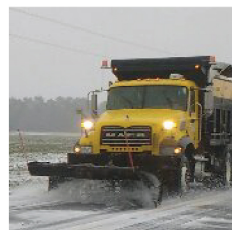


NORTH CAROLINA Department of Transportation



High Value Bridge Program

Tim Sherrill, PE

April 18, 2019

High Value Bridges – North Carolina

Replacement Costs
over **20 Million
Dollars.**

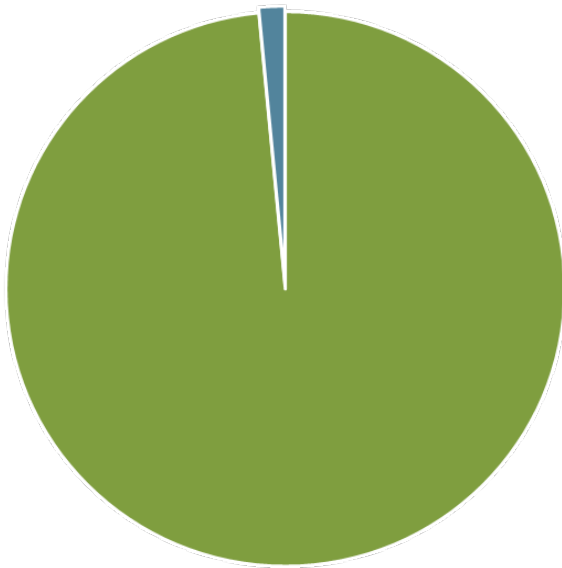
Provide **key
connectivity** in our
transportation system.

Some bridges serve as
evacuation routes
during emergency
situations.

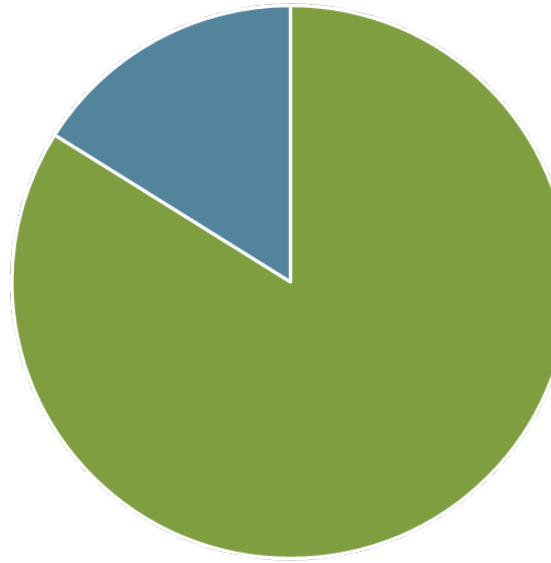


High Value Bridges in North Carolina

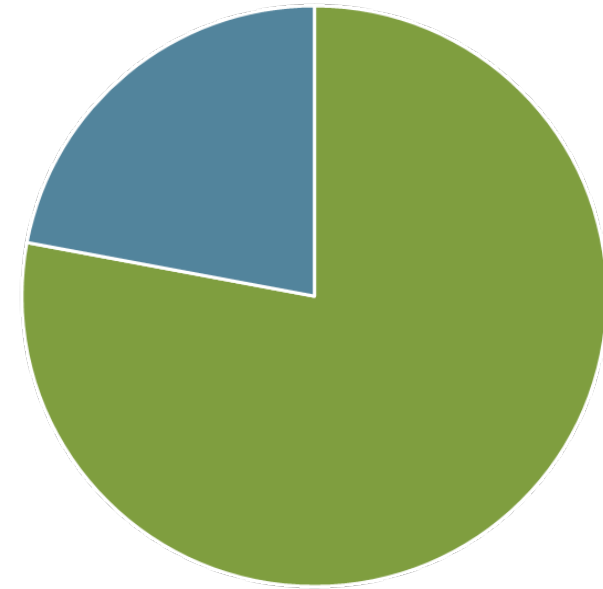
1.5% of Bridges By Number



15% of Bridges Asset Value



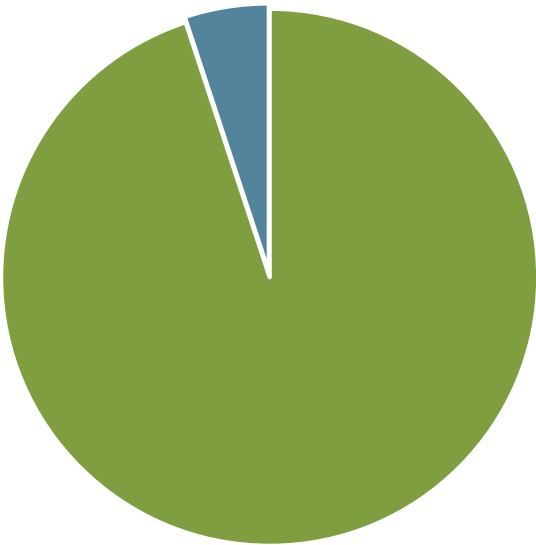
22% of Total Deck Area



Number of Bridges	Single Bridge Value	Total Replacement Cost	Total Deck Area
204	Greater than 20M	9 Billion	21.2 Million SF
13,317	Less than 20M	51 Billion	75.0 Million SF

