Virginia Department of Transportation

2018 Concrete Conference

Virginia's State of Good Repair Program for Bridges

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Virginia's State of Good Repair (SGR) Program

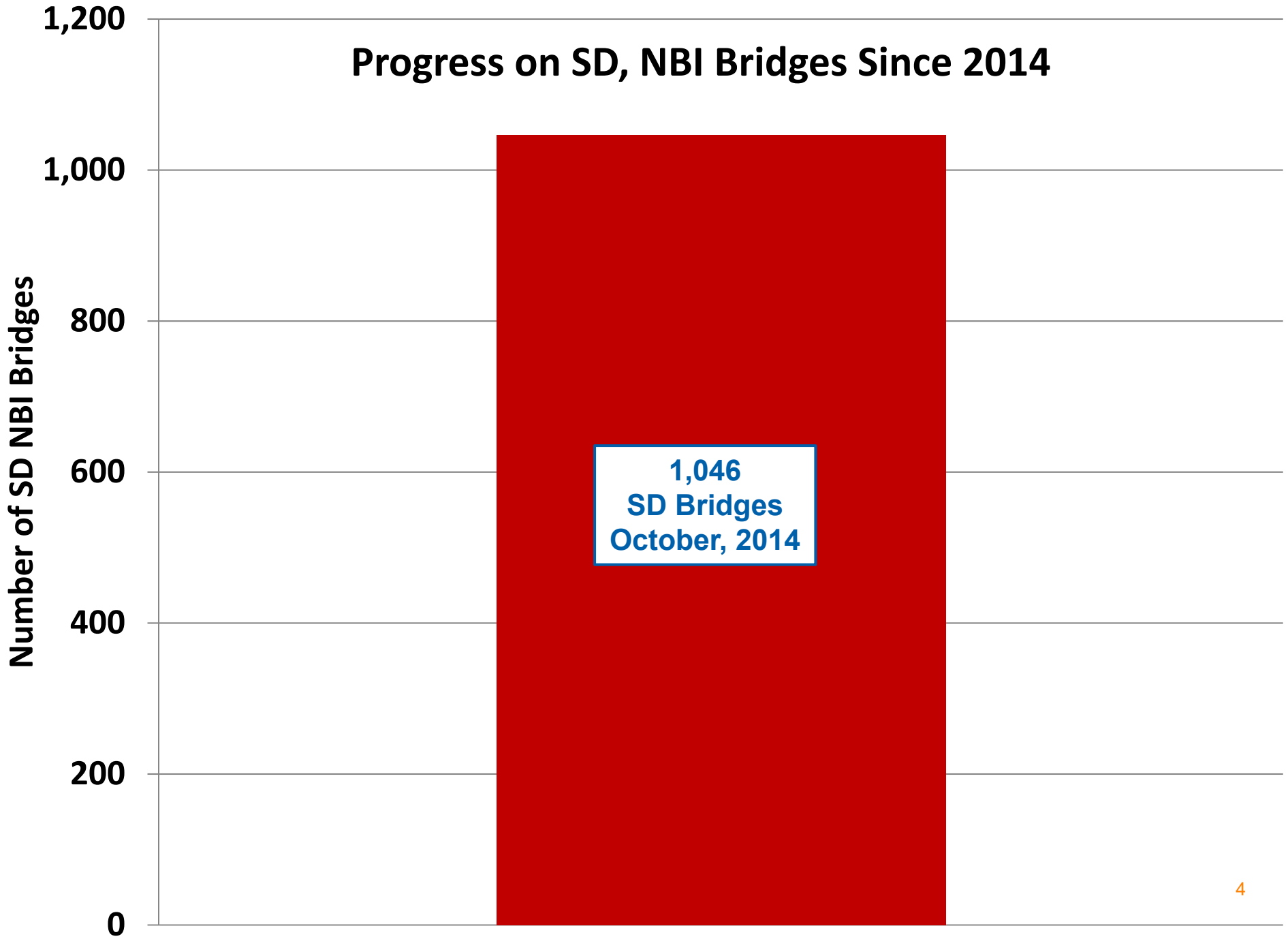
House Bill 1887 Requires 45% of Virginia's Capital Budget be used to Repair Deficient Bridges and Pavements (State of Good Repair)

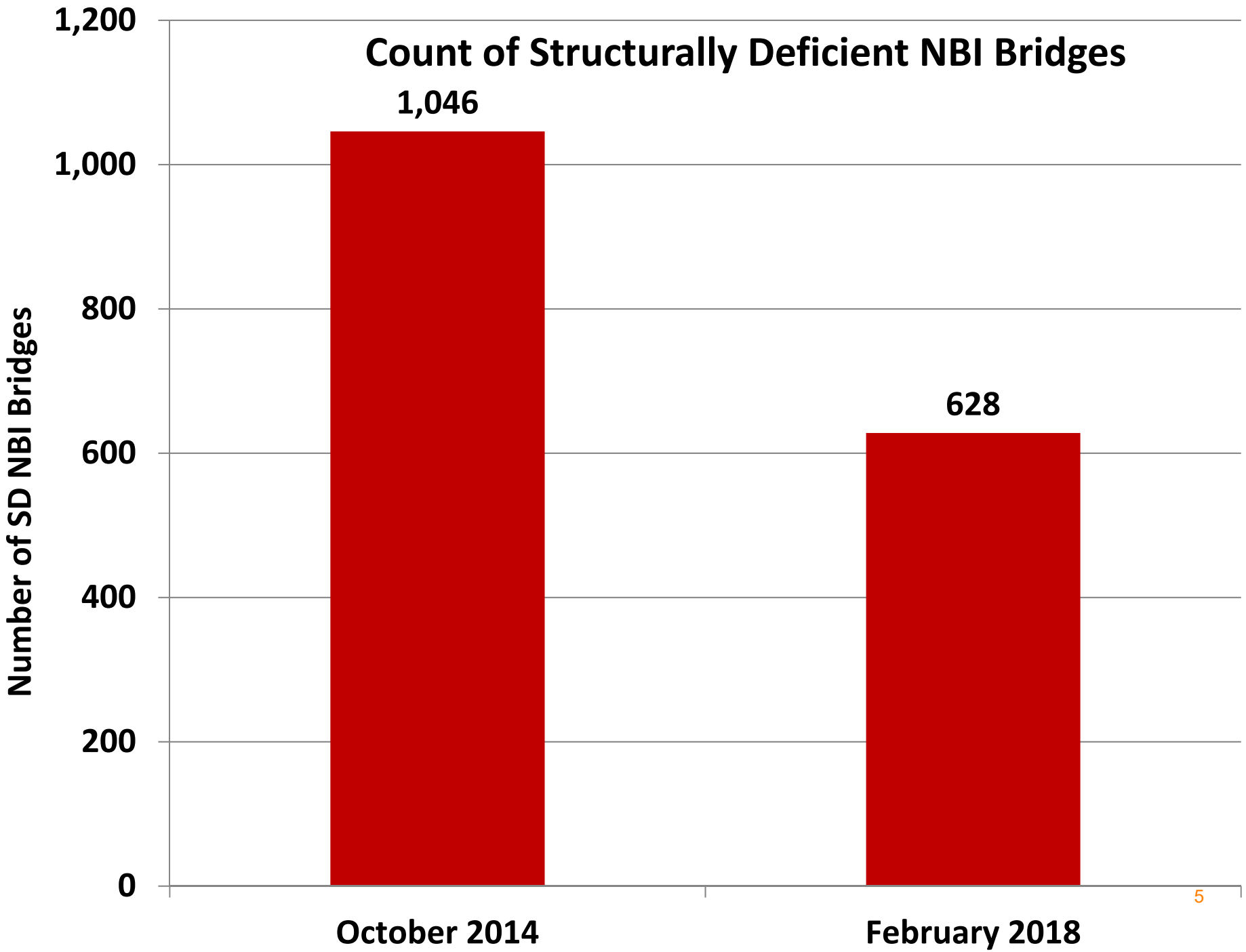
- Total Capital Program Bridge Funding Averages ≈ $200M per year
- Funds are distributed between districts and pavements and bridges by percentage of total need
- Projects are prioritized by a selection formula

