US 278 Corridor Improvements

Stakeholder Meeting

October 28, 2020

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

U.S. Department of Transportation Federal Highway Administration

SCDOT South Carolina Department of Transportation

Project Management

Agenda

1. Alternatives Update
2. Intersection Concepts
3. Community Impacts and Mitigation
4. Next Steps

US 278 CORRIDOR IMPROVEMENTS
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U.S. Department of Transportation Federal Highway Administration

SCDOT South Carolina Department of Transportation

Purpose & Need

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

Structural Deficiencies

Congestion

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SCDOT South Carolina Department of Transportation

Public Engagement

The NEPA Process

Start the Environmental Assessment

Public Information Meeting 1

Perform Technical Studies 2

Develop Alternatives 3

Analyze Alternatives 4

Second Public Information Meeting 5

Develop Preferred Alternative 6

Prepare Environmental Assessment 7

Public Hearing 8

Revise Alternative 9

FHWA Decision 10

Public Hearing: Spring 2021
Pending Coordination with USFWS

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.

THE DEVELOPMENT PROCESS FOR HIGHWAYS

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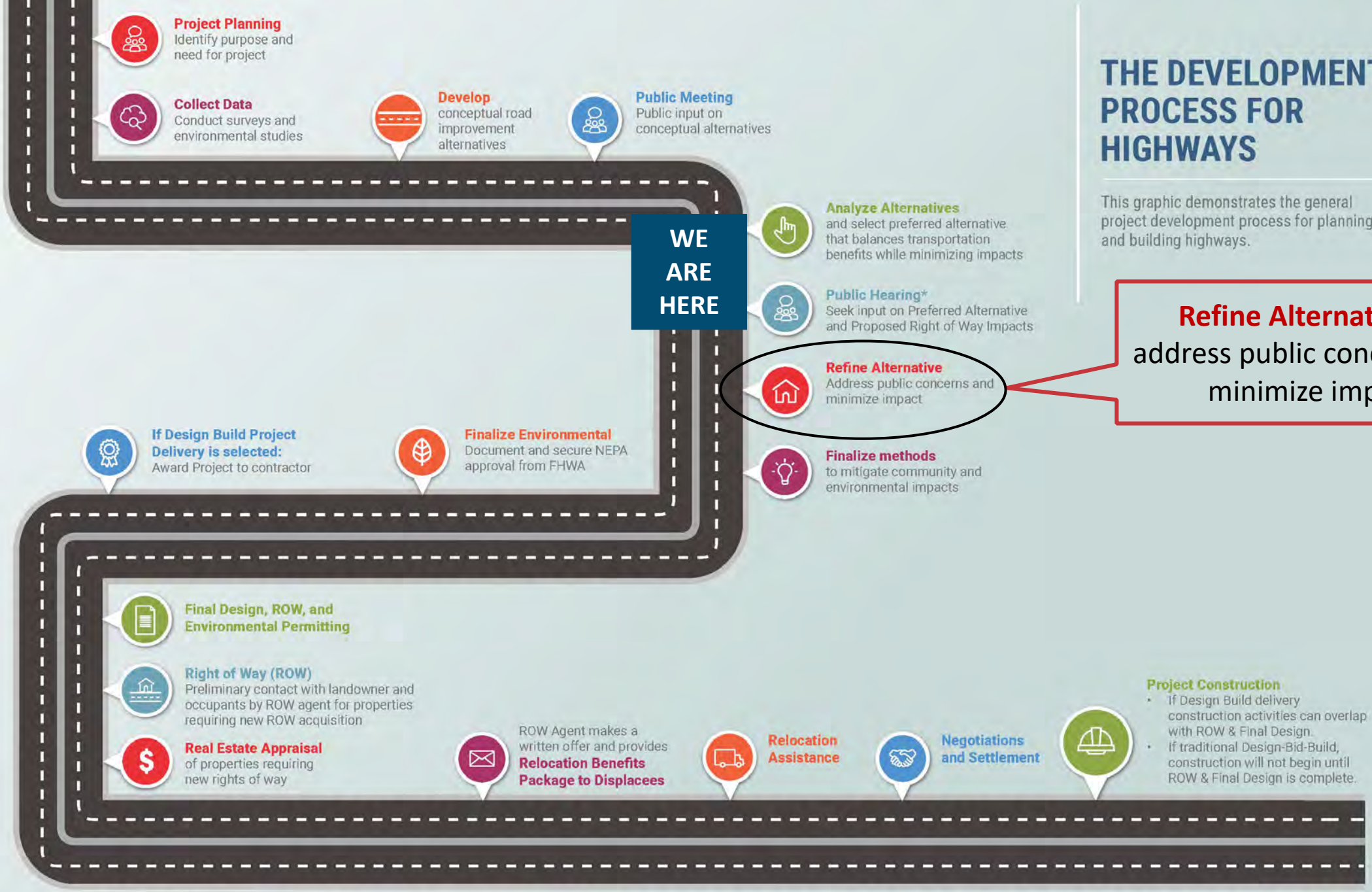

Refine Alternatives…
address public concerns and minimize impact

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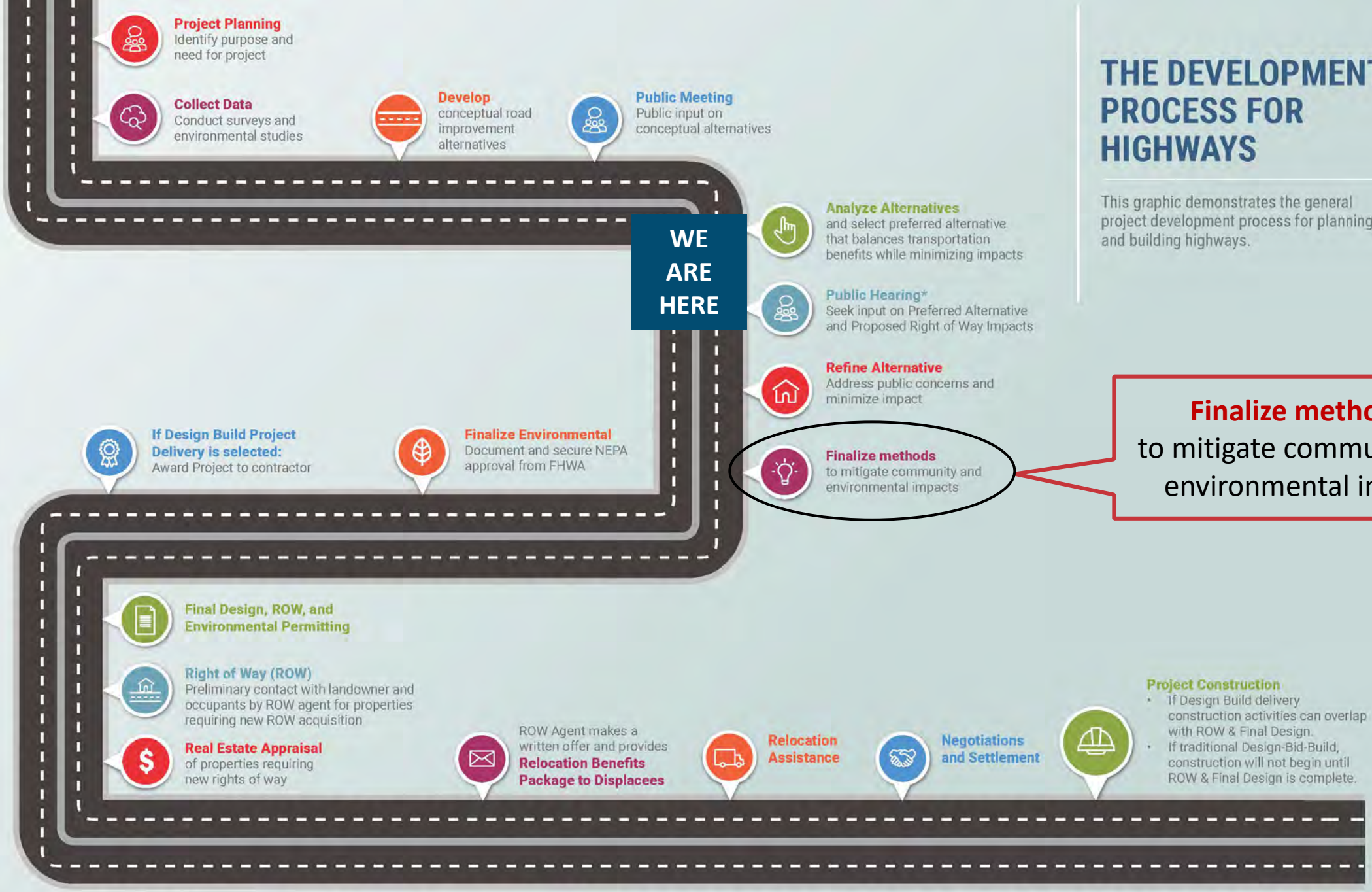