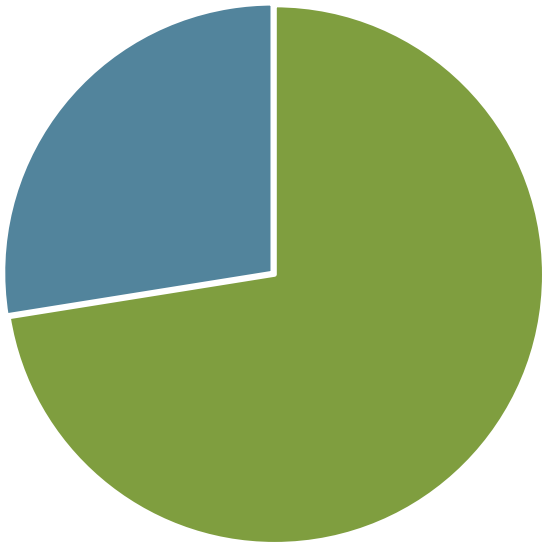
High Value Bridges: NHS Only

5% of NHS Bridges
By Number



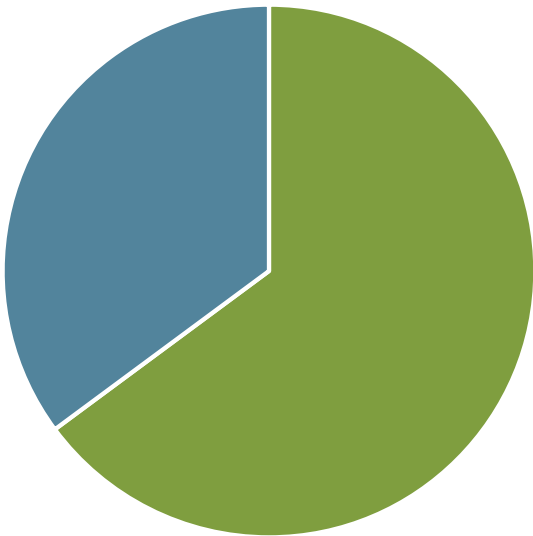
Number of Bridges

22% of NHS Bridge
Asset Value



Total Replacement Cost

35% of NHS Bridge
Deck Area