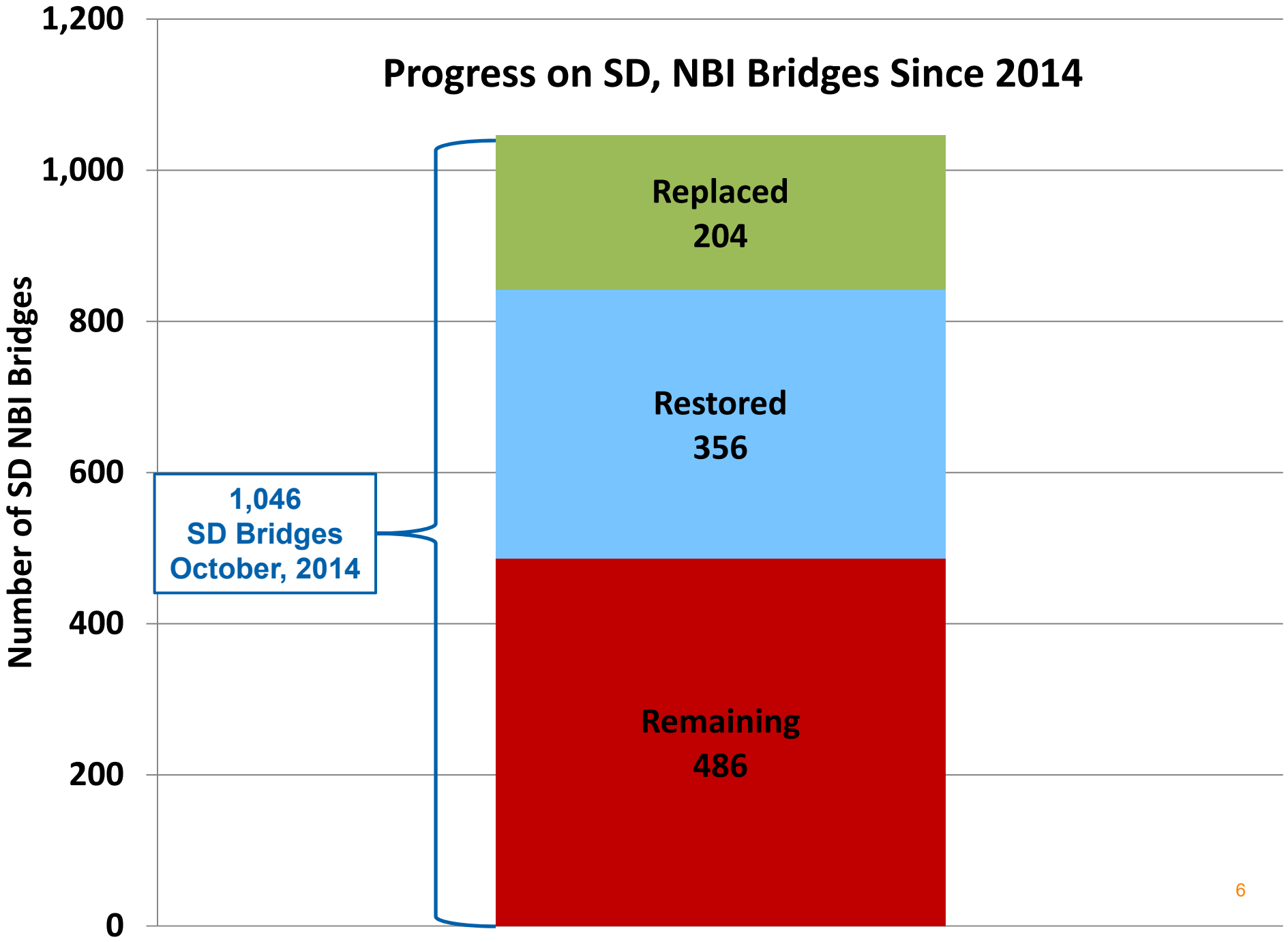
Projects must meet the following criteria:

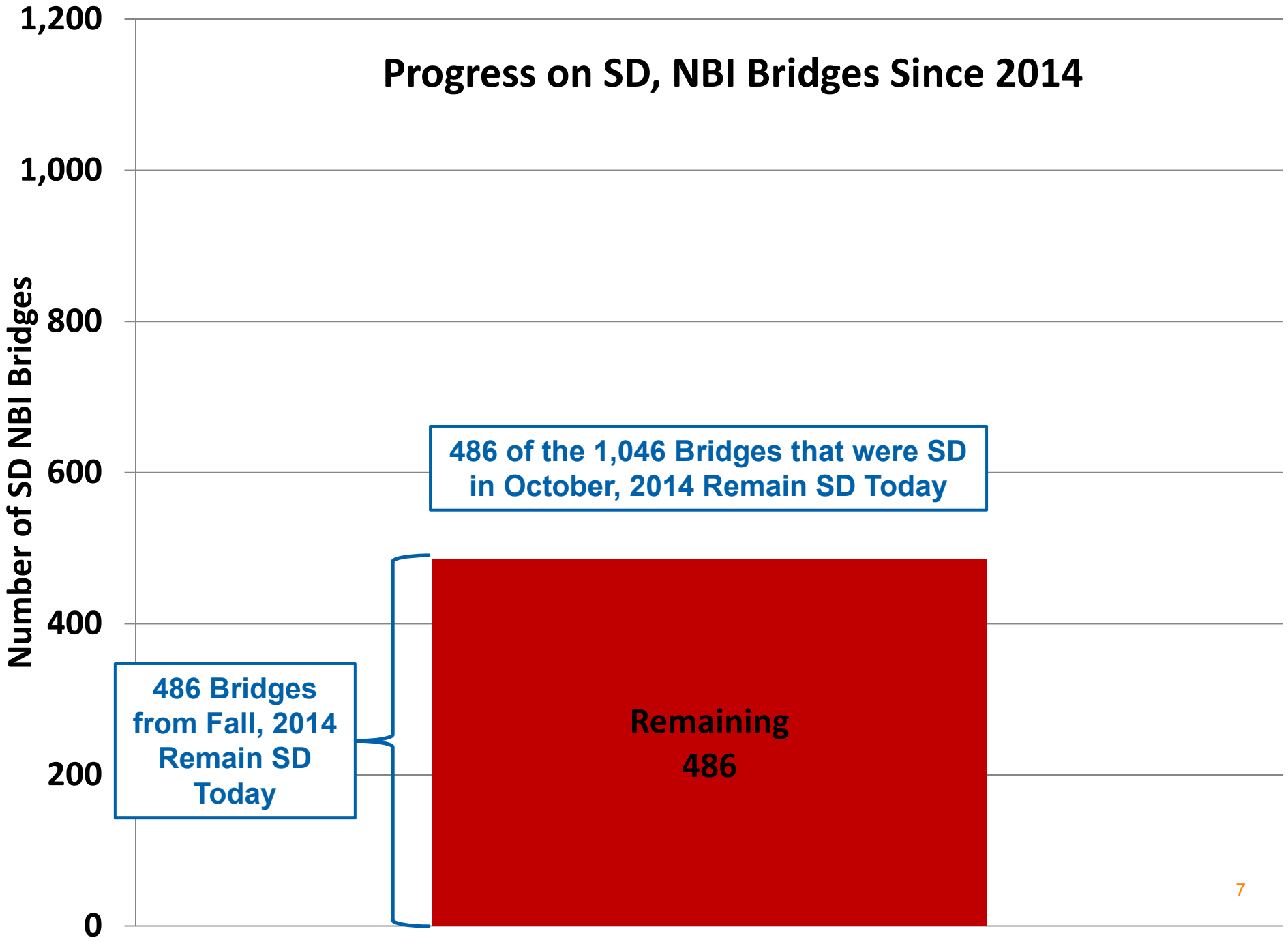
- Bridge must be structurally deficient (SD)
- National Bridge Inventory only
- Work must take bridge out of SD status
- Must initiate the preliminary engineering or the construction phase within 24 months of award of funding or become subject to de-allocation

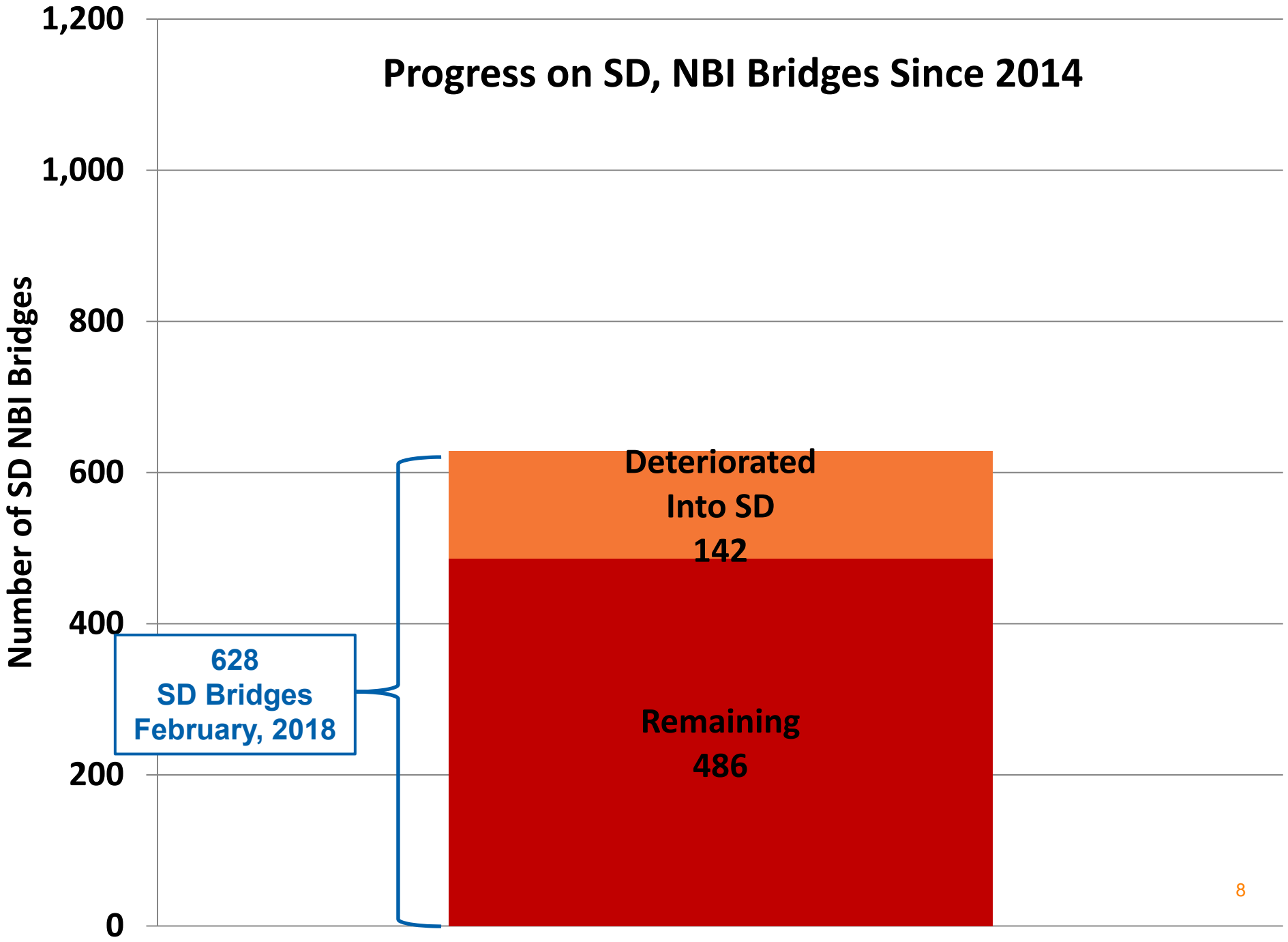
Bridge Capital Program Allocations by Year (Millions)			
Fiscal Year	**Formula Funds**	**SGR Funds**	**Total Funds**
2006- 2011	**Dedicated Bridge Fund**		**Average $111**
2012	$145		$145
2013	$156		$156
2014	$84		$84
2015	$106		$106
2016	$127		$127
2017	$119	$99	$218
2018	$154	$48	$202
2019	$170	$31	$201
2020	$177	$31	$208
2021		$195	$195
2022		$187	$187
2023		$191	$ 191