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US 278 CORRIDOR IMPROVEMENTS
ALTERNATIVES DEVELOPMENT FLOWCHART

Public Meeting
September 27, 2018

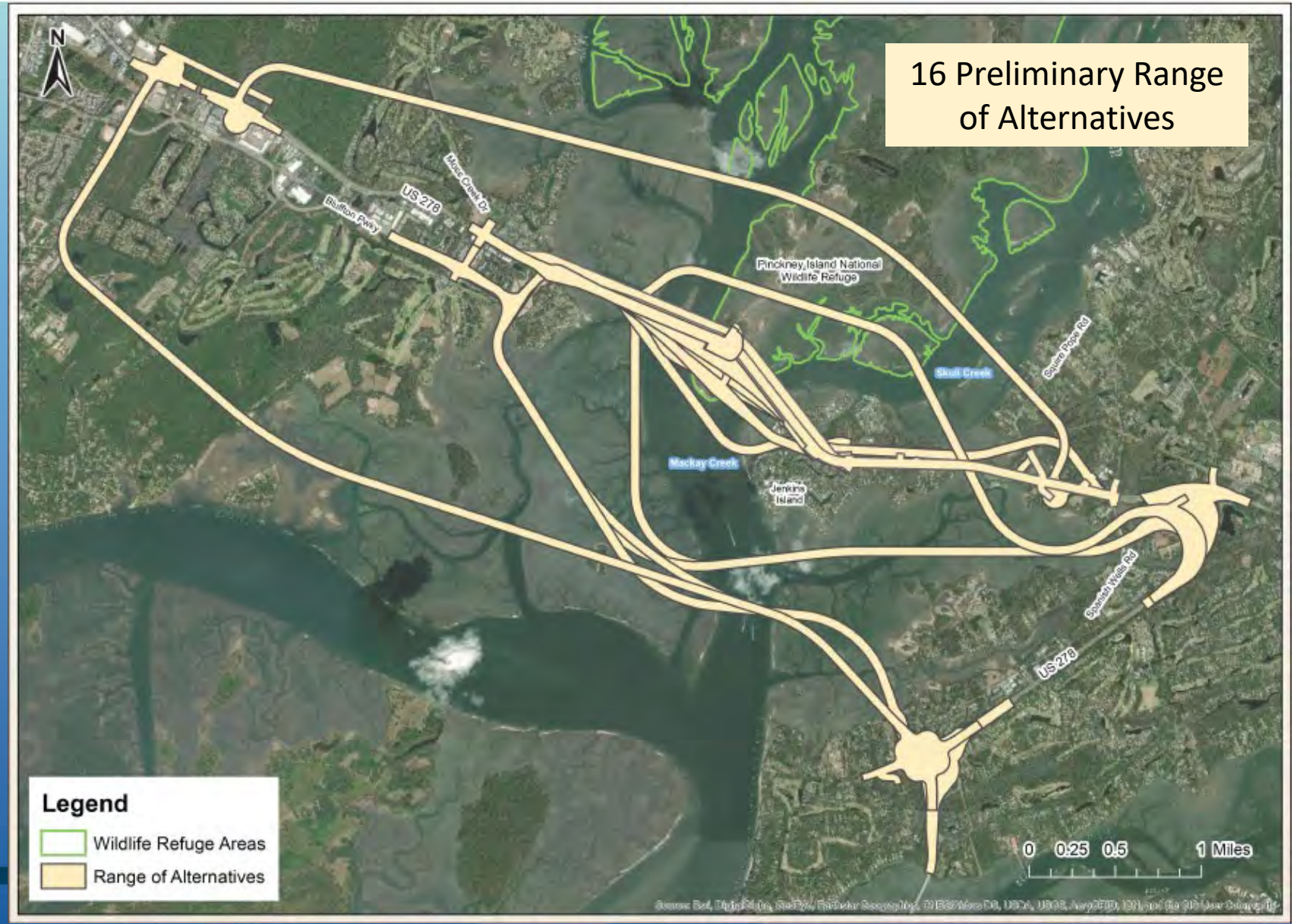
Preliminary Range of Alternatives

- No Build
- Widen Existing US 278
- New Alignment
- Travel Demand Management*
- Transportation System Management*
- Mass Transit*

Evaluation Criteria

- Purpose & Need (Structural Deficiency)
- GIS Wetlands (Acres)
- Protected Lands (Acres)
- Right-of-Way Impacts
- US Fish & Wildlife Service Compatibility
- Neighborhoods Impacts

Alternatives Eliminated Based on Criteria



US 278 CORRIDOR IMPROVEMENTS
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Alternatives Eliminated Based on Criteria

Public Meeting
September 19, 2019

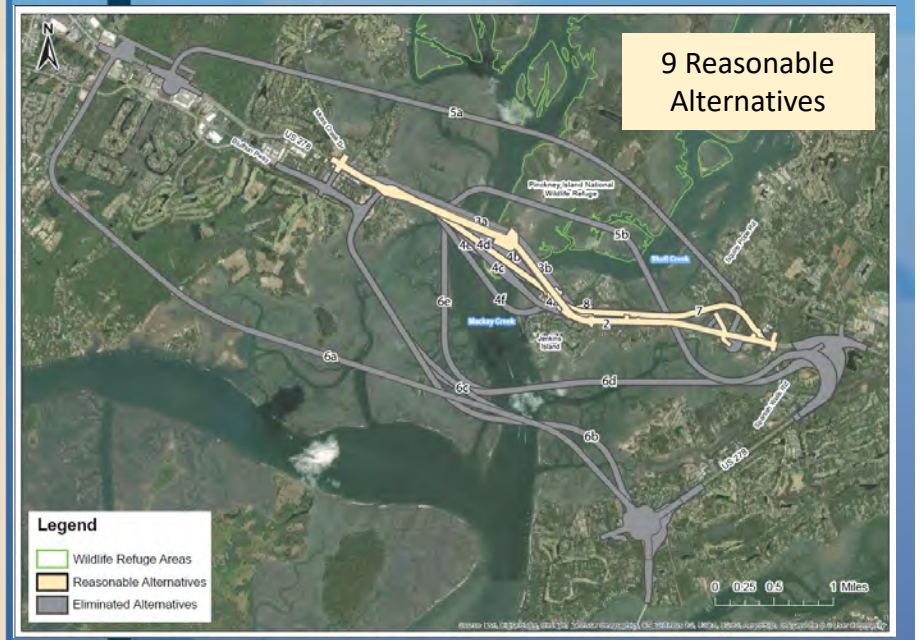
Proposed Reasonable Alternatives

Evaluation Criteria

- Purpose & Need
- Traffic Performance (Level of Service & Intersection Operations)
- Delineated Wetlands
- Structures
- Environmental Justice
- Threatened & Endangered Species
- Historic & Cultural Resources
- Noise Impacts
- Hazardous Materials
- Utility Impacts
- Project Costs
- US Fish & Wildlife Service Compatibility
- Shellfish Harvesting Waters
- Essential Fish Habitat

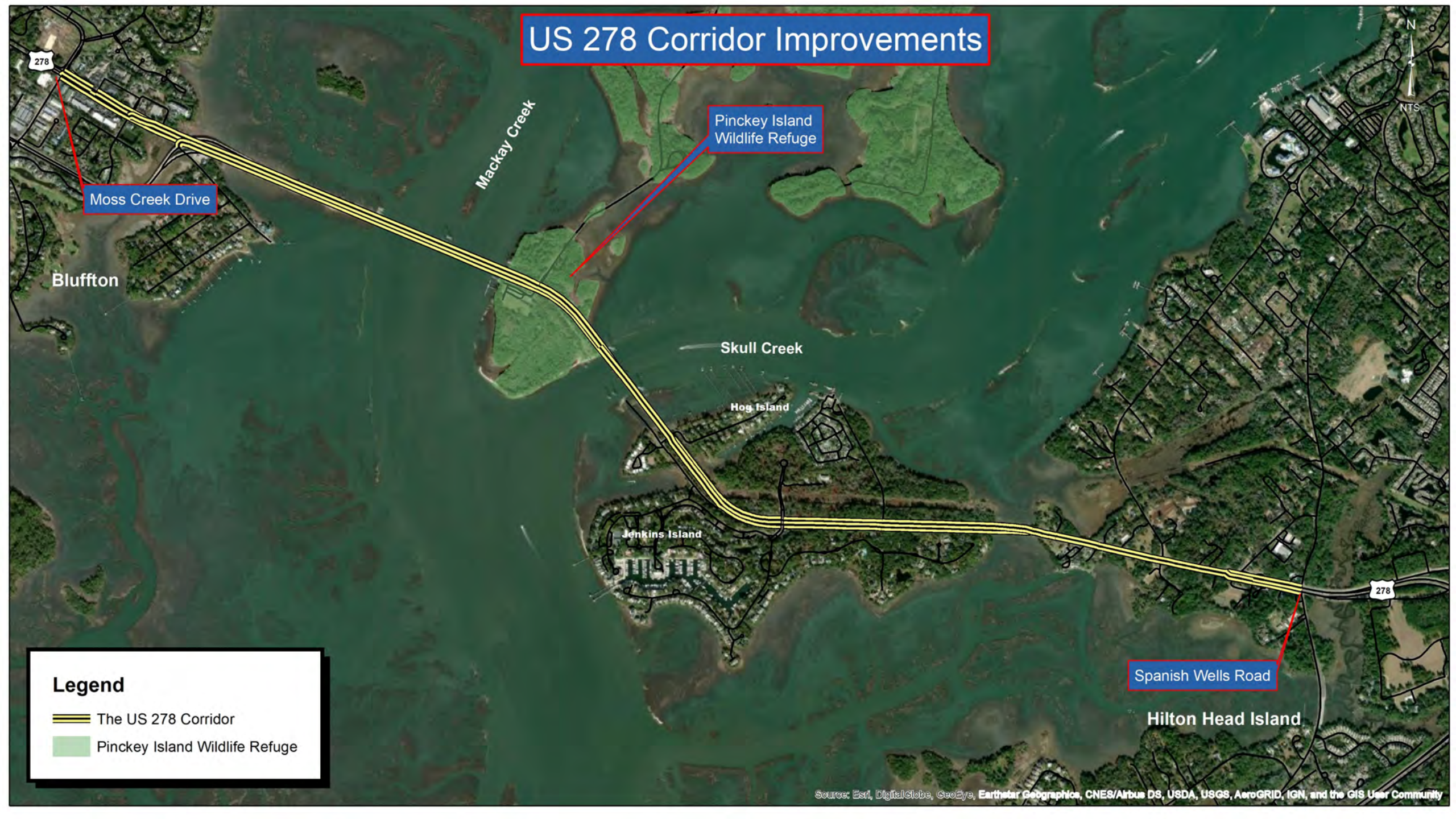
Public Hearing
Spring 2021

Recommended Preferred Alternative



*Please note that these are stand-alone alternatives. During Alternative Development, elements of these may be included with the Reasonable Alternatives and/or the Proposed Preferred Alternative

