



Bridge Management

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Presentation Outline

- Bridge Management
- Bridge Inventory
- Bridge Condition
- Bridge Planning
- Bridge Performance Measures
- Bridge Programs

Bridge Management





Bridge Management

■ Objective

- Preserve bridges to minimize whole life cost
- Operate in a financially sustainable manner
- Provide a framework to improve performance on a long-term basis
- Predict condition outcomes of different funding levels

■ Strategy

- Work on every bridge over a 20-year period
- Manage to a state of good repair (define thresholds)
- Prioritize funding to system

Bridge Inventory

UDOT STRUCTURES 2015 Annual Bridge Report

The Bridge Management
Division inspects and manages

2,971

BRIDGES

including **state** and **locally**
owned public bridges

The **State** owns
1,895 bridges

The other **1,076**
bridges are divided among
140 Agencies

Region 1 **589**

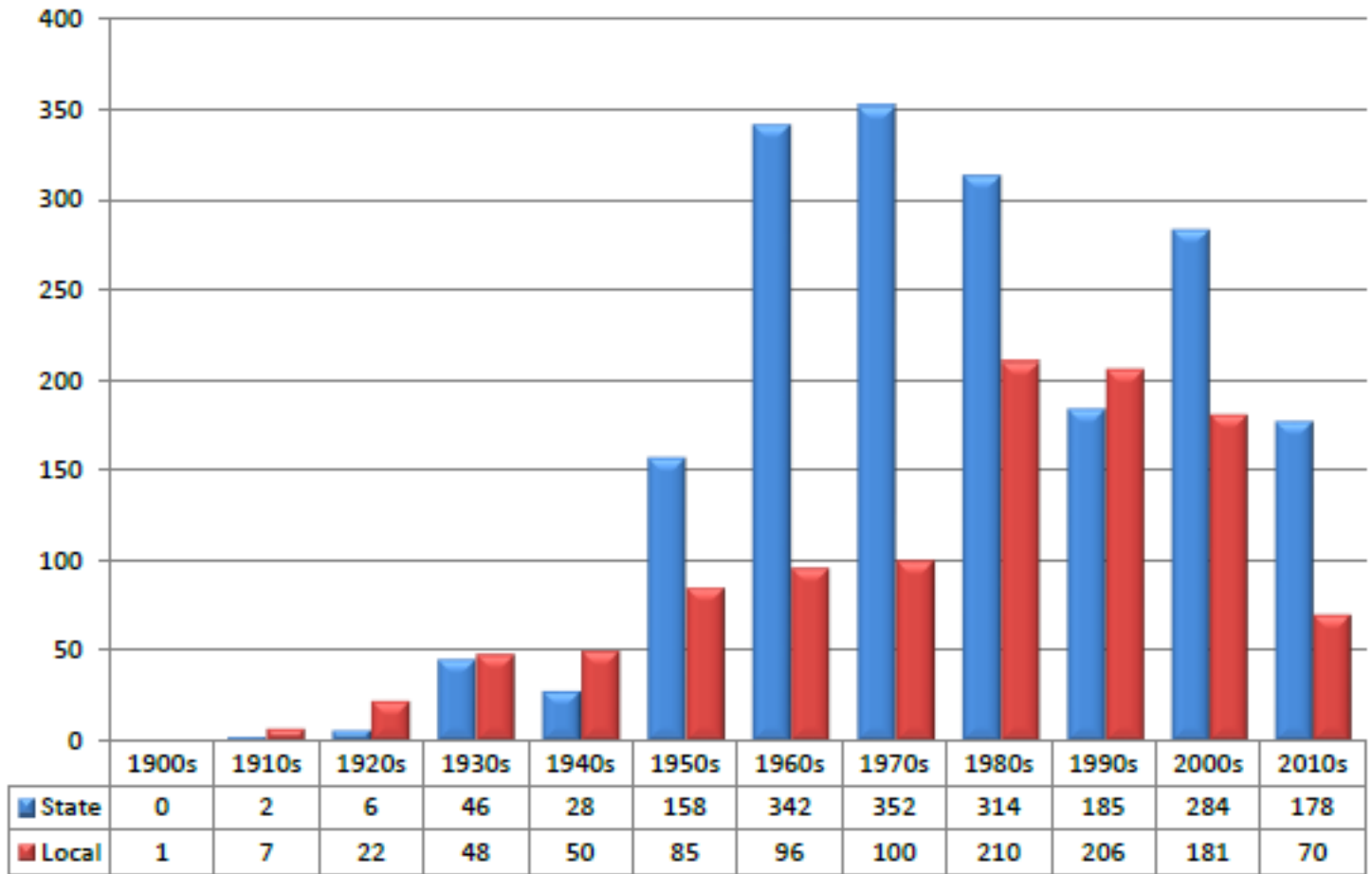
Region 2 **831**

Region 3 **491**

Region 4 **1,060**

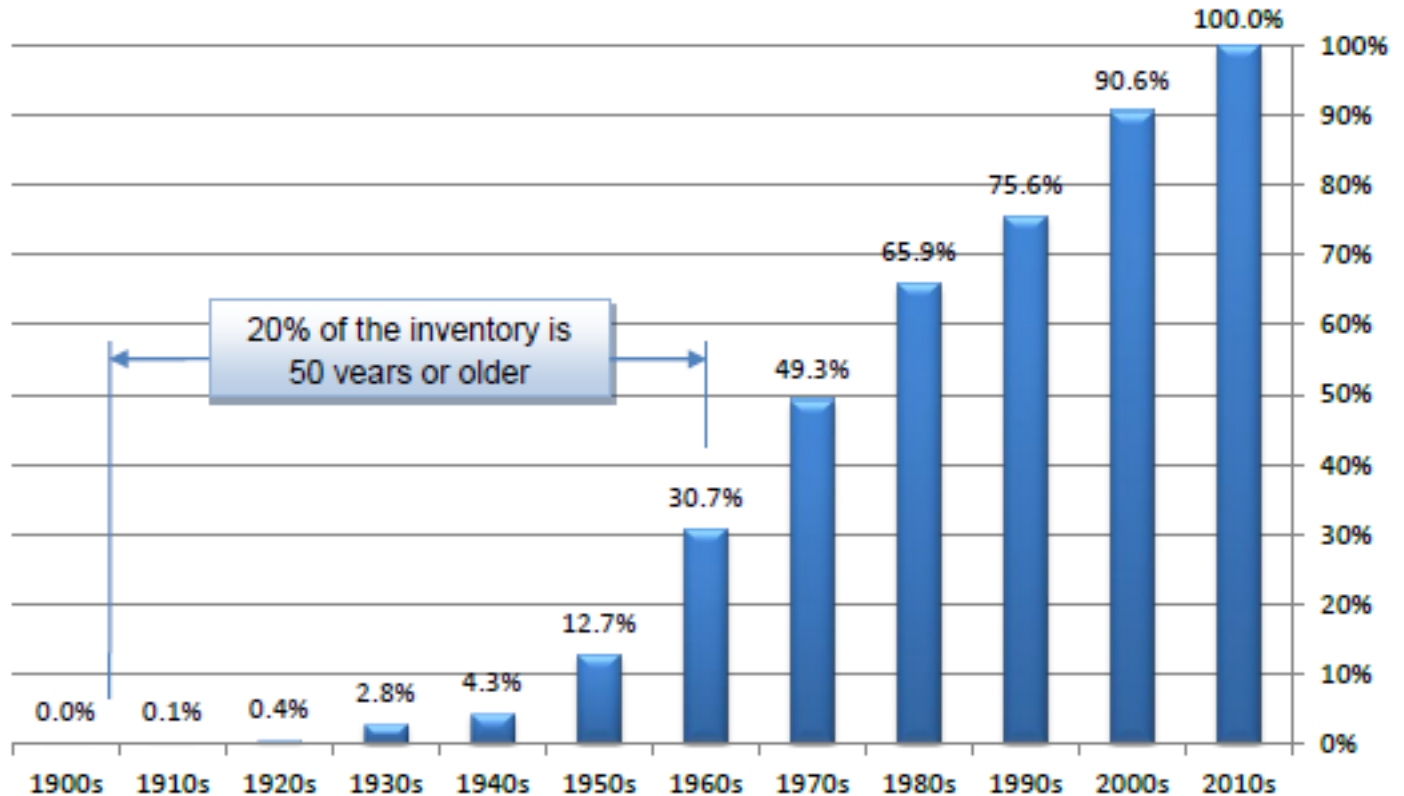
Bridge Inventory

Age of In-Service Bridges



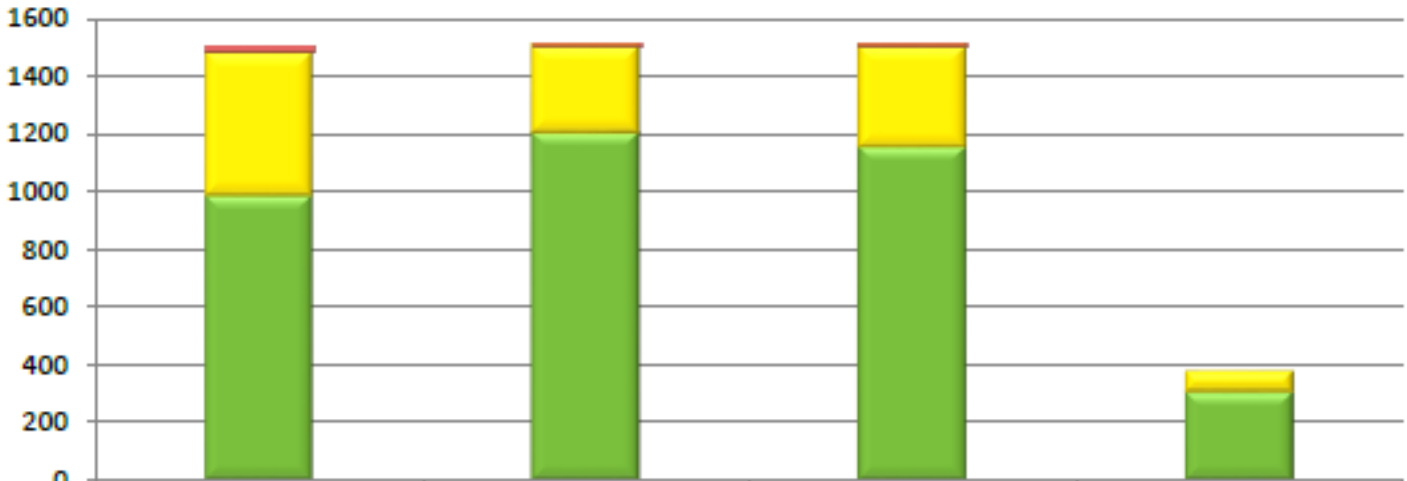
Structures by Year Built