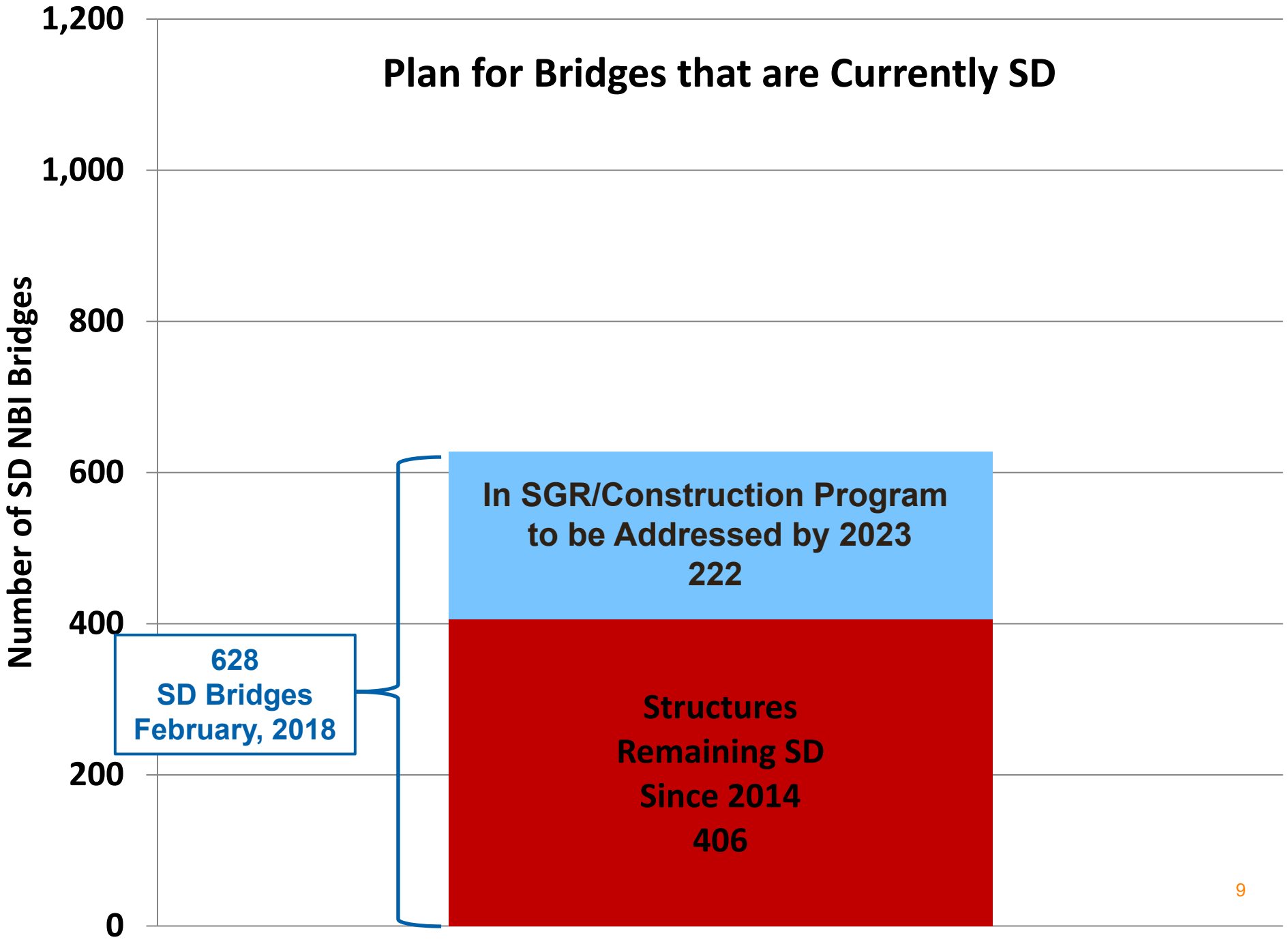

Progress on SD, NBI Bridges Since 2014
Number of SD NBI Bridges
1,200
1,000
800
600
400
200
0
1,046
SD Bridges
October, 2014