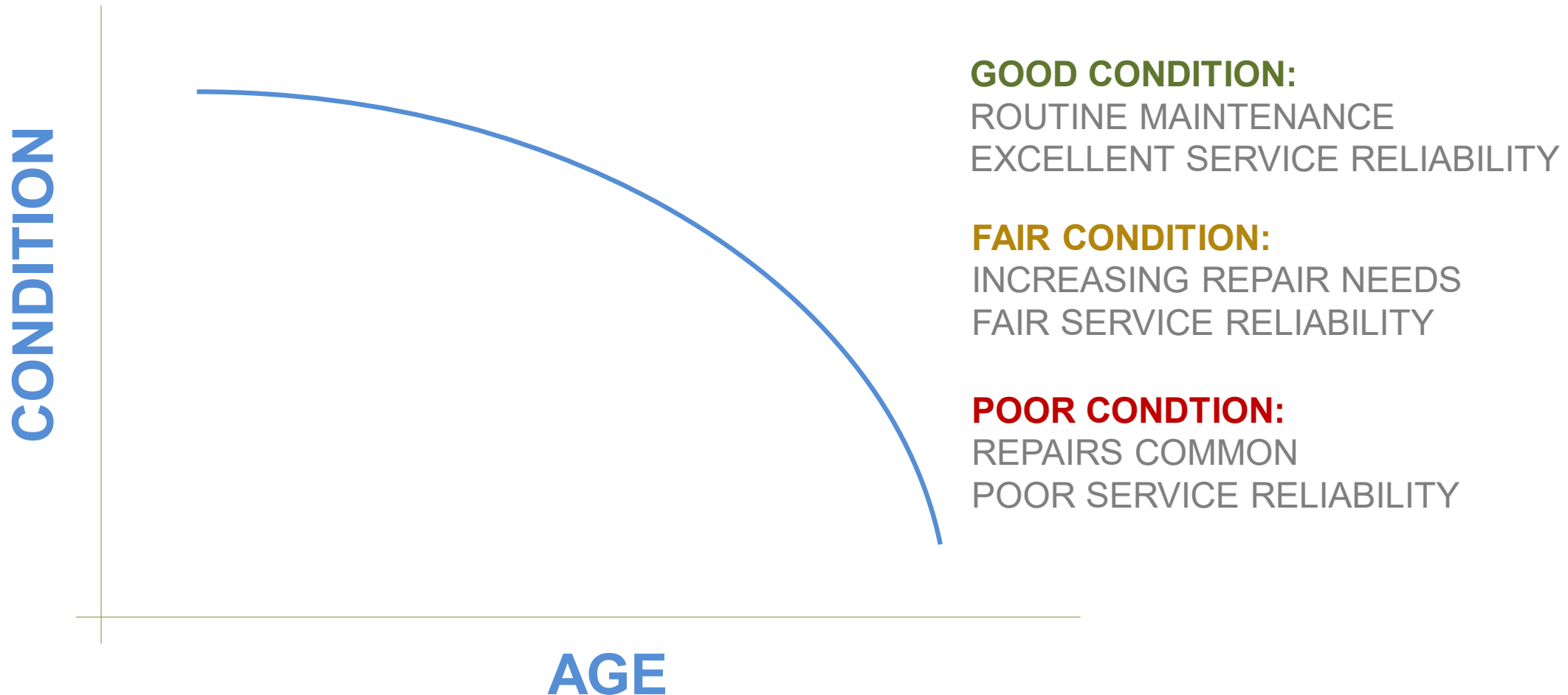


Total Deck Area

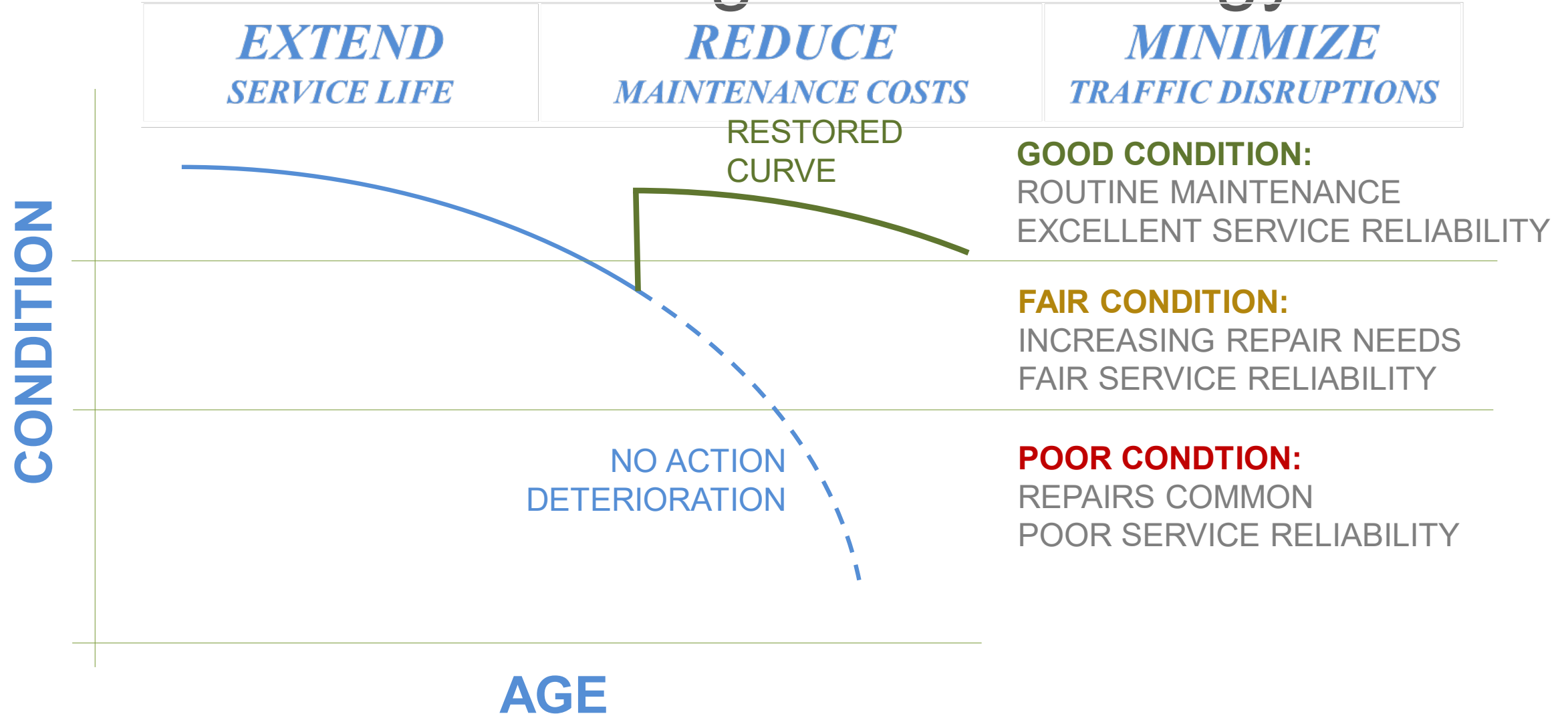
Number of Bridges	Single Bridge Value	Total Replacement Cost	Total Deck Area
135	Greater than 20M	6.5 Billion	15.6 Million SF
2,529	Less than 20M	23.7 Billion	28.8 Million SF