Alternatives Update


US 278 Corridor Improvements
278
Moss Creek Drive
Mackay Creek
Pinckey Island
Wildlife Refuge
Bluffton
Skull Creek
Hog Island
Jenkins Island
278
Spanish Wells Road
Hilton Head Island
N
NTS
Legend
The US 278 Corridor
Pinckey Island Wildlife Refuge
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Reasonable Alternatives
RA-1
N
NTS
278
Mackay Creek
Bluffton
Skull Creek
Hog Island
Jenkins Island
278
Hilton Head Island
US 278
CORRIDOR IMPROVEMENTS
Legend
Pinckey Island Wildlife Refuge
Reasonable Alternative 1
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Reasonable Alternatives
RA-2
N
NTS
278
Mackay Creek
Bluffton
Skull Creek
Hog Island
Jenkins Island
278
Hilton Head Island
US 278
CORRIDOR IMPROVEMENTS
Legend
Pinckey Island Wildlife Refuge
Reasonable Alternative 2
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Reasonable Alternatives
RA-3
N
NTS
278
Mackay Creek
Bluffton
Skull Creek
Hog Island
Jenkins Island
Hilton Head Island
US 278
CORRIDOR IMPROVEMENTS
Legend
Pinckey Island Wildlife Refuge
Reasonable Alternative 3
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Reasonable Alternatives
RA-4
N
NTS
278
Mackay Creek
Bluffton
Skull Creek
Hog Island
Jenkins Island
Hilton Head Island
US 278
CORRIDOR IMPROVEMENTS
Legend
Pinckey Island Wildlife Refuge
Reasonable Alternative 4
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Reasonable Alternatives
RA-4a
N
NTS
278
Mackay Creek
Bluffton
Skull Creek
Hog Island
Jenkins Island
278
Hilton Head Island
US 278
CORRIDOR IMPROVEMENTS
Legend
Pinckey Island Wildlife Refuge
Reasonable Alternative 4a
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Reasonable Alternatives
RA-5
Mackay Creek
Bluffton
Skull Creek
Hog Island
Jenkins Island
Hilton Head Island
278
278
N
NTS
US 278
CORRIDOR IMPROVEMENTS
Legend
Pinckey Island Wildlife Refuge
Reasonable Alternative 5
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Reasonable Alternatives
RA-5a
N
NTS
278
Mackay Creek
Bluffton
Skull Creek
Hog Island
Jenkins Island
278
Hilton Head Island
US 278
CORRIDOR IMPROVEMENTS
Legend
Pinckey Island Wildlife Refuge
Reasonable Alternative 5a
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Reasonable Alternatives
RA-6
N
NTS
278
Mackay Creek
Bluffton
Skull Creek
Hog Island
Jenkins Island
278
Hilton Head Island
US 278
CORRIDOR IMPROVEMENTS
Legend
Pinckey Island Wildlife Refuge
Reasonable Alternative 6
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Reasonable Alternatives
RA-6a
N
NTS
278
Mackay Creek
Bluffton
Skull Creek
Hog Island
Jenkins Island
278
Hilton Head Island
US 278
CORRIDOR IMPROVEMENTS
Legend
Pinckey Island Wildlife Refuge
Reasonable Alternative 6a
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Reasonable Alternatives
ALL
Mackay Creek
Bluffton
Skull Creek
Hog Island
Jenkins Island
Hilton Head Island
278
278
N
NTS
Legend
Pinckey Island Wildlife Refuge
Reasonable Alternative 1
Reasonable Alternative 2
Reasonable Alternative 3
Reasonable Alternative 4
Reasonable Alternative 4a
Reasonable Alternative 5
Reasonable Alternative 5a
Reasonable Alternative 6
Reasonable Alternative 6a
US 278
CORRIDOR IMPROVEMENTS
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

US 278 Reasonable Alternatives

All reasonable alternatives meet the purpose & need of the project and result in impacts on Pickney Island National Wildlife Refuge, Floodplains, Threatened & Endangered Species, Essential Fish Habitat, Shellfish Harvesting Waters, Environmental Justice communities, and Cultural Resources.

Reasonable Alternatives	Delineated Wetlands	New Right-of-Way to be Purchased	Relocations	Meets Current Seismic Design Standards	Construction Duration
	TOTAL Acres	Acres	TOTAL #	# of Structures	Years
RA 1	19.28	28.1	10	1 of 4 (eastbound Mackay Creek)	5
RA 2	18.4	27.2	10	1 of 4 (westbound Mackay Creek)	5
RA 3	19.3	31.5	10	2 of 4 (eastbound Mackay Creek and eastbound Skull Creek)	5
RA 4	18.9	35.2	11	4 of 4 (both Mackay Creek and both Skull Creek)	3
RA 4A	18	36.8	11	4 of 4 (both Mackay Creek and both Skull Creek)	3
RA 5	30.5	63.9	17	2 of 4 (eastbound Mackay Creek and eastbound Skull Creek)	5.5
RA 5A	26.9	63.3	20	2 of 4 (eastbound Mackay Creek and eastbound Skull Creek)	5.5
RA 6	29.8	71.7	18	4 of 4 (both Mackay Creek and both Skull Creek)	3.5
RA 6A	25.3	72.3	21	4 of 4 (both Mackay Creek and both Skull Creek)	3.5

Estimated construction costs range from $218 to $356 million

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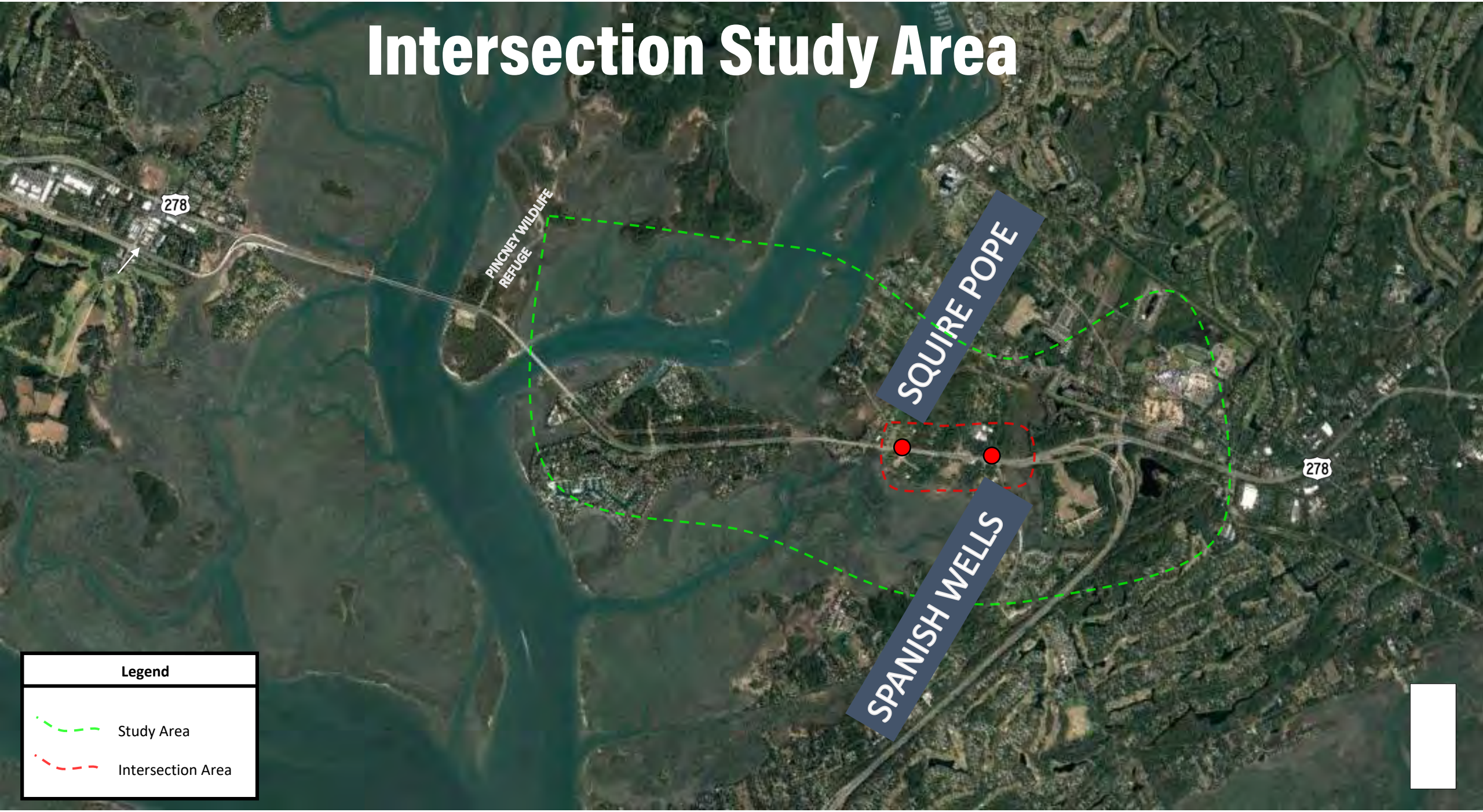
Federal Highway Administration