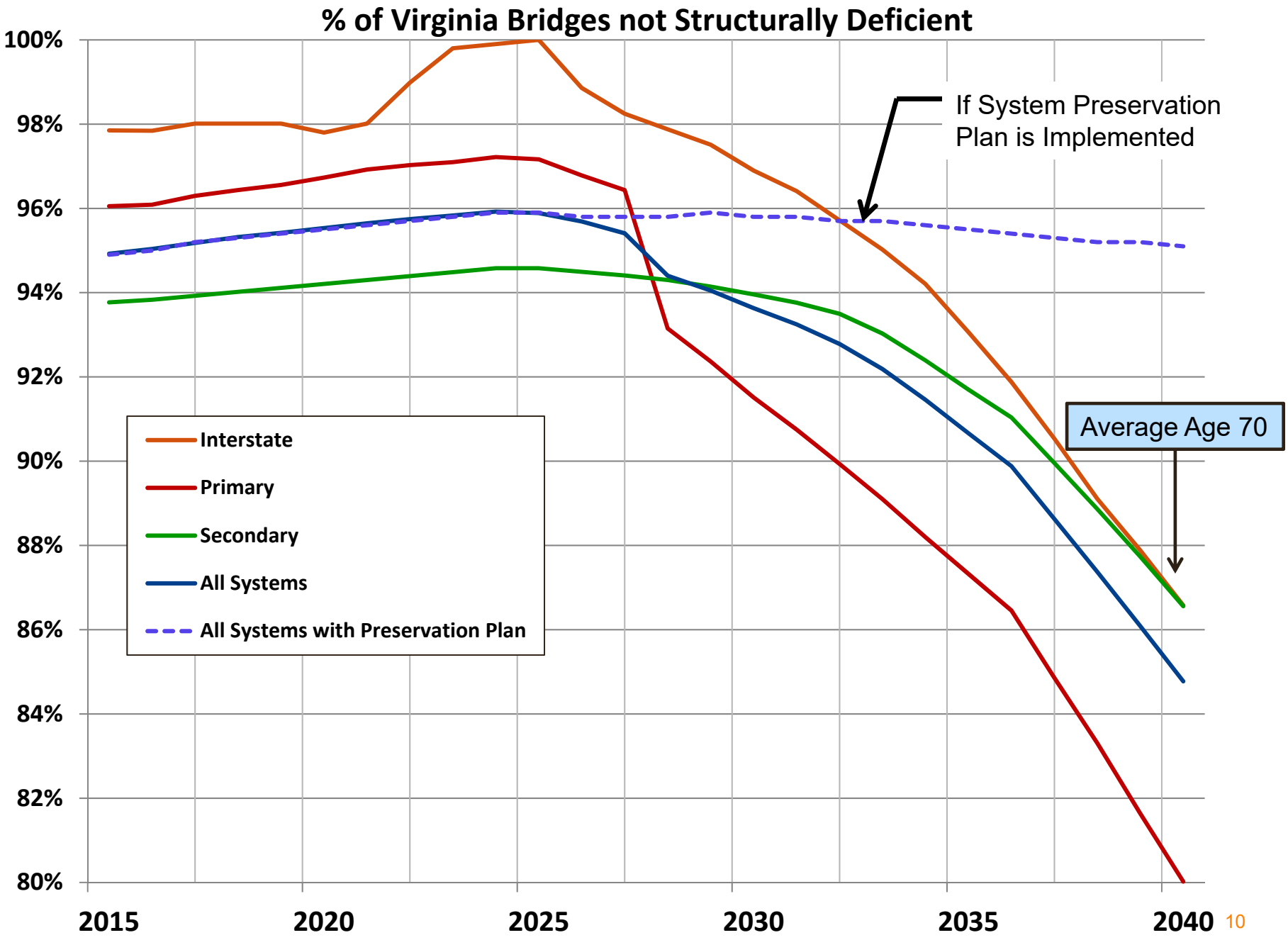

Count of Structurally Deficient NBI Bridges
1,046
628
1,200
1,000
800
600
400
200
0
Number of SD NBI Bridges
October 2014
February 2018


Progress on SD, NBI Bridges Since 2014
Number of SD NBI Bridges
1,200
1,000
800
600
400
200
0
1,046
SD Bridges
October, 2014
Replaced
204
Restored
356
Remaining
486