Bridge Deterioration

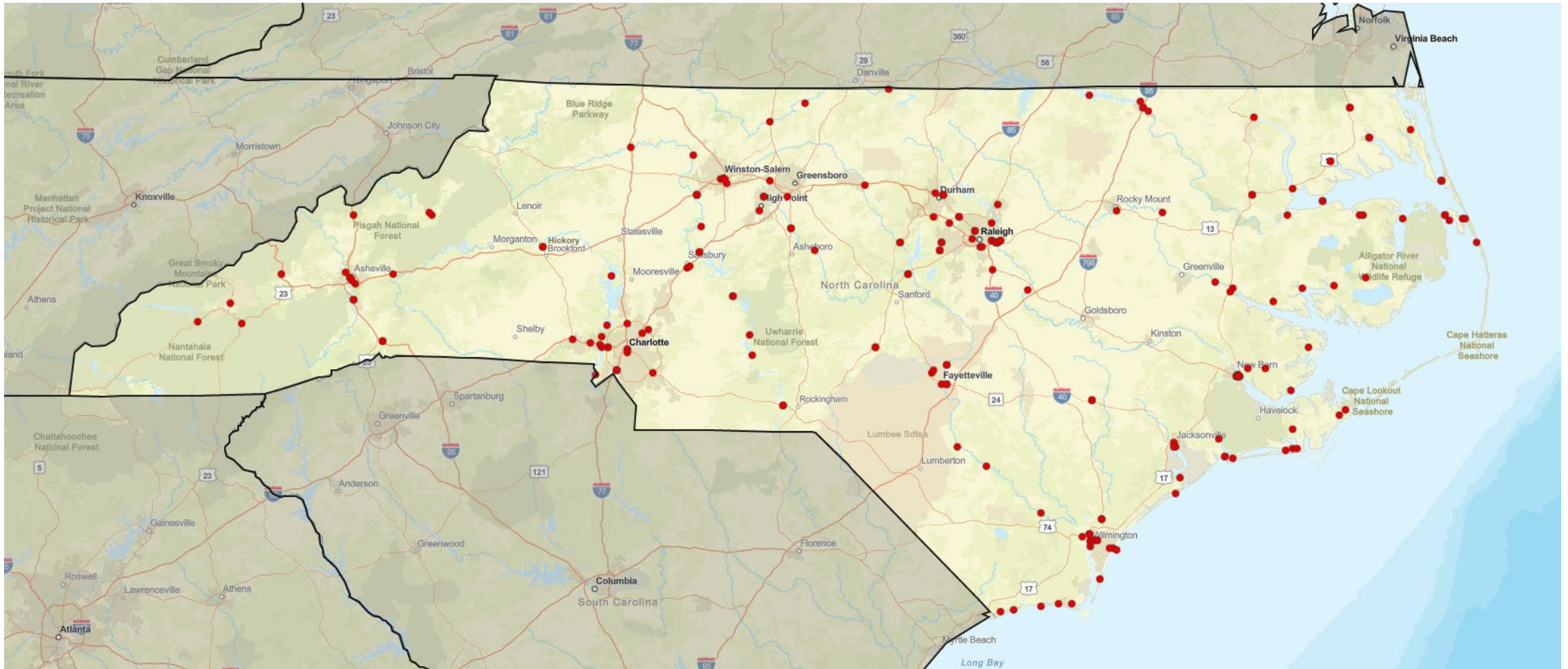
Rate of Deterioration Increases with Age