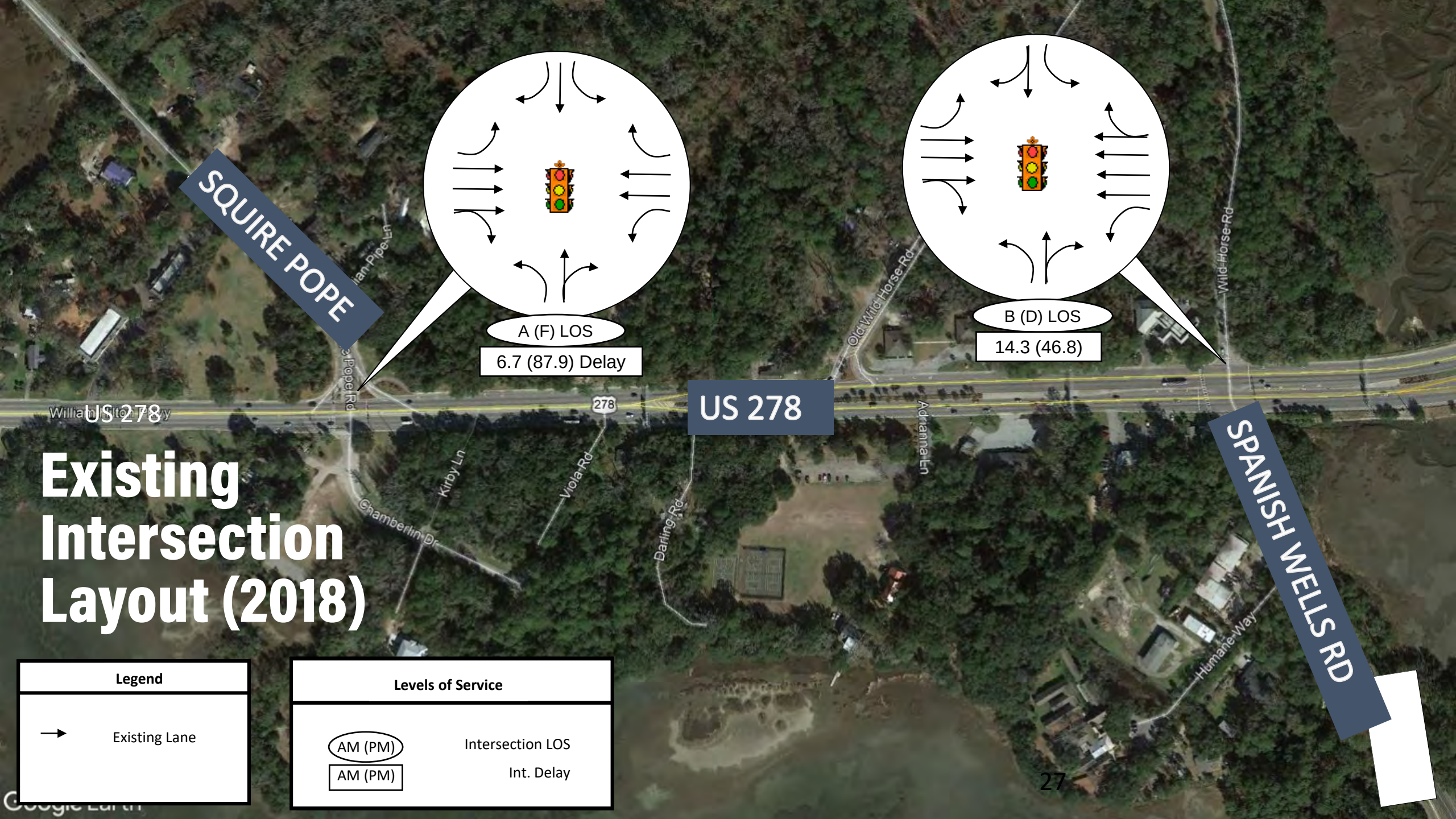
SCDOT South Carolina Department of Transportation

US 278 Intersection Concepts

Squire Pope Road/Spanish Wells Road Intersection Concepts

Intersection Study Area





Existing Intersection Layout (2018)

Legend	
→	Existing Lane

Levels of Service	
AM (PM)	Intersection LOS
AM (PM)	Int. Delay

Intersection Analysis

What do we measure?

- Directional Delay (seconds)
- Level of Service (LOS)
- Volume/Capacity Ratio
- Queue Lengths

LOS	Delay (seconds)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	> 80

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D	35 – 55
E	55 – 80
F	> 80

- Level of Service D meets the Town of Hilton Head's existing minimums for intersection designs

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Traffic Signal Level of Service

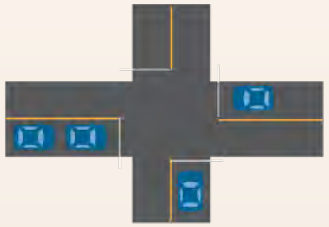
Define Level of Service (Intersection)

A

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

B

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



C

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

D

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

E

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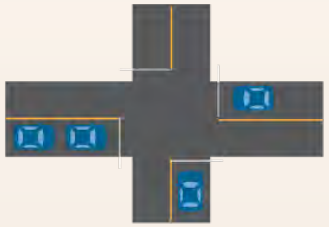

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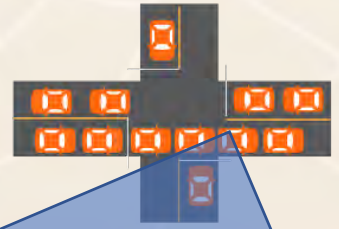

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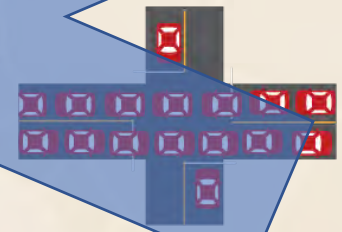

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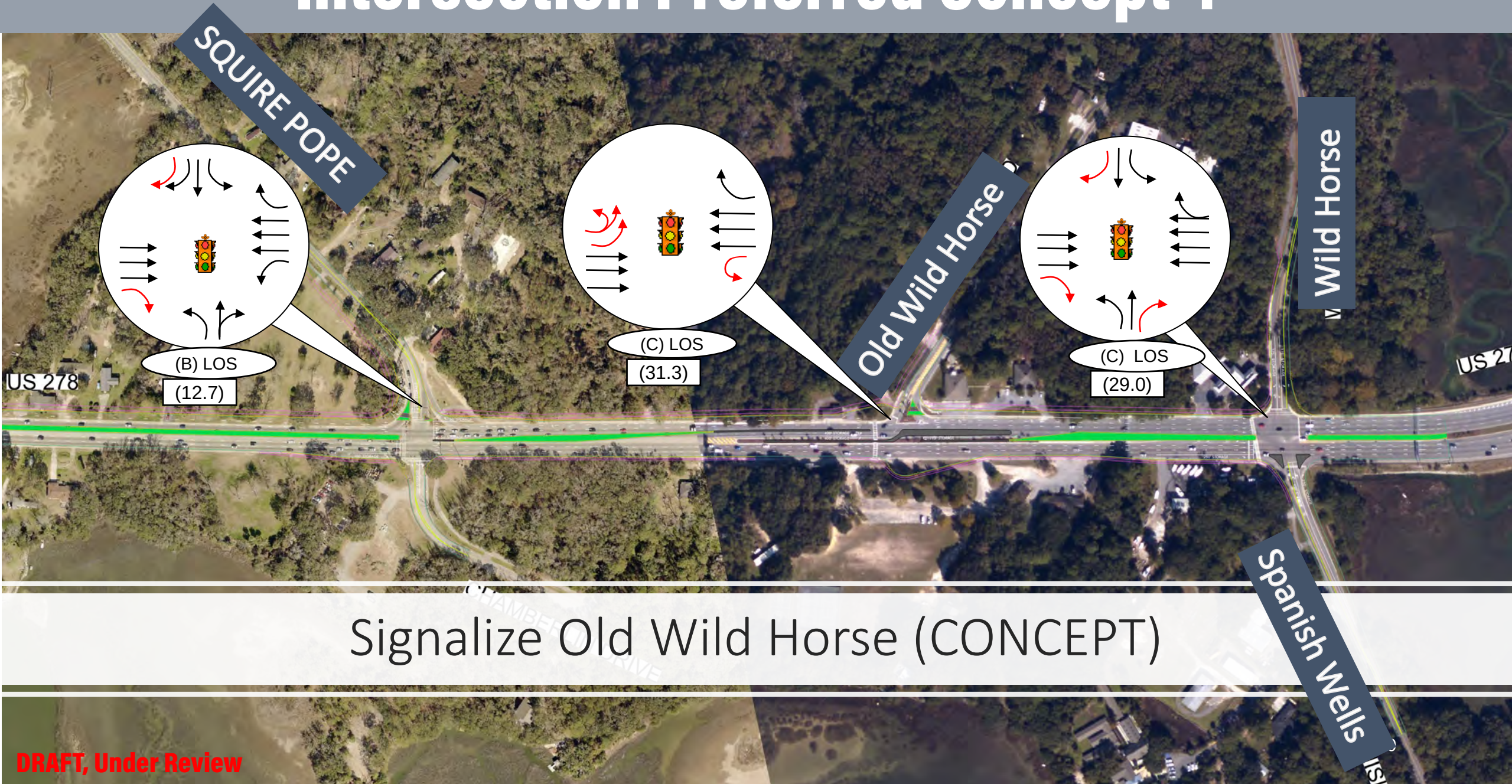
Intersection Concepts Summary

	Alternative	Level of Service			New Travel Pattern	ROW Acquisition	Cost	View Obstructions	Advanced?
		Squire Pope	Old Wild Horse	Spanish Wells					
Squire Pope	**1 – Jughandle (Preferred Concept 1)**	**D**	**-**	**D**					**Yes**
	2 – Displaced Left	F/D	-	D					No
	3 – Continuous Green T	D	-	D					No
	4 – Flyover (Preferred Concept 2)	**C**	**-**	**D**					**Yes**
Spanish Wells	5 – Restricted NB Lefts	D	-	-					No
	6 – Half Diamond Interchange	D	-	C/A					No
	7 – Flyover	D	-	C					No
	8 – Displaced Left	D	-	E/E					No
Multiple Intersections	**9 – Optimize Lanes (Preferred Concept 3)**	**D**	**-**	**D**					**Yes**
	10 – Signal at Old Wild Horse (Preferred Concept 4)	**B**	**C**	**C**					**Yes**
	11 – Two T-Intersections	C	C	B					No
	12 – Roundabouts and Overpass	D	-	C					No
	13 – Roundabouts for Left Turn Movements	D	-	B					No
	14 - Viaduct	D	-	D					No