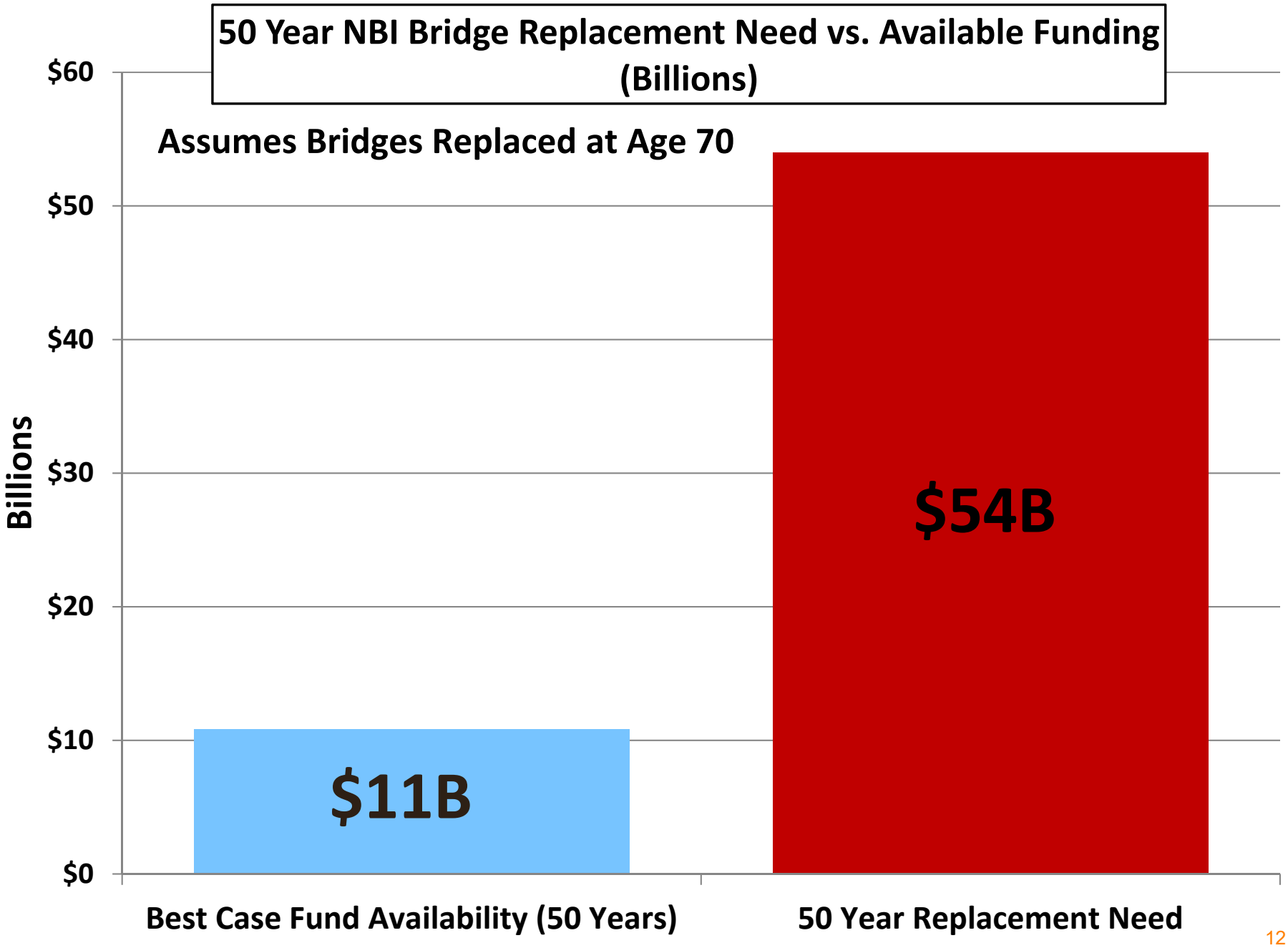

Progress on SD, NBI Bridges Since 2014
Number of SD NBI Bridges
1,200
1,000
800
600
400
200
0
486 of the 1,046 Bridges that were SD in October, 2014 Remain SD Today
486 Bridges from Fall, 2014 Remain SD Today
Remaining 486

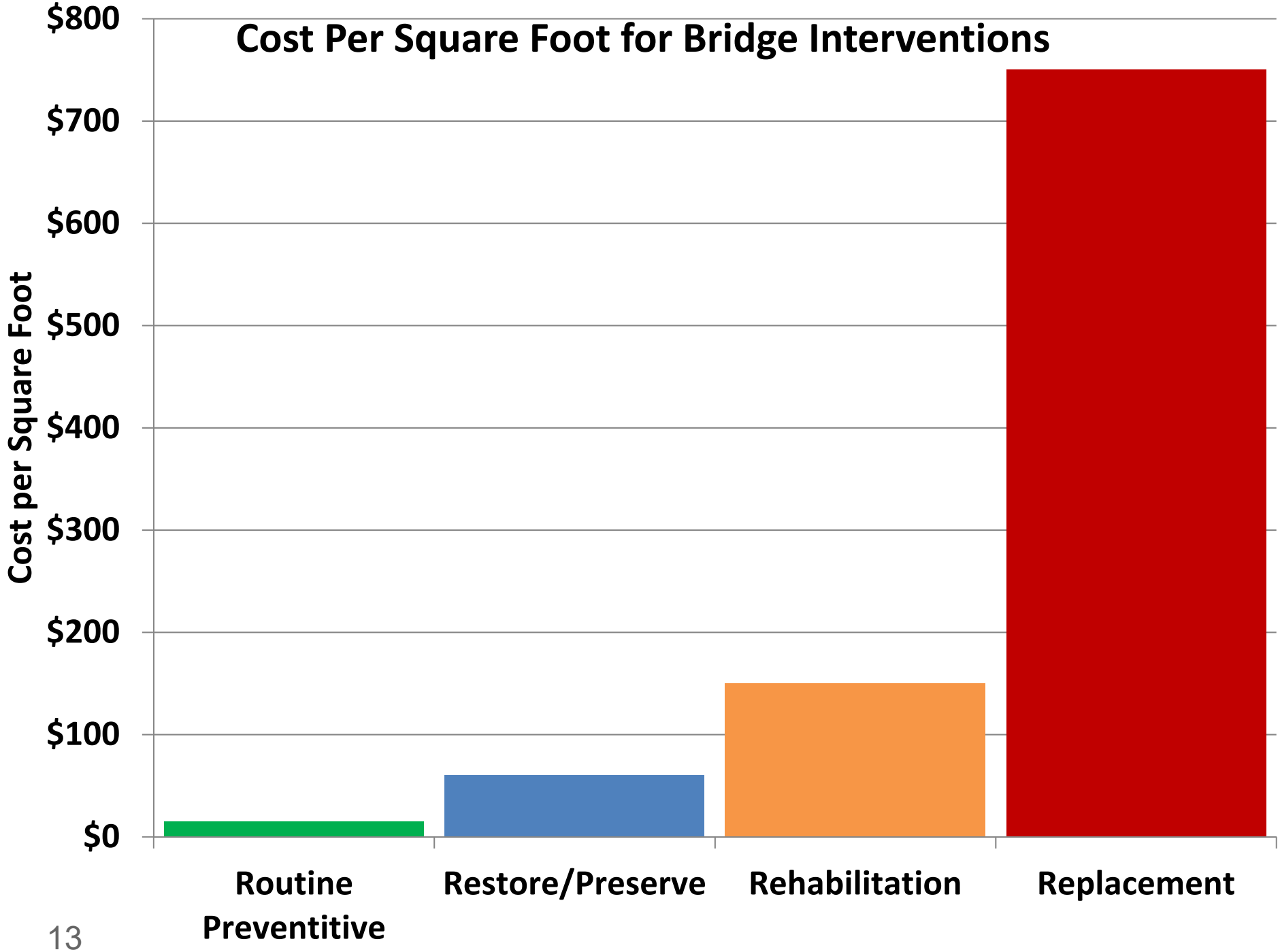

Progress on SD, NBI Bridges Since 2014
Number of SD NBI Bridges
1,200
1,000
800
600
400
200
0
628
SD Bridges
February, 2018
Deteriorated
Into SD
142
Remaining
486


Plan for Bridges that are Currently SD
Number of SD NBI Bridges
1,200
1,000
800
600
400
200
0
628
SD Bridges
February, 2018
In SGR/Construction Program
to be Addressed by 2023
222
Structures
Remaining SD
Since 2014
406


% of Virginia Bridges not Structurally Deficient
100%
98%
96%
94%
92%
90%
88%
86%
84%
82%
80%
2015
2020
2025
2030
2035
2040
Interstate
Primary
Secondary
All Systems
All Systems with Preservation Plan
If System Preservation Plan is Implemented
Average Age 70

Strategically Addressing Future Deterioration


50 Year NBI Bridge Replacement Need vs. Available Funding (Billions)
Assumes Bridges Replaced at Age 70
Billions
$60
$50
$40
$30
$20
$10
$0
$11B
$54B
Best Case Fund Availability (50 Years)
50 Year Replacement Need


Cost Per Square Foot for Bridge Interventions
$800
$700
$600
$500
$400
$300
$200
$100
$0
Cost per Square Foot
Routine Preventitive
Restore/Preserve
Rehabilitation
Replacement

