US 278 Corridor Improvements

Stakeholder Meeting

January 30, 2020

US 278 CORRIDOR IMPROVEMENTS
Casting a Light on the Community's Transportation Future

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Project Management

Purpose & Need

The purpose of this project is to **address structural deficiencies** at the existing eastbound Mackay Creek bridge, as well as **increase capacity** and **reduce congestion** along US 278 from Moss Creek Drive to Spanish Wells Road.

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THE DEVELOPMENT PROCESS FOR HIGHWAYS

This graphic demonstrates the general project development process for planning and building highways.

*Process depicted on this graphic is for projects being developed under an Environmental Assessment or Environmental Impact Statement; smaller projects developed under a Categorical Exclusion do not require a Public Hearing.

Public Information Meeting 2 Summary

The second Public Information Meeting for the US 278 Corridor Improvements Project was held on Thursday September 19, 2019 from 5-7 PM at the Boys & Girls Club of Hilton Head Island.

330 Total Attendees

5,979 Web Visitors

Response Type

Written Comment Forms

62

Website Comments

247

Emailed Comments & Letters

31

What We Heard

340 Total Comments

- In Favor of Bike/Ped or Transit
- In Favor of Reversing Traffic
- In Favor of Widening
- Against Widening
- In Favor of Additional Access Point
- Concerned with Noise Impacts
- Concerned with Preserving the Natural Environment
- Concerned with Preserving Gullah Heritage

Where We Have Been

Public & Agency Comments Review

Alternatives Refinement

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Where We Have Been
Community Engagement

Bluffton Seafood & Arts Festival

Daufuskie Island Council

Democratic Club (South of the Broad)

Indigo Run

Bluffton Chamber of Commerce

Mariners Cove

Hilton Head Island Gateway Committee

Hilton Head Island Chamber of Commerce

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Traffic Engineering

Traffic Analysis

Planning-Level

For Environmental Analysis & Development of Alternatives

- Purpose and Need
- Development of Alternatives
- Evaluation of Alternatives
- Concept Plans for Recommended Preferred Alternative

Engineering-Level

For Final Design of the Recommended Preferred Alternative

- Mainline Capacity
- Intersection Design
- Access Management
- Traffic Operations and Signalization
- Wayfinding

Traffic Analysis

Data Collection

Existing Geometry

- Segment number of lanes
- Intersection configuration & traffic control
- Posted speed limits

Traffic Volumes

INRIX Speed Data

Historical AADT from SCDOT

5-Year Crash History

Existing Signal Timings

Traffic Analysis

Data Collection

- Existing Geometry
- **Traffic Volumes**
  - Over 24-hour period (Segments)
  - Peak Periods: AM, Mid-day, PM (intersections)
- INRIX Speed Data
- SCDOT Historical AADT
- 5-Year Crash History
- Existing Signal Timings

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Traffic Analysis

Data Collection

- Existing Geometry
- Traffic Volumes
- **INRIX Speed Data**
- SCDOT Historical AADT
- 5-Year Crash History
- Existing Signal Timings

	AM	PM
OBSERVED SPEED	30-35	35-45
	Eastbound	Both Directions

Traffic Analysis

Data Collection

- Existing Geometry
- Traffic Volumes
- INRIX Speed Data
- **SCDOT Historical Average Annual Daily Traffic (AADT)**
- 5-Year Crash History
- Existing Signal Timings

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Traffic Analysis

Data Collection

- Existing Geometry
- Traffic Volumes
- INRIX Speed Data
- SCDOT Historical AADT
- **5-Year Crash History**
- Existing Signal Timings

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Traffic Analysis

Data Collection

- Existing Geometry
- Traffic Volumes
- INRIX Speed Data
- SCDOT Historical AADT
- 5-Year Crash History
- **Existing Signal Timings**

Existing Traffic Analysis

Software

- Analysis is based on Highway Capacity Manual (Industry Guidelines)
- Segment Analysis – HCS7
- Intersection Analysis – Synchro10

Design Volume

- Design Hour Standard Practice: establish highway design volumes based on an hour between the 30th and 100th highest hour of the year

  American Association of State Highway and Transportation Officials (AASHTO)

Mainline Volume Analysis

Will a Reversible Lane Work?

AM Peak:

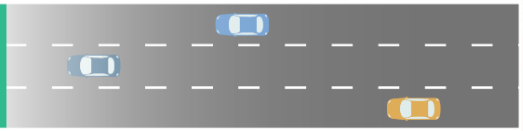
- 4,150 eastbound: Need 3 eastbound lanes to maintain LOS D
- 2,120 westbound: Need 2 westbound lanes to maintain LOS C

PM Peak:

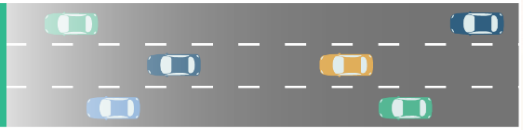
- 4,390 westbound : Need 3 westbound lanes to maintain LOS D
- 3,080 eastbound: Need 2 eastbound lanes to maintain LOS D

Levels of Service

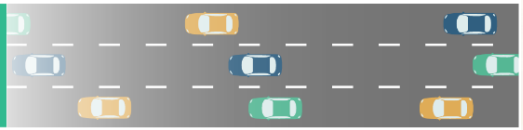
FREE FLOW — LOS **A**
Low volumes and no delays.



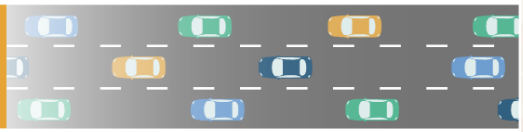
STABLE FLOW — LOS **B**
Speeds restricted by travel conditions, minor delays.