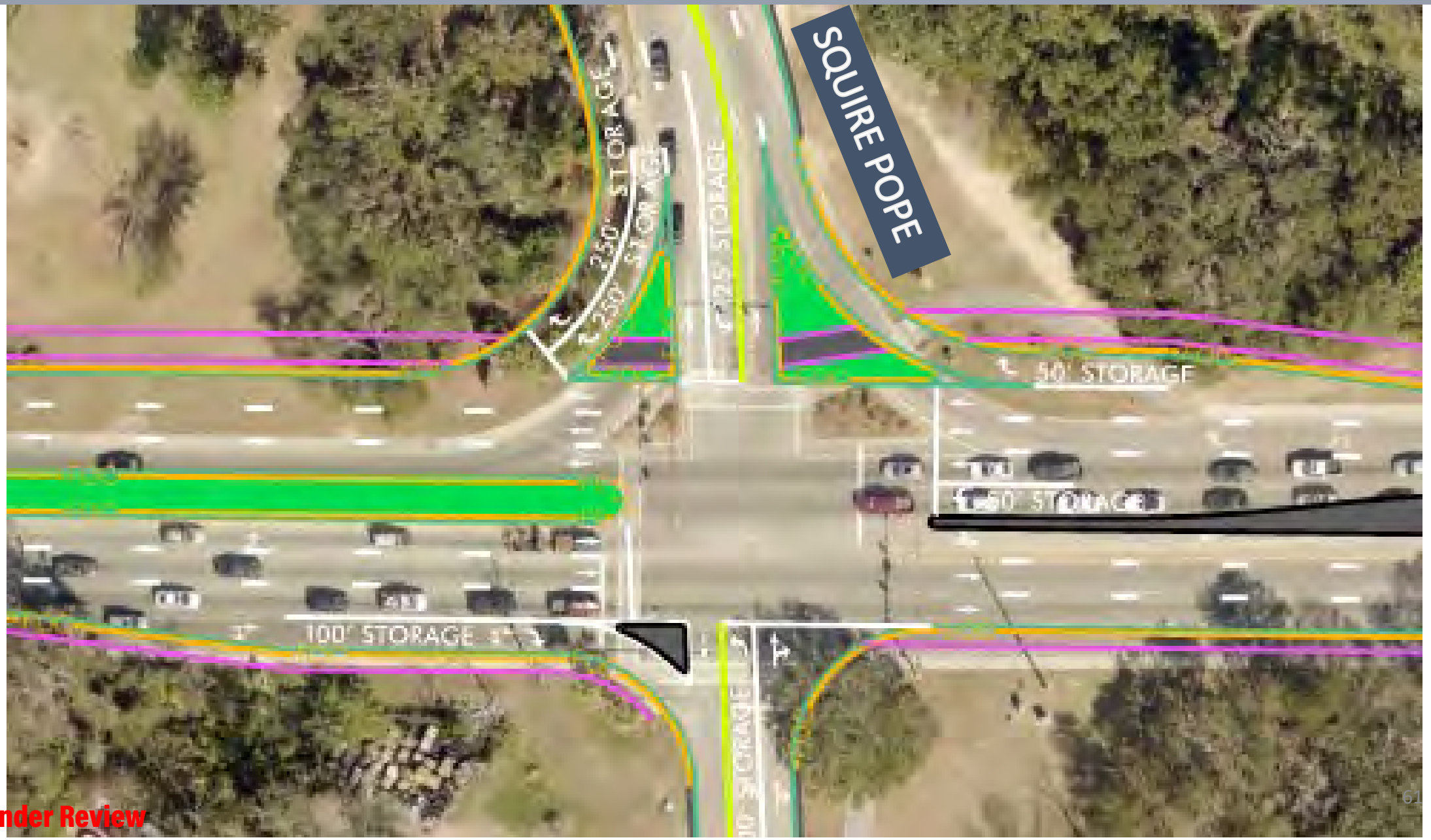
Intersection Preferred Concept 4



Signalize Old Wild Horse (CONCEPT)

DRAFT, Under Review

Intersection Preferred Concept 4



DRAFT, Under Review

Intersection Preferred Concept 4

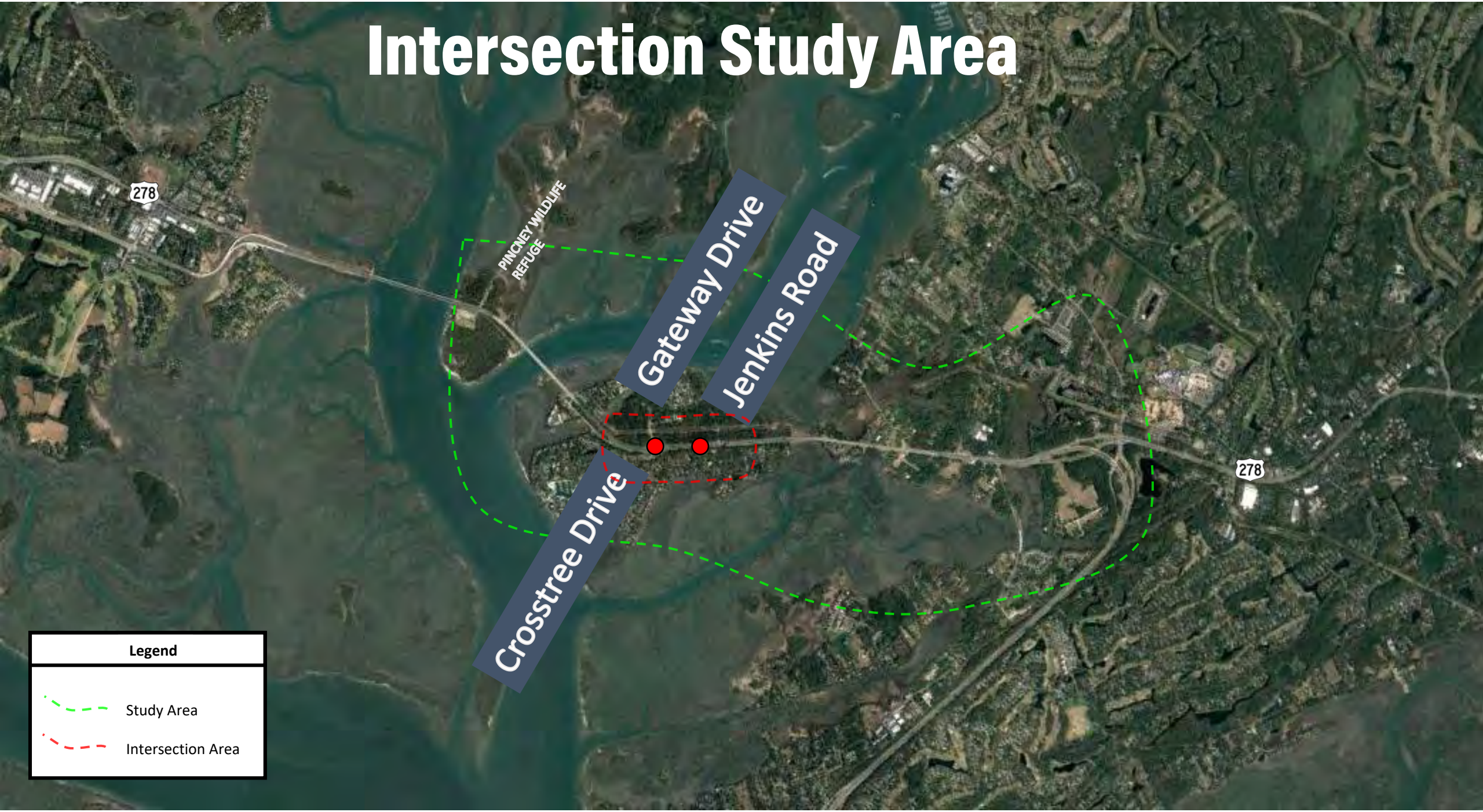
DRAFT, Under Review

Intersection Preferred Concept 4

DRAFT, Under Review

Jenkins Island Intersection Concepts

Intersection Study Area



Jenkins Island Explored Intersection Concepts

1. Right In/Right Out at Gateway/Crosstree and Jenkins Road
2. Right In/Right Out at Gateway/Crosstree and Left In at Jenkins Road
3. Right In/Right Out with Left In at Gateway/Crosstree and Jenkins Road (No Left Out)
4. SuperStreet
5. Optimize Number of Lanes
6. Optimize Number of Lanes and Right-In Only at Jenkins Road

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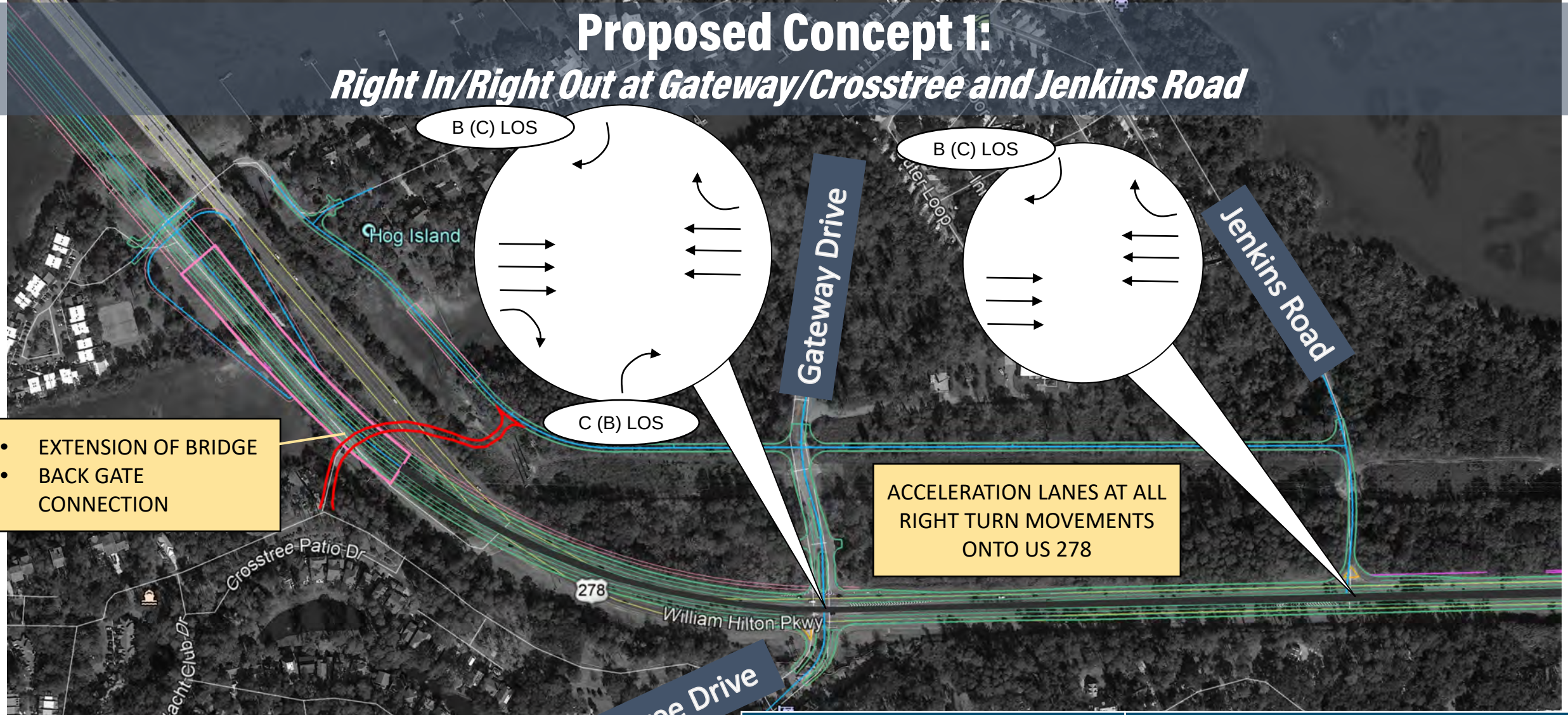
Proposed Concept 1:

Right In/Right Out at Gateway/Crosstree and Jenkins Road



- EXTENSION OF BRIDGE
- BACK GATE CONNECTION

ACCELERATION LANES AT ALL RIGHT TURN MOVEMENTS ONTO US 278

Advantages	Disadvantages
• Acceleration lanes provide LOS C or better • No left turns onto or from US 278 • No signals	• Increased cost of extending bridge • Acceleration lanes add to US 278 footprint • Eliminates gated access to Windmill Harbor • All intersections must accommodate RVs

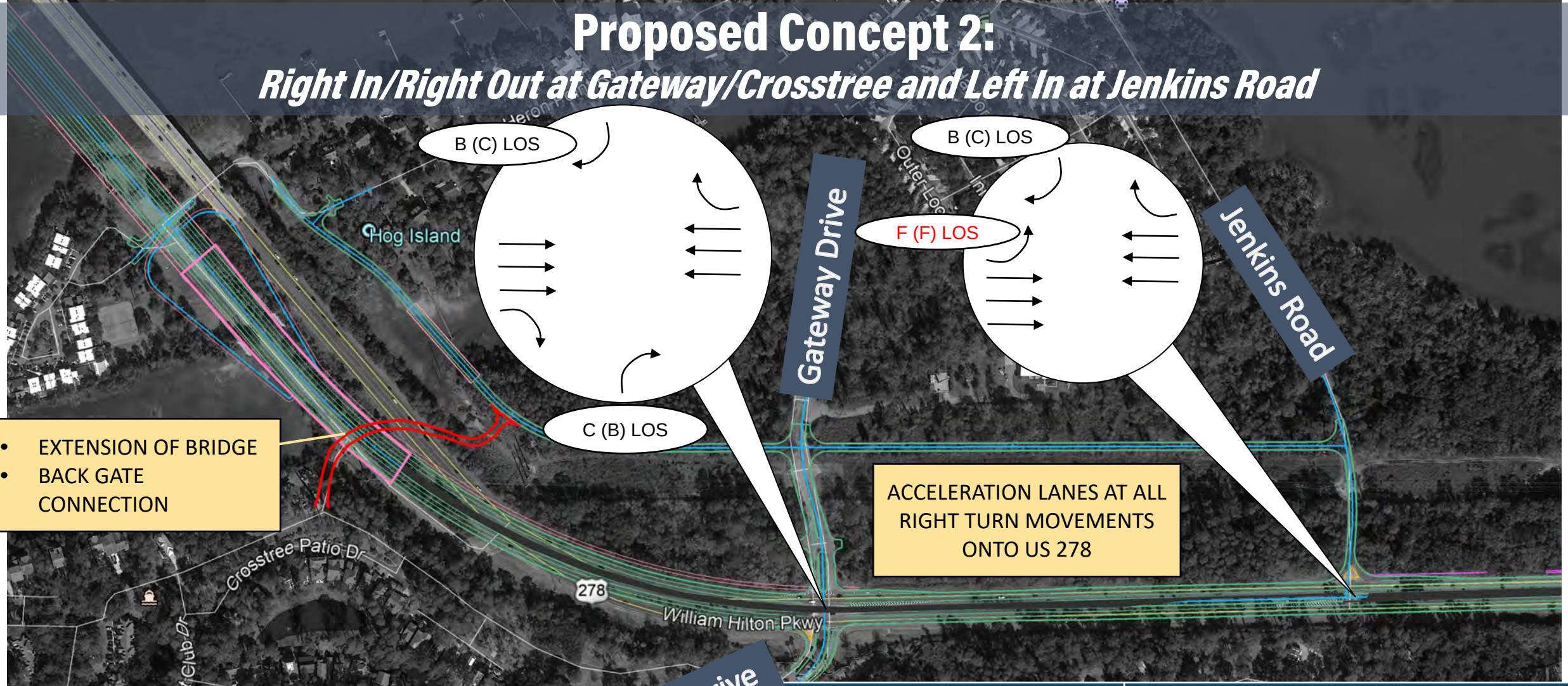
Levels of Service

AM (PM) Movement/Int. LOS

DRAFT, Under Review

Proposed Concept 2:

Right In/Right Out at Gateway/Crosstree and Left In at Jenkins Road



- EXTENSION OF BRIDGE
- BACK GATE CONNECTION

ACCELERATION LANES AT ALL RIGHT TURN MOVEMENTS ONTO US 278

Advantages	Disadvantages
• Acceleration lanes provide LOS C or better • No left turns onto US 278 from side roads • No signals	• Increased cost of extending bridge • Eastbound Jenkins left turns - LOS F • Acceleration lanes add to US 278 footprint • Eliminates gated access to Windmill Harbor • All intersections must accommodate RVs

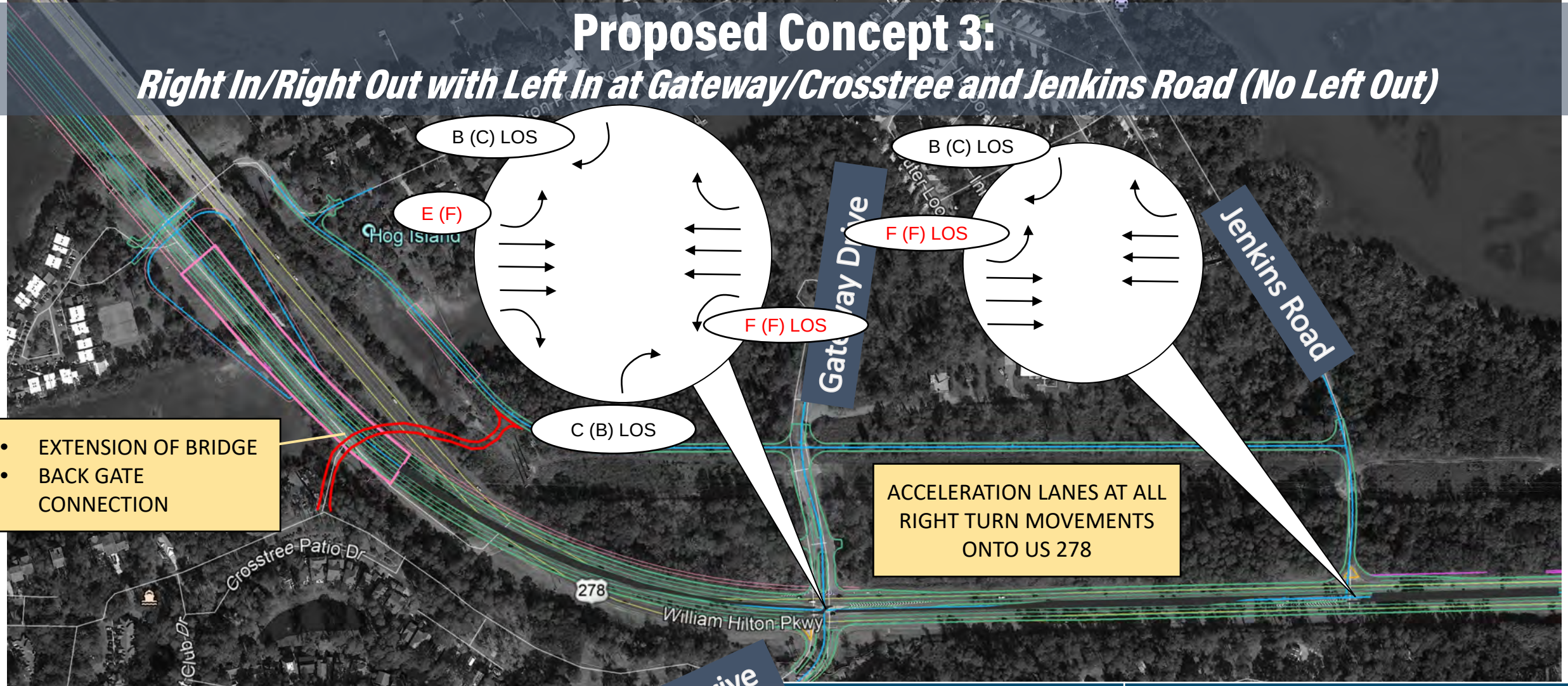
Levels of Service

AM (PM) Movement/Int. LOS

DRAFT, Under Review

Proposed Concept 3:

Right In/Right Out with Left In at Gateway/Crosstree and Jenkins Road (No Left Out)



- EXTENSION OF BRIDGE
- BACK GATE CONNECTION

ACCELERATION LANES AT ALL RIGHT TURN MOVEMENTS ONTO US 278

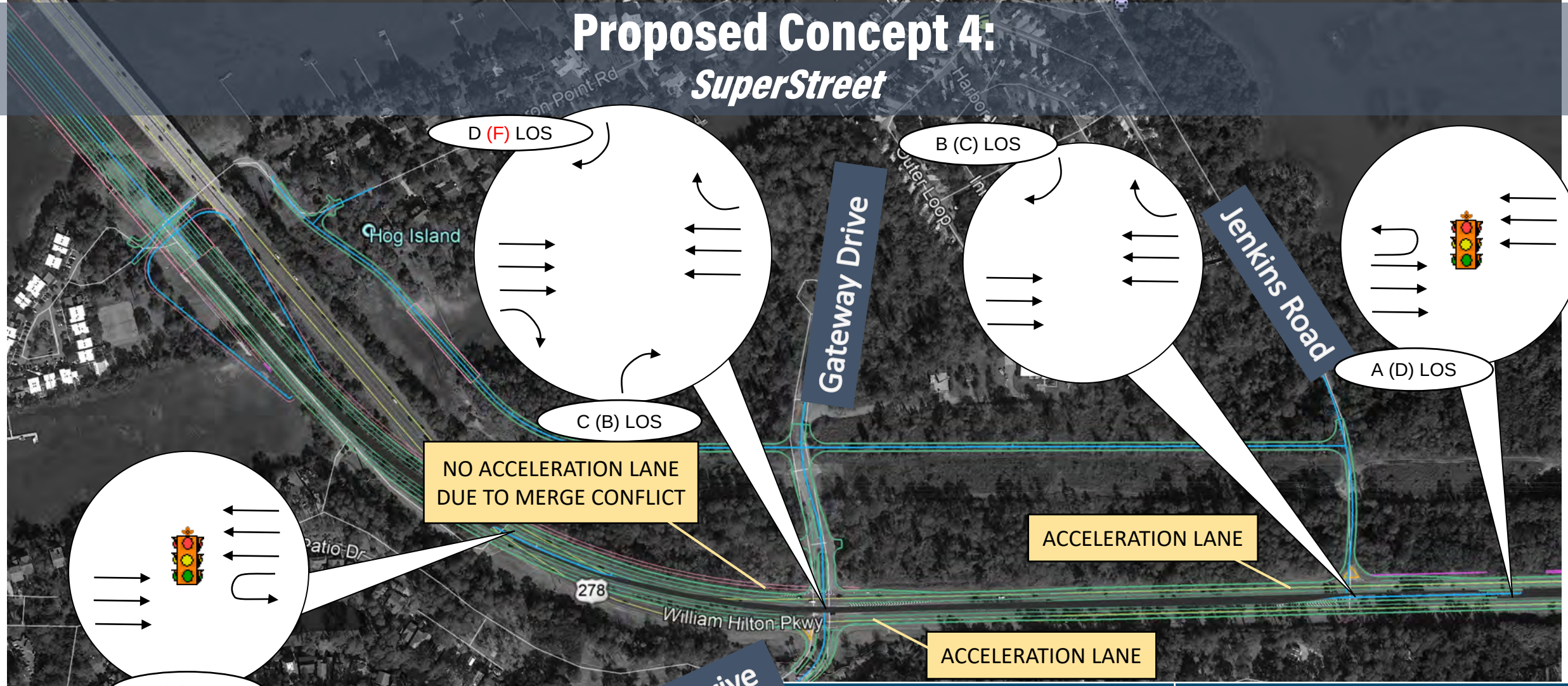
Advantages	Disadvantages
• Acceleration lanes provide LOS C or better • No left turns onto US 278 from side roads • No signals	• Increased cost of extending bridge • Left turns from US 278 result in LOS F • Acceleration lanes add to US 278 footprint • Eliminates gated access to Windmill Harbor • All intersections must accommodate RVs

Levels of Service

AM (PM) Movement/Int. LOS

DRAFT, Under Review

Proposed Concept 4:
SuperStreet



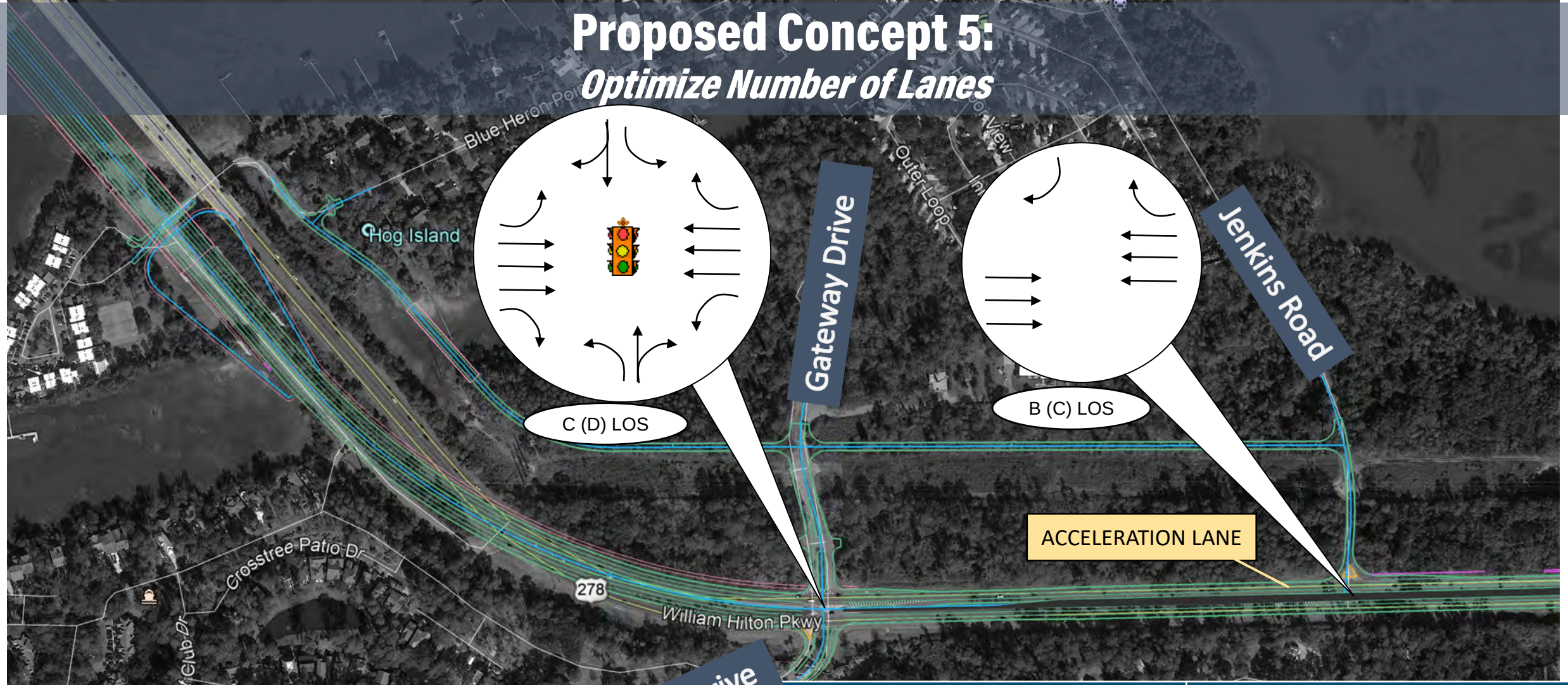
Advantages	Disadvantages
• U-turn signals provide LOS D or better • Acceleration lanes provide LOS C or better • No left turns onto or from US 278 • Windmill Harbor maintains gated access	• Acceleration lanes add to US 278 footprint • Difficult merge from Gateway Drive to U-turn • Adds 2 signals

Levels of Service

AM (PM) Movement/Int. LOS

DRAFT, Under Review

Proposed Concept 5:
Optimize Number of Lanes



Advantages	Disadvantages
• Signal provides LOS D or better • Acceleration lanes provide LOS C or better • Windmill Harbor maintains gated access • Smaller footprint at Crosstree/Gateway	• Volumes as-is do not meet signal warrant • Acceleration lanes add to US 278 footprint