SGR Prioritization Formula
Selection of Structures for Intervention

Priority = .3**(IF) +** .25**(CF) +** .15**(RF) +** .1**(SCF) +** .2**(CEF)**

All five unitless variables have a 0 to 1.0 scale

- ***IF = Importance Factor***

  measures the relative importance of each bridge to the overall highway network

- ***CF = Condition Factor***

  measures the overall physical condition of each bridge based on the condition of each individual element

- ***RF = Risk Factor***

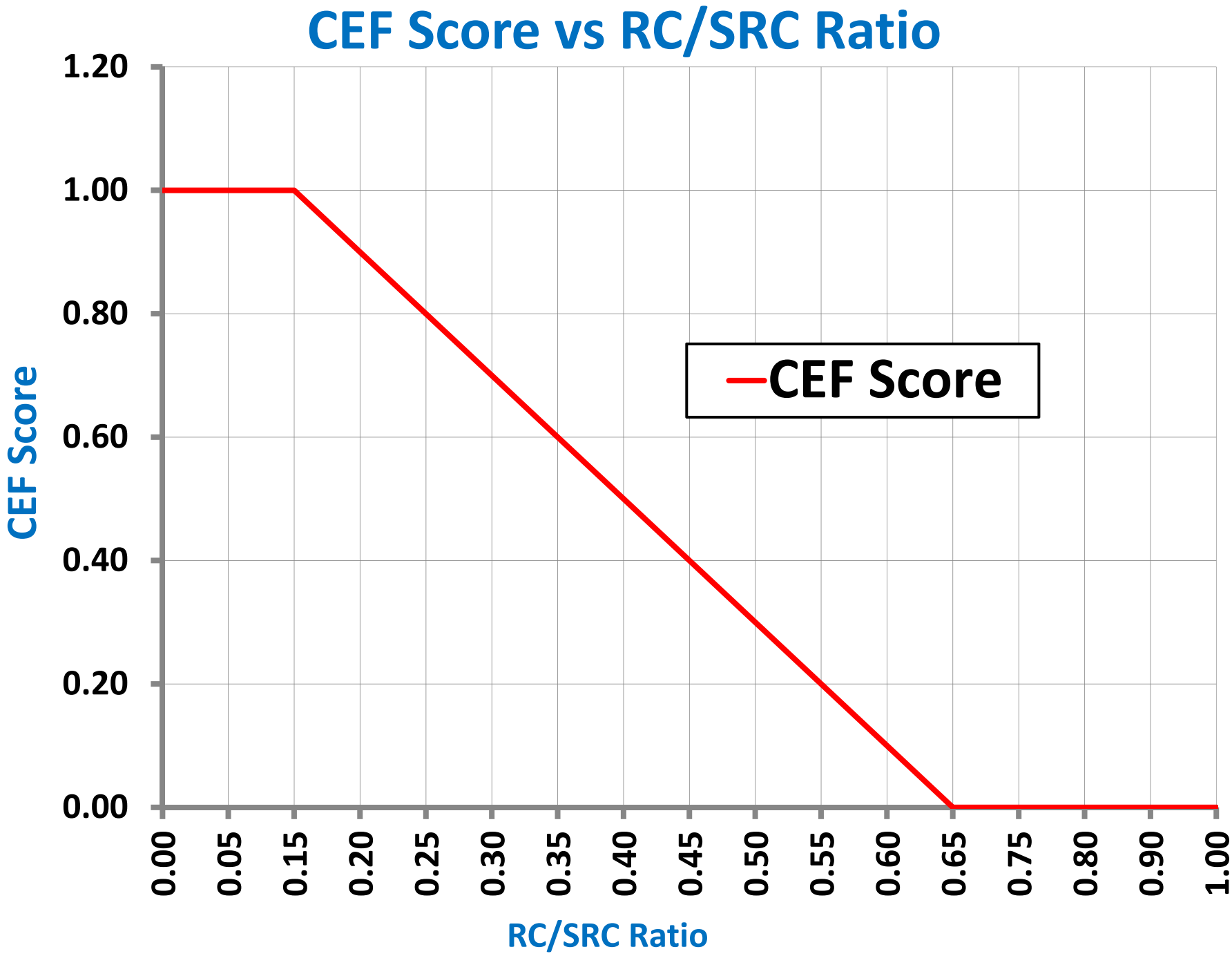
  measures four important risk factors: Redundancy, Scour Susceptibility, Fatigue, and Earthquake vulnerability

- ***SCF = Structure Capacity Factor***

  measures the capacity of the structure to convey traffic, including the effects of weight restrictions, waterway adequacy, vertical clearance and deck width

- ***CEF = Cost-Effectiveness Factor***

  measures the cost-effectiveness of the required work


CEF Score vs RC/SRC Ratio
1.20
1.00
0.80
0.60
0.40
0.20
0.00
CEF Score
CEF Score
0.00
0.05
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.75
0.80
0.90
1.00
RC/SRC Ratio