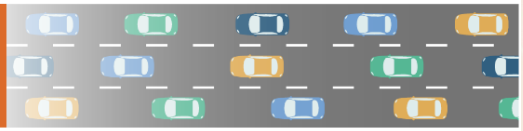
STABLE FLOW — LOS **C**
Speeds and maneuverability closely controlled because of higher volumes.



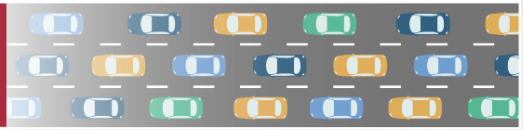
STABLE FLOW — LOS **D**
Speeds considerably affected by change in operation conditions. High density traffic restricts maneuverability; volume near capacity.



UNSTABLE FLOW — LOS **E**
Low speeds; considerable delay; volume at or slightly over capacity.



FORCED FLOW — LOS **F**
Very low speeds; volumes exceed capacity; long delays with stop-and-go traffic.



Define Level of Service (Mainline)

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Define Level of Service (Intersection)

Traffic Signal Level of Service

A

- Highly stable, free-flow condition with little or no congestion
- No vehicle waits longer than one signal indication
- Delay: <10 seconds/vehicle

B

- Stable, free-flow condition with little congestion
- On rare occasions vehicles wait through more than one signal indication
- Delay: 10 to 20 seconds/vehicle

C

- Free-flow conditions with moderate congestion
- Intermittently vehicles wait through more than one signal indication and occasional backups may develop
- Delay: 20 to 35 seconds/vehicle

D

- Approaching unstable condition with increasing congestion but without excessive backups
- Level of service D has historically been regarded as a desirable design in urban areas
- Delay: 35 to 55 seconds/vehicle

E

- Unstable, congested condition
- Very long queues may create lengthy delays
- Delay: 55 to 80 seconds/vehicle

F

- Stop and go
- Backups from locations downstream restrict or prevent movement of vehicles out of approach creating "gridlock" condition
- Delay: >80 seconds/vehicle

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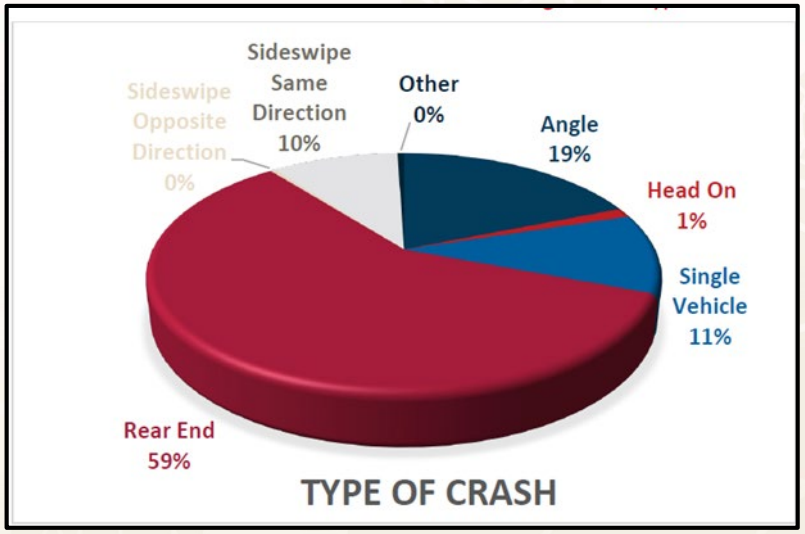
Safety Analysis

How do we analyze crashes?

- Total Number of Crashes
- Types of Crashes
  - *Angle, Head On, Single Vehicle, Rear End, Sideswipe*
- Severity of Crashes
  - *Property Damage Only, Injury, Fatality*
- Crashes During the Peak Hours
- Location or Clustering of Crashes
- Involvement with Pedestrians or Bicyclists



Alternatives Analysis

6 Reasonable Alternatives each consisting of the following:

- Between Moss Creek Drive and Salt Marsh Drive
  - *No widening*
  - *10-foot paved multiuse path on south side of US 278*
  - *5-foot sidewalk on north side of US 278 (optional)*
- Multiuse path located on south side from Moss Creek Drive to Blue Heron Point Road and on north side from Blue Heron Point Road to Wild Horse Road/Spanish Wells Road
- Jenkins Island Superstreet is assumed
- Eastbound bridge over Mackay Creek will be replaced
- Access to Pinckney Wildlife Refuge will be right-in/right-out

Next Steps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Traffic Next Steps…

- Input from Public Meetings and Comments
- Refinement of Alternatives – operational and design modifications
- Incorporate Wayfinding
- Final design of “Recommended Preferred” alternative
- Begin refining roadway design to optimize traffic flow for the mainline as well as intersections

Project Next Steps…

- Refinement of alternatives
- Meeting with potentially impacted community members individually
- Continuation of traffic analysis
  - *Look at intersection improvements to maximize efficiency*
- Continuation of impacts analysis:
  - *Delineated Wetlands, Threatened & Endangered Species, Shellfish Harvesting Waters, Essential Fish Habitat, etc.*
  - *Noise impacts*
  - *Historical & Cultural Resources*
- Cost Analysis
- Public Hearing (Late 2020)

Contact

www.SCDOT278Corridor.com

info@SCDOT278Corridor.com

Facebook.com/SCDOT278Corridor

@SCDOT278Corridor

Craig Winn, PE, CFM
Project Manager
SCDOT

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