



# Main Road Segment C

## Traffic Operational Improvements



# Main Road Segment C

## Project Background

Charleston County identified funding to improve Main Road in the 2016 Transportation Sales Tax ordinance. At that time, the ordinance listed the project as the US 17 at Main Road flyover and widening Main Road from Bees Ferry Road to Betsy Kerrison Parkway. In an effort to expedite improvements, the County has separated the project into three segments: Segment A, Segment B, and Segment C.

Segment C begins at the intersection of Bohicket Road and Maybank Highway and extends to Betsy Kerrison Parkway. The project team studied several options for the segment, including widening River Road, widening Bohicket Road, and constructing a new road across the island.

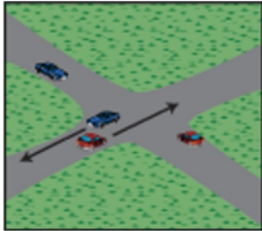
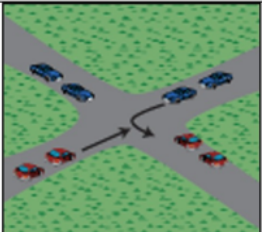
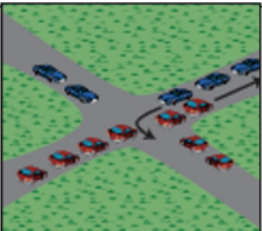
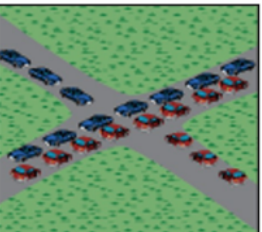
# Explanation of V/C Ratio and Level of Service (LOS)

A volume to capacity (v/c) ratio measures the amount of traffic on a given roadway relative to the amount of traffic the roadway was designed to accommodate.

## Segment Analysis LEGEND

- Not Congested V/C = 0.0 – 0.8
- Approaching Congestion V/C = 0.8 – 1.0
- Congested V/C = 1.0 – 1.2
- Severely Congested V/C = 1.2+

Level of service (LOS) does not offer the most in-depth or complex information, making it less than 100% accurate, but it is easy to translate and understand, allowing decision makers to determine general service quality and how likely any changes are to create perceived improvements for travelers. The letter grade system is familiar to most, and it provides a common system and set of definitions, allowing scores to be communicated easily. **LOS A-D are acceptable conditions when looking out 20+ years (Design Year = 2045)**

LOS	INTERSECTIONS		
	SIGNALIZED		UNSIGNALIZED
<b>A</b>	<ul style="list-style-type: none"> <li>✓ Very low delay, average less than 10.0 seconds per vehicle (spv)</li> <li>✓ Most vehicles arrive during green phase</li> <li>✓ Most vehicles do not need to stop</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delays less than 10.0 spv</li> <li>✓ Little or no delay to minor street traffic</li> </ul>
<b>B</b>	<ul style="list-style-type: none"> <li>✓ Average delay in range of 10.1-20.0 spv</li> <li>✓ More vehicles stop than LOS A</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delay in range of 10.1-15.0 spv</li> <li>✓ Short traffic delays to minor street traffic</li> </ul>
<b>C</b>	<ul style="list-style-type: none"> <li>✓ Average delay in range of 20.1-35 spv</li> <li>✓ Number of vehicles stopping is significant</li> <li>✓ Cycle failures may begin to appear</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delay in range of 15.1-25.0 spv</li> <li>✓ Average traffic delays to minor street traffic</li> </ul>
<b>D</b>	<ul style="list-style-type: none"> <li>✓ Average delay in range of 35.1-55.0 spv</li> <li>✓ Congestion more noticeable</li> <li>✓ Many vehicles stop</li> <li>✓ Cycle failures noticeable</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delay in range of 25.1-35.0 spv</li> <li>✓ Long traffic delays to minor street traffic</li> </ul>
<b>E</b>	<ul style="list-style-type: none"> <li>✓ Average delay in range of 55.1-80.0 spv</li> <li>✓ Cycle failures frequent</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delay in range of 35.1-50.0 spv</li> <li>✓ Very long delays to minor street traffic</li> </ul>
<b>F</b>	<ul style="list-style-type: none"> <li>✓ Average delay in excess of 80.0 spv</li> <li>✓ Delay unacceptable to most drivers</li> <li>✓ Many cycle failures</li> </ul>		<ul style="list-style-type: none"> <li>✓ Average delay in excess of 50.0 spv</li> <li>✓ Extreme delays with queuing</li> <li>✓ Congestion affects other intersections</li> <li>✓ Warrants improvement to intersection</li> </ul>

**Year 2045 Maximum Peak Hour Volume to Capacity (V/C) Ratios**

Main Road/Bohicket Road Segment	No Build	Alternative 1A	Alternative 6	Alternative 8
Between Brownswood Rd and Maybank Hwy	1.05	0.41	1.05	0.41
Between Maybank Hwy and Plow Ground Rd	1.10	0.52	1.10	0.52
Between Plow Ground Rd and Edenvale Rd	1.08	0.56	1.08	0.56
Between Edenvale Rd and River Rd	0.78	1.01	0.78	1.01
v/c: 0.00 to 0.80 – not congested, 0.80 to 1.00 – approaching congestion, 1.00 to 1.20 – congested, 1.20 to 10.00 – severely congested				

**Projected 2045 Alternative Peak Hour Level of Service (LOS) and Delay  
AM Peak Hour/PM Peak Hour**

Intersection/Scenario	Traffic Control <sup>a</sup>	2017 Existing	2045 No Build	2045 Alternative 1A	2045 Alternative 6	2045 Alternative 8
Main Rd. at Brownswood Rd.	S (Existing, No Build, Alt 1A, Alt 8) R (Alt 6)	C/B	D/C	C/B	C/C	B/B
Main Rd./Bohicket Rd. at Maybank Hwy.	S (Existing, No Build, Alt 1A, Alt 8) R (Alt 6)	E/D	F/F	D/D	B/C	D/D
Bohicket Rd. at New Alternative 6 Roadway	S (Alt 6 only)	N/A	N/A	N/A	D/C	N/A
Bohicket Rd. at Plow Ground Rd./Hoopstick Island Rd.	U (Existing, No Build) S major imprvmt. (Alt 1A, Alt 8) S minor imprvmt. (Alt 6)	F/E	F/F	C/C	D/E	C/C
Bohicket Rd. at Edenvale Rd.	U (Existing, No Build) S (Alt 1A) 2 Lane R with WBR bypass lane (Alts 6, 8)	B/C	E/F	C/D	A/B	C/D
Bohicket Rd./Betsy Kerrison Pkwy. at River Rd./Island Center	S (Existing, No Build, Alt 1A) R (Alts 6, 8)	B/B	C/C	B/C	C/B	C/B

Notes: If the intersection is unsignalized, the LOS of the worst side street approach was reported. Traffic volumes on the main line would operate in free flow conditions.

a. S = Signalized, R = Roundabout, U = Unsignalized, WBR = westbound right turn