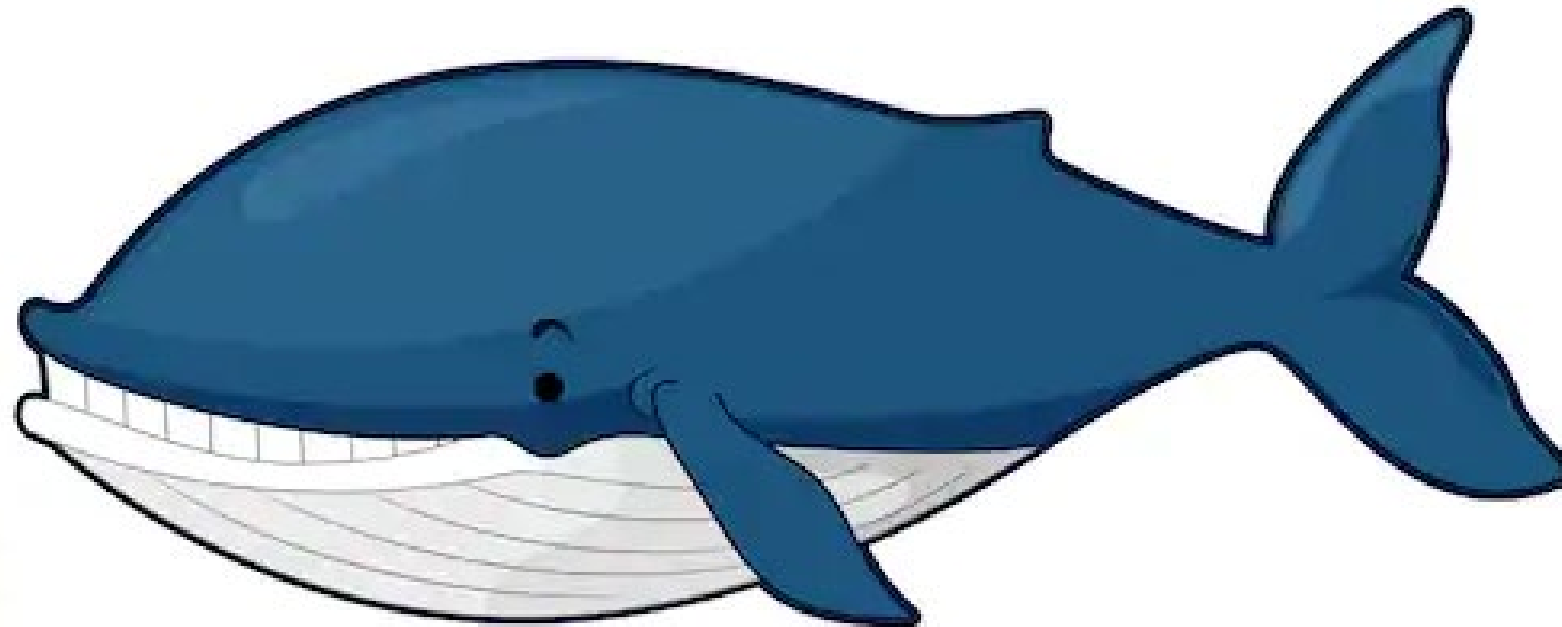
Asset Management Strategy:



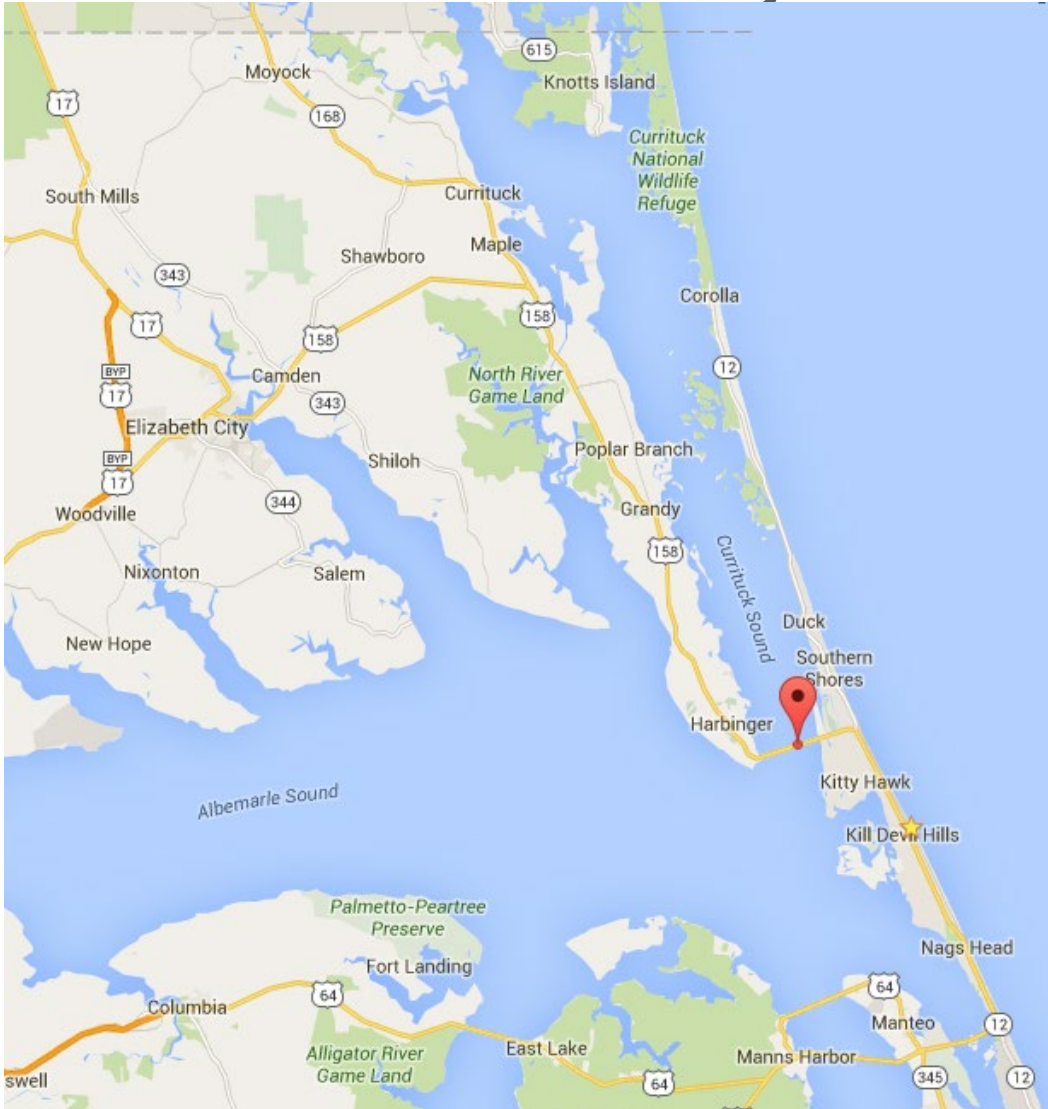
High Value Bridge Locations



SAVE THE WHALES!!



Case Study: Wright Memorial Bridge



Wright Memorial Bridge
US 158EB over the Currituck Sound

2.8 Mile long connector to the Northern Outer Banks

Average Daily Traffic: 12,500

Case Study – Wright Memorial Bridge

Built 1966

Estimated Replacement Value: \$ **150M**

Preservation Needs:

Bridge Deck Overlay

Repair of Bridge Joints

Extensive Super and Sub
Concrete Repairs

Pile Repairs

2016 NBI Component Scores:

Deck: 5

Superstructure: 4

Substructure: 4

Estimated Cost to Rehab: \$ **22M**



Case Study: Wright Memorial Bridge

Preservation Scope:

- PPC Bridge Deck Overlay
- New Joints/ Seals
- Super/ Sub Concrete Repairs
- Pile Repairs/ CP Jackets

2018 NBI Component Scores:

Deck: 7

Superstructure: 6

Substructure: 5

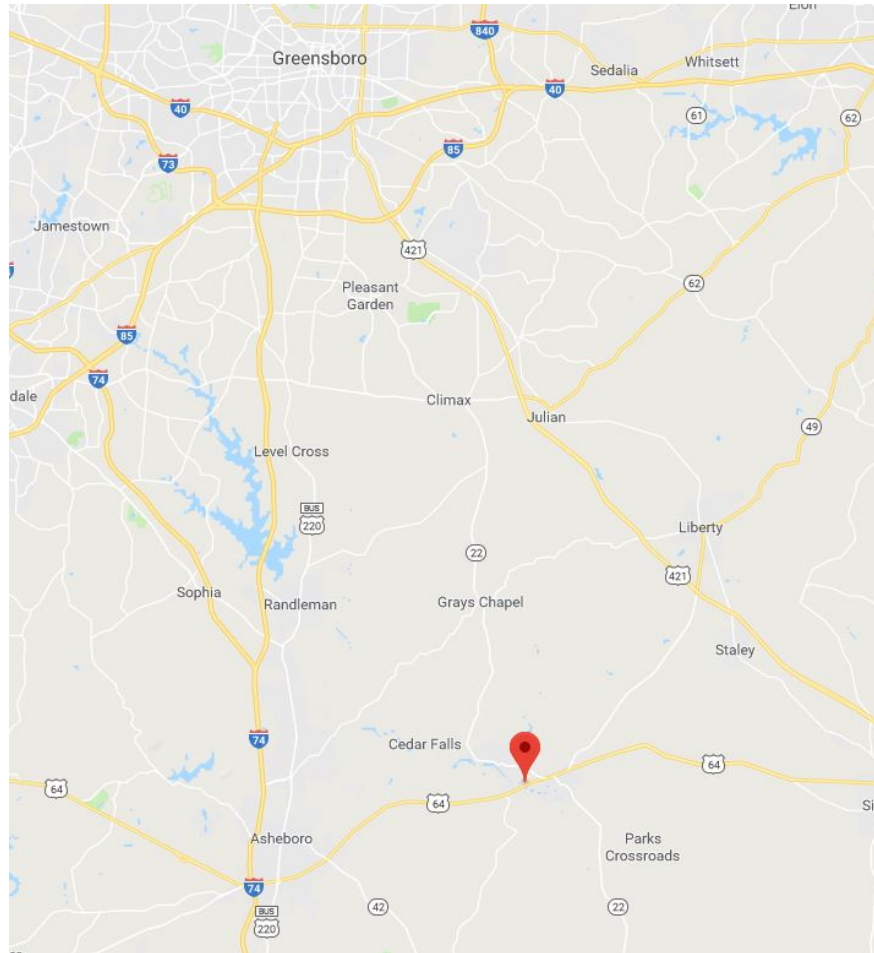
(Not all work complete at inspection)