Bridge Inventory



Cumulative Age Distribution of State Owned Structures by Year Built

Bridge Condition

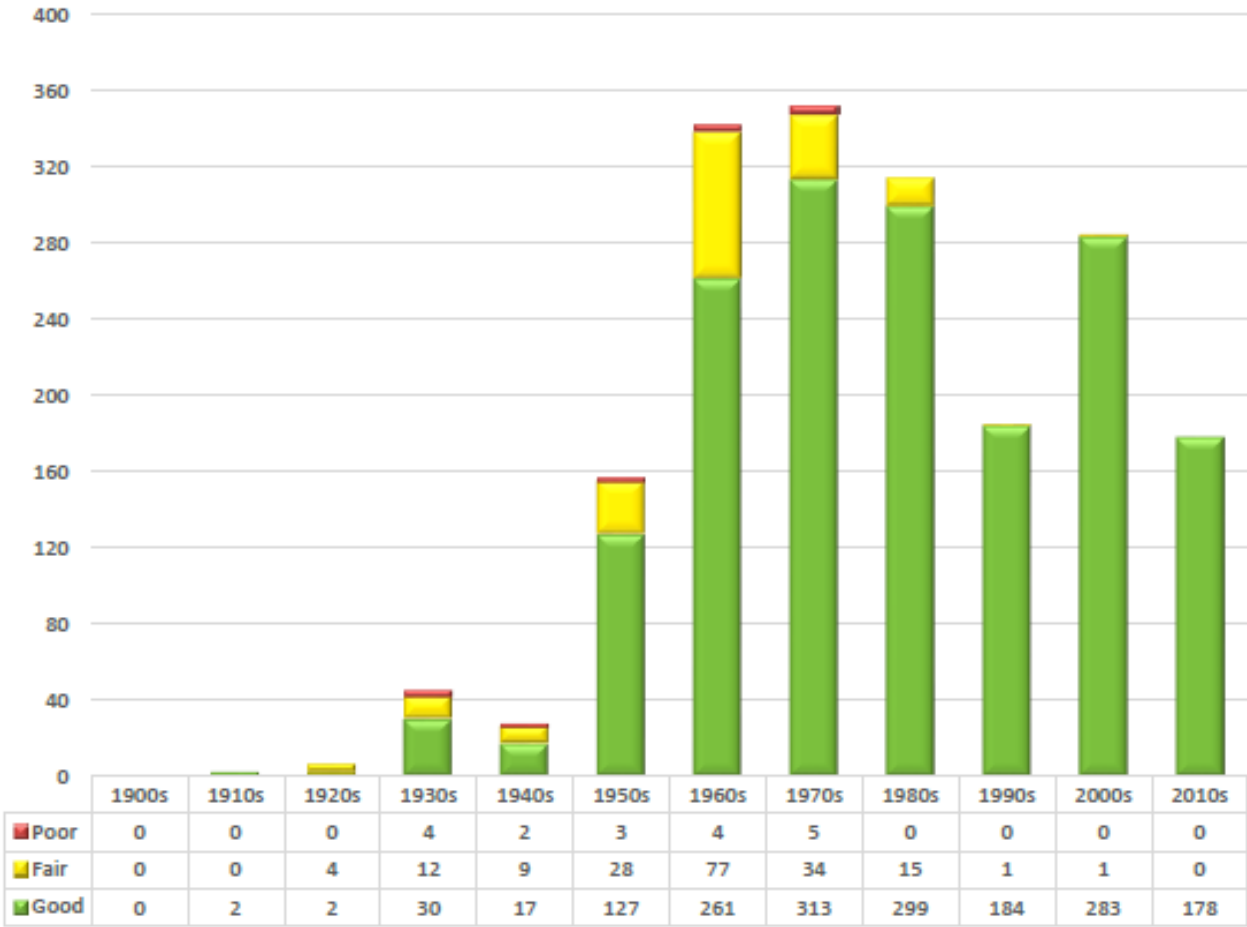


	Deck	Superstructure	Substructure	Culvert
■ Poor	13	7	8	0
■ Fair	500	304	353	75
■ Good	986	1203	1153	308

Note: OR-61 and OR-288 have a Superstructure, Substructure, and Culvert NBIS Component (carry water over I-215). Tunnels are included under Culvert.

