Matrix : Recommended Preferred Alternative Sections

		No-Build	Paul Cantrell Blvd to International Blvd	International Blvd to Rivers Ave: Alternative 2	Rivers Ave to Virginia Ave: Alternative 2A			
Purpose & Need: 2050 Traffic Analysis	Geometric Deficiencies Resolved	0/30	15/16	8/11	3/3			
	Provides Direct Access to/from I-526 (Yes/No)	Yes	Yes	Yes	526 EB to Virginia No 526 WB to Virginia Yes Virginia to 526 EB Yes Virginia to 526 WB Yes			
	Provides Direct Access to/from I-26 (Yes/No)	N/A	N/A	No	N/A			
	Weighted v/c Ratio	> 1.00	0.72 0.75 0.72 0.67	0.71	0.91			
	Intersection Delay/LOS	N/A	N/A	N/A	AM Peak Hour		PM Peak Hour	
					EB C/30.1	WB B/18.6	EB C/30.7	WB B/11.6
Mainline LOS	F	D/D/C/C	C	C/D				
Freshwater Wetland Impact Based on R/W	(Acres)	0	19.3	28.5	49.9			
Critical Area Impact Based on R/W	(Acres)	0	19.6	0	2.4			
Critical Area (Ashley River) Bridge Construction Temporary Access Based on R/W	(Acres)	0	9.1	N/A	N/A			
Pond Impact Based on R/W	(Acres)	0	0.03	0	0			
Freshwater Stream Impact Based on R/W	(Feet)	0	327.0	13,327.1	4,977.6			
Floodplains	(Acres)	0	385	419	153			
Relocations	Residential	0	1 single-family homes; 1 Multi-Family Complexes, 3 Units Total	34 Single-Family Homes; 11 Mobile Homes; 16 Multi-Family Complexes, 44 Units Total	1 Single-Family Home			
	Businesses	0	6	9	1			
	Churches	0	0	1 - Enoch Chapel Methodist	0			
	Community Facilities	0	0	2 - Highland Terrace-Liberty Park Community Center, Russelldale Community Center	0			
	Total	0	10	101	2			
Environmental Justice	Yes/No	No	Yes	Yes	Yes			
Threatened & Endangered Species		0	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect			
Essential Fish Habitat	Yes/No	No	Yes	No	Yes			
Cultural Resources	Eligibility for Listing on NRHP	No Effect	No Effect: Potentially Eligible Underwater Resource 006-1	No Adverse Effect	No Effect: No Potentially Eligible Resources			
Section 4(f) & 6(f)	Yes/No	No	No	Yes Highland Terrace-Liberty Park Community Center - 4(f) & 6(f); Russelldale Community Center - 4(f)	No			
Utilities	\$	\$0	\$12,901,540	\$37,082,500 (includes Alternative 1 or 2 at N Rhett/Virginia Ave)	+ Approx. \$3.5 Million in Transmission Line Relocation			
Cost	\$	\$0	\$108,600,000	\$979,000,000	\$341,000,000			
<b>Preferred Alternative</b>	<b>Yes/No</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>			

Table 3.11 Proposed Reasonable Alternatives Screening Matrix: Recommended Preferred Alternative Combined

		No-Build	Preferred Alternative
Purpose & Need: 2050 Traffic Analysis	Geometric Deficiencies Resolved	0/30	26/30
	Provides Direct Access to/from I-526 (Yes/No)	Yes	Yes
	Provides Direct Access to/from I-26 (Yes/No)	Yes	No
	Weighted v/c Ratio	> 1.00	< 1.00
	Intersection Delay/LOS	N/A	N Rhett/Virginia Ave, Refer to Table 6.4
	Mainline LOS	F	D/D/C/C/C/C/D
Freshwater Wetland Impact Based on R/W	(Acres)	0	97.7
Critical Area Impact Based on R/W	(Acres)	0	22
Critical Area (Ashley River) Bridge Construction Temporary Access Based on R/W	(Acres)	0	9.1
Pond Impact Based on R/W	(Acres)	0	0.03
Freshwater Stream Impact Based on R/W	(Feet)	0	18,631.7
Floodplains	(Acres)	0	957
Relocations	Residential	0	94
	Businesses	0	16
	Churches	0	1
	Community Facilities	0	2
	Total	0	113
Environmental Justice	Yes/No	No	Yes
Threatened & Endangered Species		0	May Affect, Not Likely to Adversely Affect
Essential Fish Habitat	Yes/No	No	Yes
Cultural Resources	Eligibility for Listing on NRHP	No Effect	No Adverse Effect
Section 4(f) & 6(f)	Yes/No	No	Yes
Utilities	\$	\$0	\$53.5 M
Cost	\$	\$0	\$1.43 B



## 3.9 Pedestrian and Bicycle Accommodations

To address pedestrian and cyclist mobility needs within the I-526 LCC WEST project corridor, the addition of potential bicycle and pedestrian improvements documented in local and regional transportation plans within the I-526 corridor was evaluated in the development of this DEIS.

The I-526 LCC WEST project proposes to add a shared use path across the new Ashley River Bridge

### 3.9.1 What Pedestrian and Bicycle Facility Options were Evaluated?

As detailed in Section 2.1.6, the BCDCOG LRTP identified several pedestrian and bicycle improvement projects recommended by the WalkBike BCD and People Pedal plans within the I-526 LCC WEST project corridor.

#### 3.9.1.1 Parallel Shared Use Path

The BCDCOG LRTP includes a shared use path (SUP) parallel to I-526 from Paul Cantrell Boulevard to Virginia Avenue as a “complimentary” project to the I-526 LCC WEST project. Complimentary pedestrian and bicycle projects coincide with LRTP roadway projects. The LRTP describes the proposed facility as shared use paths outside of road Right-of-Way that can provide a desirable facility, particularly for recreation, and users of all skill levels preferring separation from traffic.