Bid Award for Preservation: **\$ 21M**

Benefit: **25 Year Life Extension**



Case Study: Randolph Bridge 191



Randolph County Bridge 191

US 64/ NC 49 EB & WB over Deep River and Sandy Creek

542' long, 6-span, 5-lane NHS Arterial

RC Deck on Prestressed Concrete Girders

Average Daily Traffic: 18,000

Case Study: Randolph Bridge 191

Built 1988

Estimated Replacement Value: \$ 28M

Preservation Needs:

Bridge Deck Overlay

Repair of Bridge Joints

Extensive Super and Sub
Concrete Repairs

2016 NBI Component Scores:

Deck: 6

Superstructure: 4

Substructure: 5

Estimated Cost to Rehab: \$ 1.55M



Case Study: Randolph Bridge 191

Preservation Scope:

- PPC Bridge Deck Overlay
- New Joints/ Seals
- Concrete Repairs to PSGs and Substructure

2018 NBI Component Scores:

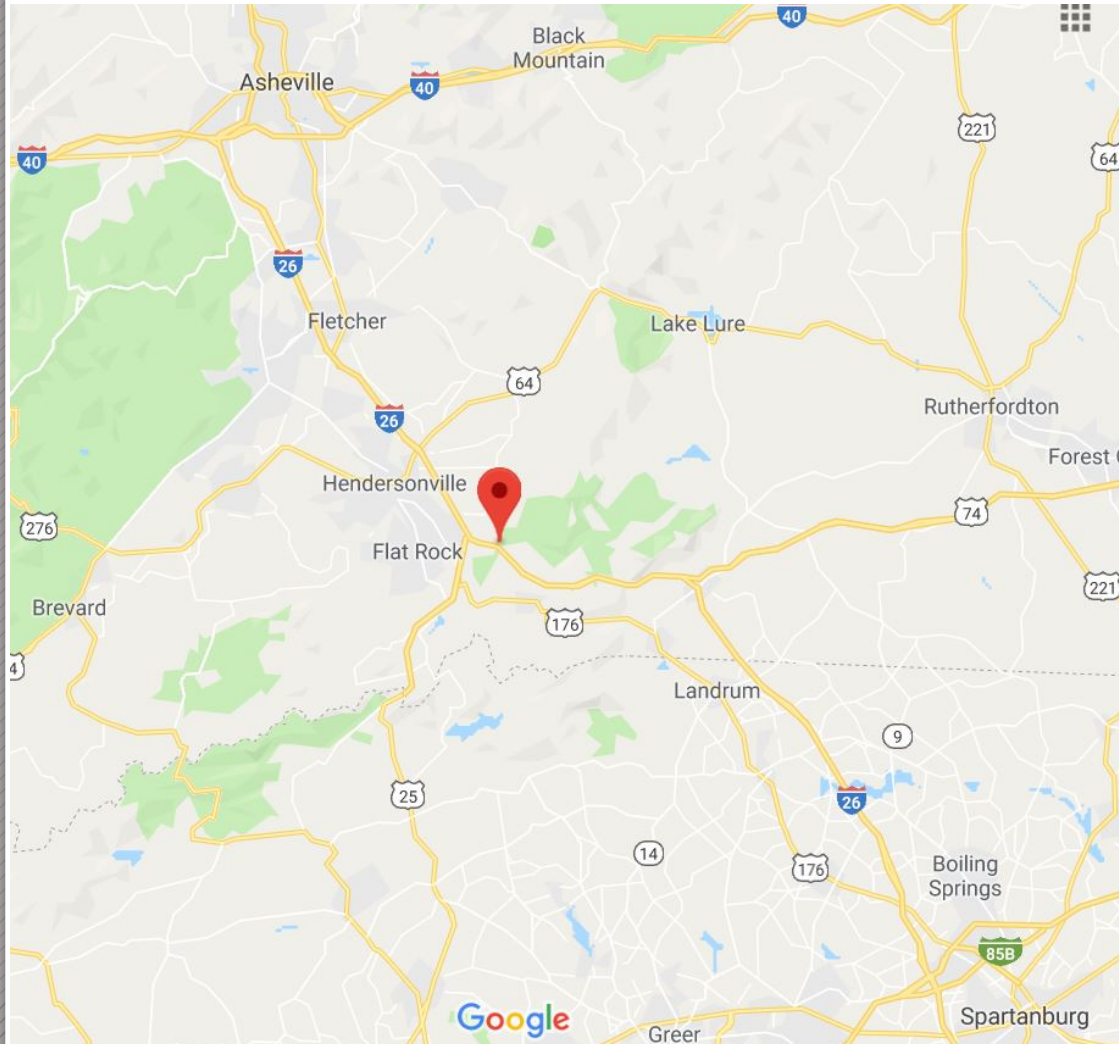
- Deck: 6
- Superstructure: 6
- Substructure: 6