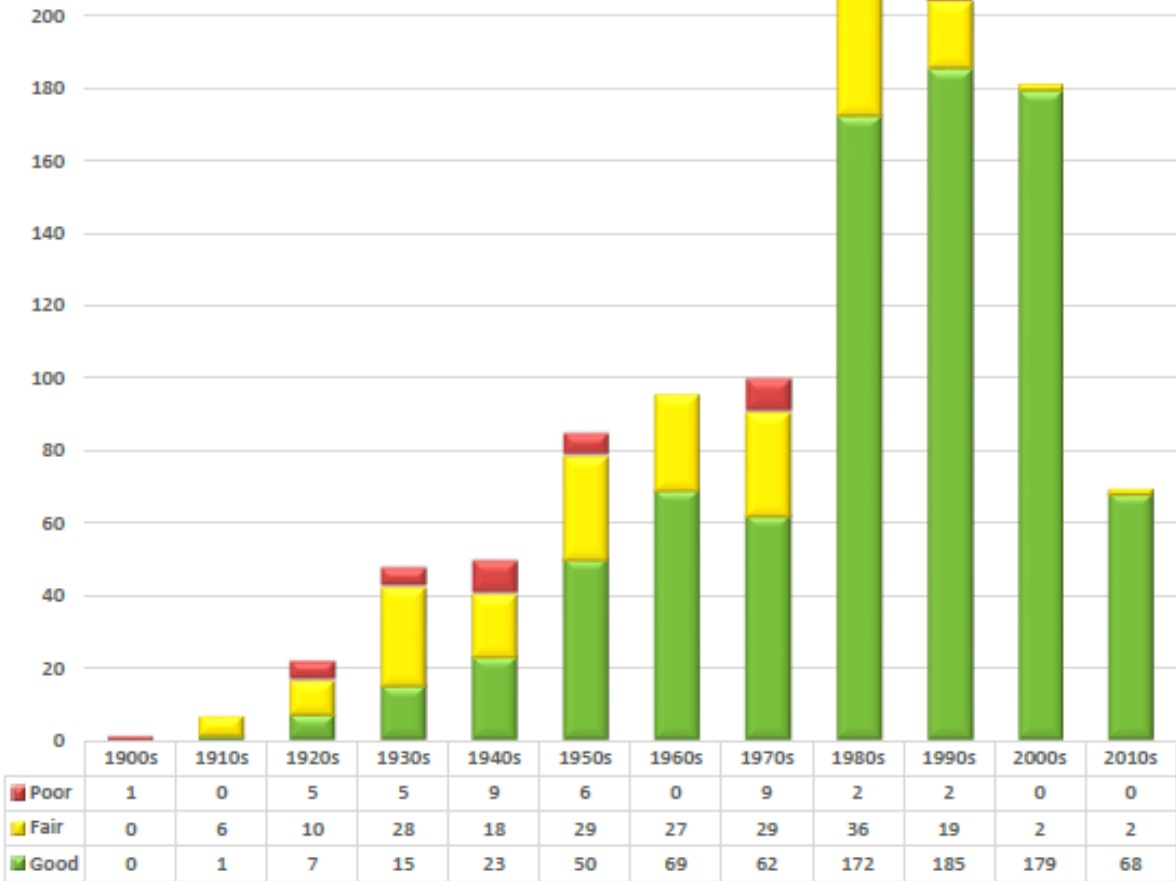
Overall Structure Conditions by NBIS Components

Bridge Condition



State Owned Bridge Health Indexes by Decade

Bridge Condition



Locally Owned Bridge Health Indexes by Decade

Bridge Condition

Bridge Programs

Management Strategy

Good (1,196)

Service life extended through **preservation** treatments

Fair (681)

Condition improved by **rehabilitation** treatments

Poor (18)

Replacement required - currently, all poor bridges are programmed for replacement

Bridge Planning

- Address the needs of the existing in-service bridge inventory
- Prioritize the use of available funds

Bridge Planning

- Prioritization process
- Multi-objective prioritization (BHI)
 - Vulnerability
 - Physical condition
 - Load rating
 - Criticality
 - Importance factors (AADT, detour, bridge length)
- Deterioration models
- Life cycle cost analysis
- Risk analysis