The potential for a parallel SUP within the I-526 LCC WEST project corridor was evaluated on a segment by segment basis:

- Segment 1: Paul Cantrell Boulevard to Ashley River
- Segment 2: Ashley River Crossing
- Segment 3: Ashley River Bridge to N Rhett Avenue
- Segment 4: N Rhett Avenue to East of Virginia Avenue

For Segments 1, 2, and 4, the LRTP Plan does not identify the specific alignments of the SUP parallel to I-526, but it does provide goals that influence route selection, including:

- Develop on- and of-street pedestrian and bikeway facilities to meet national best practices in design, providing a safe and inviting environment for all ages and ability levels.
- Prioritize safe walking and biking connections to transit centers and transit stops.
- Focus on improving bicycle connectivity between commercial and employment districts, public services, transit access points, schools, neighborhoods, and existing population centers.

These goals of providing a safe and inviting environment, providing connectivity to transit, and a focus on connectivity to schools, neighborhoods, and existing population centers would be best accomplished by a route that utilizes the non-interstate roadway network adjacent to I-526. Therefore, it was determined that these improvements were outside the purpose and need for the I-526 LCC WEST project and should be the responsibility of other project sponsors.

However, Segment 2, which utilizes I-526 to cross the Ashley River, can only be feasibly constructed as part of the I-526 LCC WEST project. Additionally, while the SUP crossing of the Ashley River provides an important link between commercial and employment districts, public services, transit access points, schools, neighborhoods, and existing population centers, this segment does not have the need for connections within it. Therefore, it was determined that this segment should be constructed as a part of the Recommended Preferred Alternative for the I-526 LCC WEST Project.

### 3.9.1.2 Glenn McConnell Parkway

The Glenn McConnell Parkway Widening project being completed by Charleston County will relieve traffic congestion on Glenn McConnell Parkway by widening the road from four to six lanes between Bees Ferry Road and Magwood Drive. The project also intends to improve bicycle and pedestrian facilities through the addition of a multi-use path allowing safe pedestrian access across the CSX Railway.

The bicycle and pedestrian needs included in the BCDCOG LRTP will be addressed by the Glenn McConnell Parkway Widening project. The I-526 LCC WEST project will ensure compatibility with the Glenn McConnell Parkway multi-use path by providing a paved shoulder on Glenn McConnell Parkway between I-526 and Magwood Drive/Henry Tecklenburg Drive.

### 3.9.1.3 Ashley River Road

Ashley River Road is an arterial street that passes under a bridge carrying I-526. The BCDCOG LRTP identified the need for a SUP or paved shoulder along Ashley River Road between Frontage Road and Tobias Gadson Boulevard. The identified bicycle and pedestrian improvements along Ashley River Road are not included as part of the I-526 LCC WEST project because they are outside the purpose and need for the project and are the responsibility of other project sponsors. The improvements to I-526 will not impede the future development of these improvements as adequate space exists for them to be built without additional modifications to the bridge structure.

### 3.9.1.4 N Rhett Avenue

N Rhett Avenue is an arterial street that passes under a bridge carrying I-526. The BCDCOG LRTP identified the need for a SUP or paved shoulder along N Rhett Avenue between Remount Road and the I-526 Exit 19 Ramp. The identified bicycle and pedestrian improvements along N Rhett Avenue are not included as part of the I-526 LCC WEST project because they are outside the purpose and need for the project and are the responsibility of other project sponsors. The improvements to I-526 will not impede the future development of these improvements as adequate space exists for them to be built without additional modifications to the bridge structure.

### 3.9.1.5 US 52/Rivers Avenue

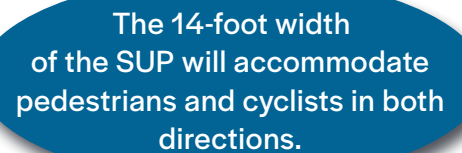
The BCDCOG LRTP identified several pedestrian or bicycle improvements along US 52 in the vicinity of its interchange with I-526: improved existing sidewalks and paved shoulder or separated bicycle lane extending north and south of I-526. These identified improvements are not included as part of the I-526 LCC WEST project because they are outside the purpose and need for the project and are the responsibility of other project sponsors.



Sidewalks are currently located on both sides of US 52/Rivers Avenue through the I-526 right of way, and the I-526 LCC WEST project does not include widening of this road. For the paved shoulder and separated bicycle lane improvements, it is suggested that future planning of those facilities be coordinated with the Lowcountry Rapid Transit project, which will construct and implement a bus rapid transit system in the wide median of this roadway. US 52 has high driveway density and a new bicycle facility could provide more safety to cyclists and support better access to transit if placed on the median side of the road and coordinated with this project.

### 3.9.2 How are Bicycle and Pedestrian Facilities Incorporated into the Recommended Preferred Alternative?

The Ashley River Bridge is a dual structure with a separate bridge carrying eastbound and westbound traffic. Various options were evaluated for how to add a 14-foot wide SUP for pedestrian and bicycle traffic to the corridor crossing the river. Seven viable alternatives were studied for adding the SUP to the Ashley River Bridge. The following option was selected as the recommended preferred due to maintenance and construction logistics, Right-of-Way requirements, cost, and a balance of wetland impacts. This option would:

A blue oval callout box with white text.

The 14-foot width of the SUP will accommodate pedestrians and cyclists in both directions.

- Widen I-526 across the Ashley River to the west (upstream) side of both the eastbound and westbound bridges.
- Route the SUP on the west (upstream) side of the westbound bridge.

More details about the SUP are included at the end of Appendix C.