Bid Award for Preservation: **\$ 1.43M**

Benefit: **25 Year Life Extension**



Case Study: Green River Bridges



GREEN RIVER BRIDGES

EBL & WBL OF I-26 OVER GREEN RIVER GORGE

DUAL BRIDGES CONNECTING GREENVILLE AND CHARLESTON, SC AND POINTS SOUTH AND EAST TO ASHEVILLE, KINGSPORT, AND POINTS NORTH AND WEST

AVERAGE DAILY TRAFFIC: 17,500 (23% TRUCKS)

LENGTH: 1050', 5 SPANS (max 330'), WIDTH: 28'

CURRENT CONDITION: DEFICIENT & OBSOLETE

Case Study: Green River Bridges

GREEN RIVER BRIDGES

BUILT 1968

SECOND HIGHEST BRIDGES IN STATE

ESTIMATED REPLACEMENT VALUE: **\$54M**

PRESERVATION NEEDS:

NEW WIDER BRIDGE DECK

NEW BARRIER RAILS

STEEL REPAIRS/ PAINTING

SUBSTRUCTURE UPGRADES

ESTIMATED PROJECT COST: **\$14M**

**RESTORED TO GOOD CONDITION
NOT FUNCTIONALLY OBSOLETE**

50 YEAR LIFE EXTENSION



High Value Bridge Program So Far, Going Forward

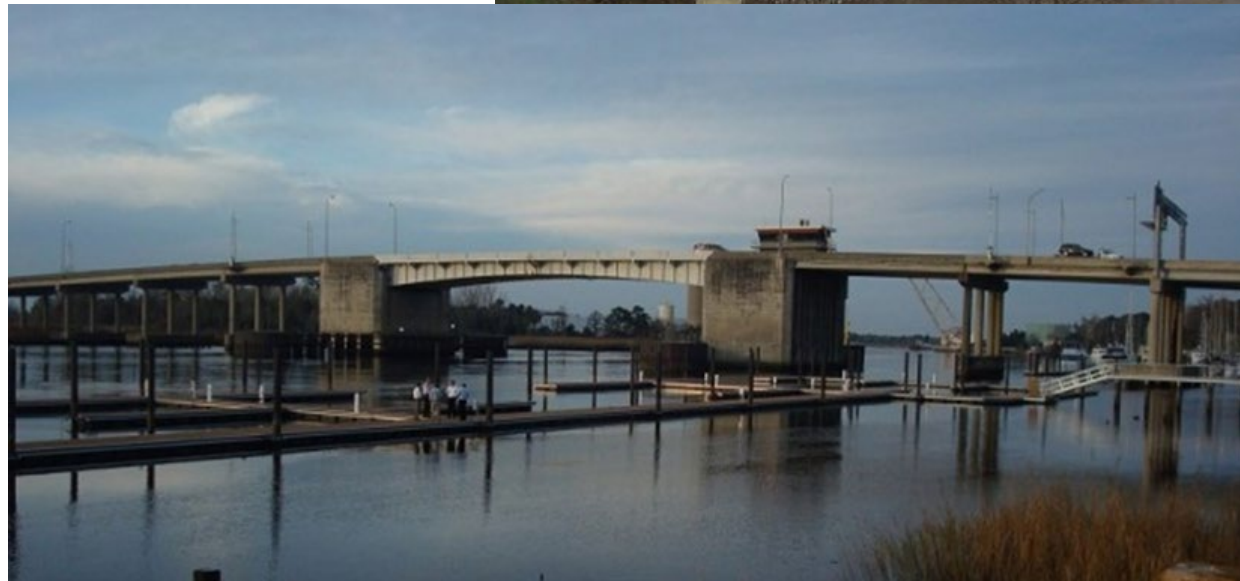
TOTAL PRESERVATION NEEDS:
\$300M

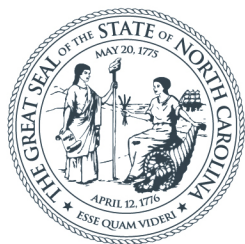
SFY2017:
\$56M LET TO PRESERVE
7 BRIDGES

SFY2018:
\$71M LET TO PRESERVE
18 BRIDGES

SFY2019:
\$33M LET TO PRESERVE
11 BRIDGES

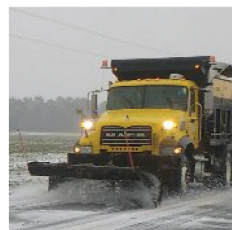
SFY2020: (hopefully)
\$40M TO PRESERVE
38 BRIDGES





NORTH CAROLINA

Department of Transportation



Questions?