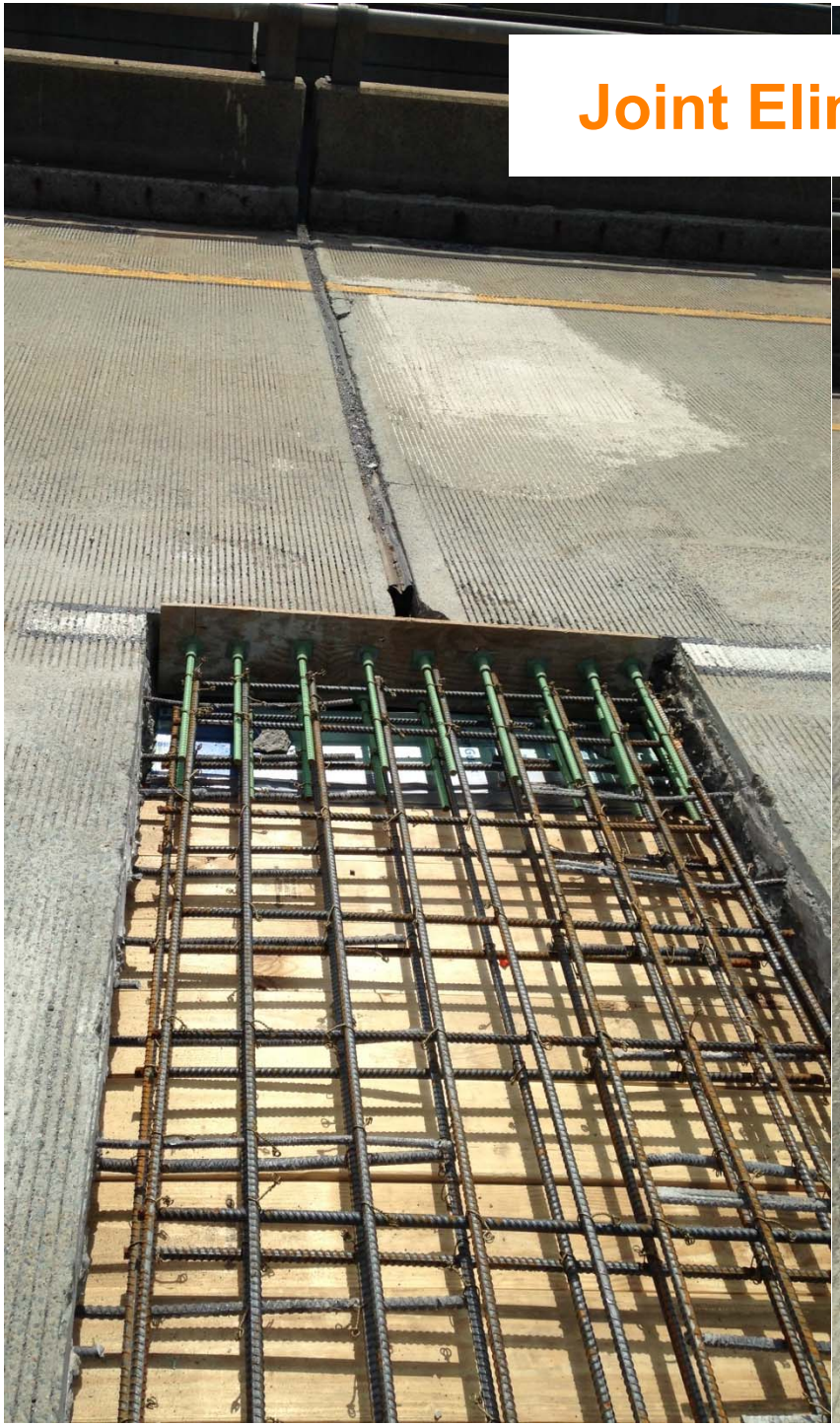
Being Cost-Effective: Targeted Repairs and System Preservation

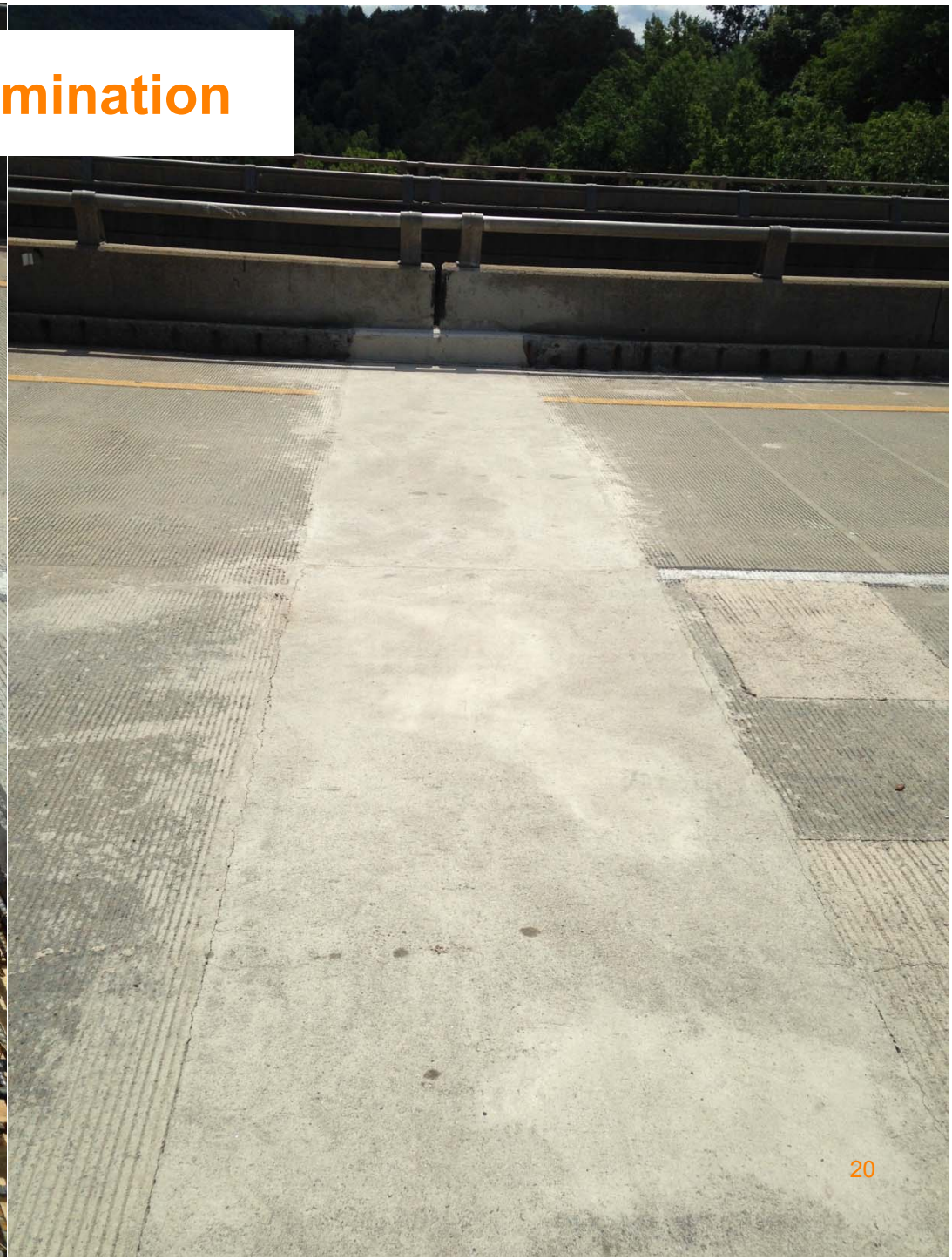
Steel Beam End Repair – During Construction

Steel Beam End Repair - Final

Superstructure and Substructure Surface Repair

Joint Elimination





Overlays

33-026
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Bridge Coating

Culvert Lining

We Could Sustain Bridge Conditions with an *Immediate* 40% - 50% Increase in Maintenance Funds if the Additional Money is Dedicated Solely to System Preservation Activities

Thank you for your time and attention