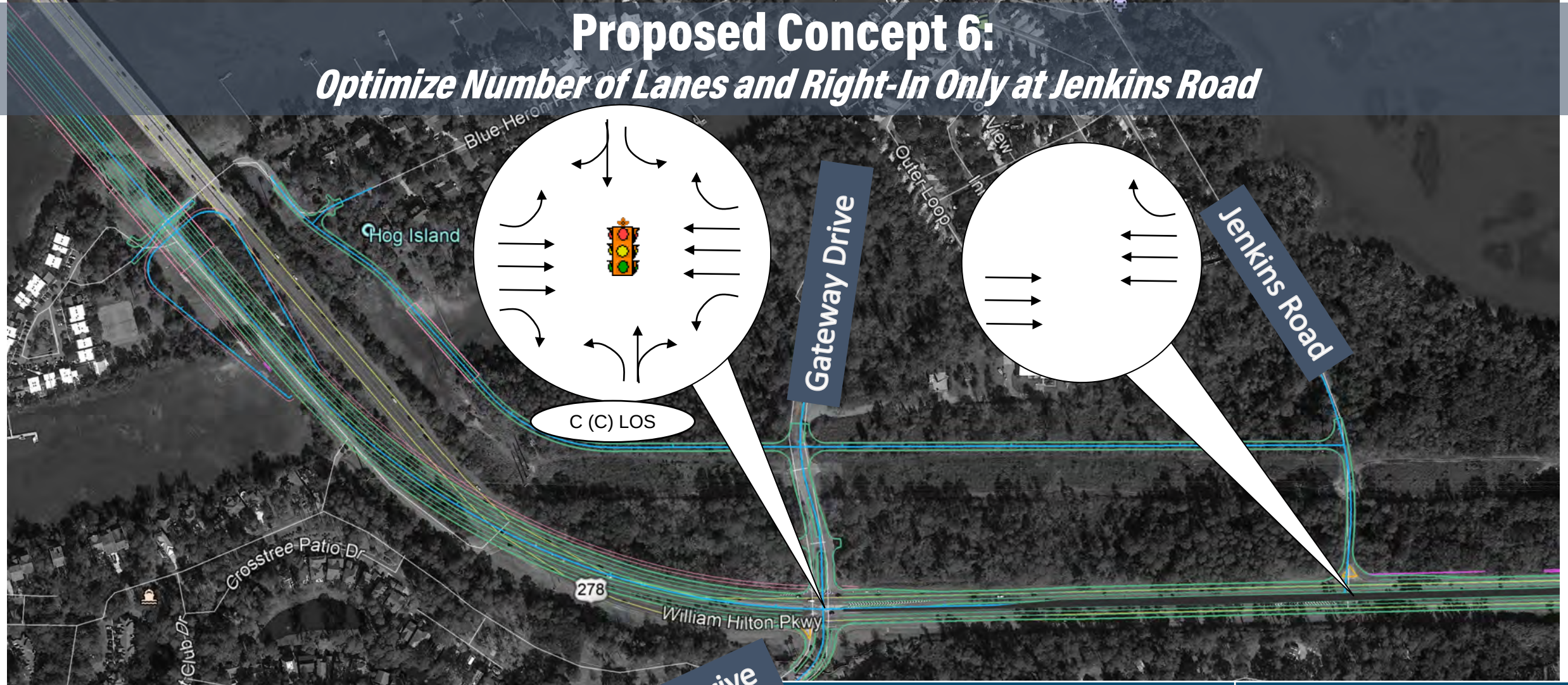
Levels of Service

AM (PM) Movement/Int. LOS

DRAFT, Under Review

Proposed Concept 6:

Optimize Number of Lanes and Right-In Only at Jenkins Road



Advantages	Disadvantages
• Signal provides LOS C • Windmill Harbor maintains gated access • Smaller footprint at Crosstree/Gateway • Adding SBR turn volumes from Jenkins Road to Gateway meet signal warrant • No ineffective acceleration lanes	• Adds signal to US 278 • Jenkins Road outbound traffic diverted to Gateway Drive

Levels of Service

AM (PM) Movement/Int. LOS

DRAFT, Under Review

Community Impacts & Mitigation

Recent Community Engagement

- Met with leaders of the Stoney Community and Mariners Cove to discuss the proposed project and hear their concerns

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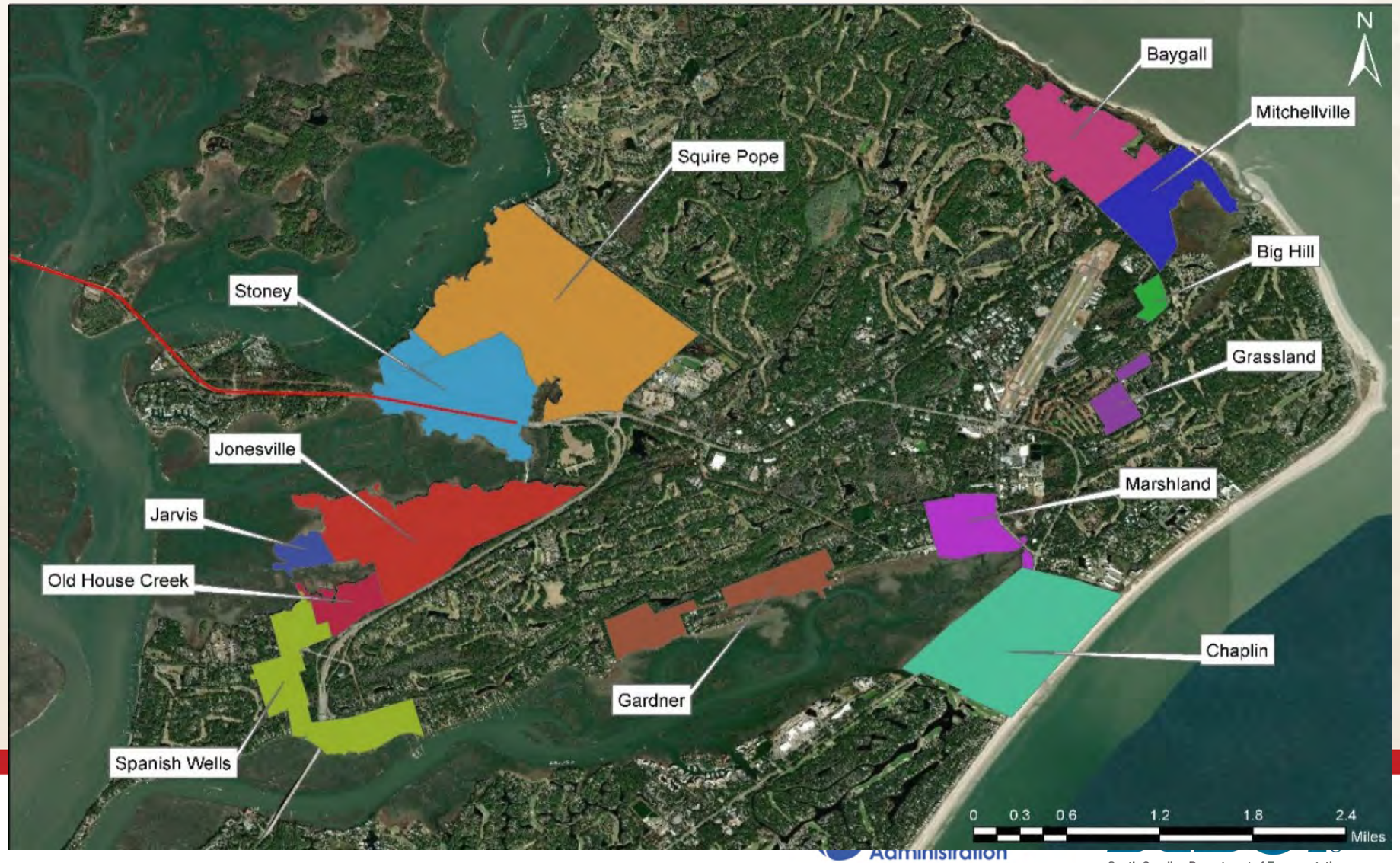
Potential Community Impacts & Mitigation

- 0 Residential Displacements
- 2 Commercial Displacements
- Impacts anticipated to the Stoney Community
- Individual property owner meetings
- Options will be developed once coordination with the community has been completed



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Potential Wetland & Stream Mitigation

- Multiple mitigation banks are available to provide mitigation services
  - Salt Marsh: Clydesdale Mitigation Bank or Murray Hill Mitigation Bank
  - Freshwater Wetlands: Sweetleaf Swamp Mitigation Bank
- If mitigation credits are not available for purchase Permittee Responsible Mitigation (PRM) is an option
  - SCDOT will investigate on-site & off-site PRM within the project watershed

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Next Steps

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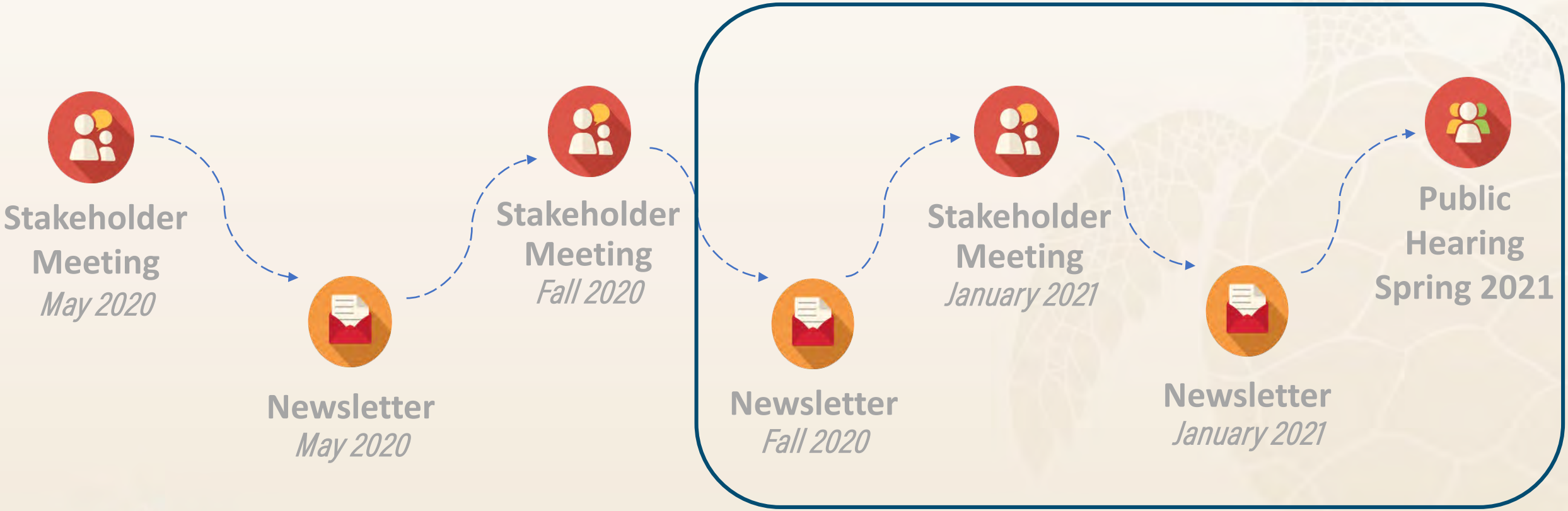
Upcoming Ways to Engage



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Public Hearing

How Would You Like to Engage?

Viewing the materials online only, on my own time (on a website)

In-Person, with limited capacity or by appointment only

A live virtual meeting

A traditional in-person public hearing

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Questions?


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