Bridge Performance Measures

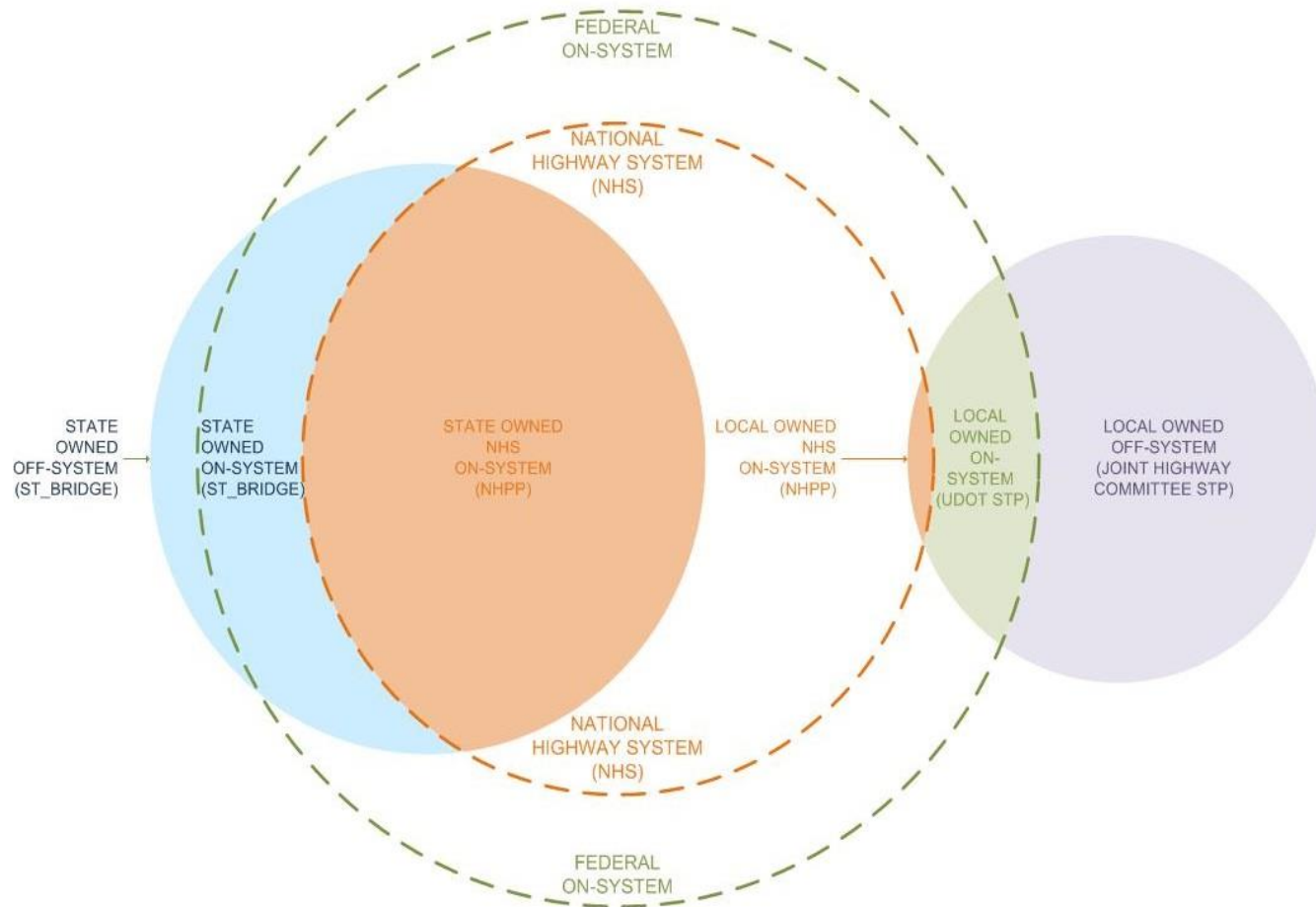


Diagram of Structures by Ownership and Funding

Bridge Performance Measures

MAP-21 Funding

Type	Count	SD Count	Count Percentage	Deck Area (SF)	SD Deck Area (SF)	Deck Area Percentage
NHS	1,311	12	0.9%	14,135,373	124,206	0.9%
Non-NHS	584	6	1.0%	3,375,115	44,461	1.3%
Total	1,895	18	0.9%	17,510,488	168,667	1.0%

Note: Culverts are included in this table, which affect structure count but not deck area.

Table 3-2

Structurally Deficient, State Owned Bridges in Utah

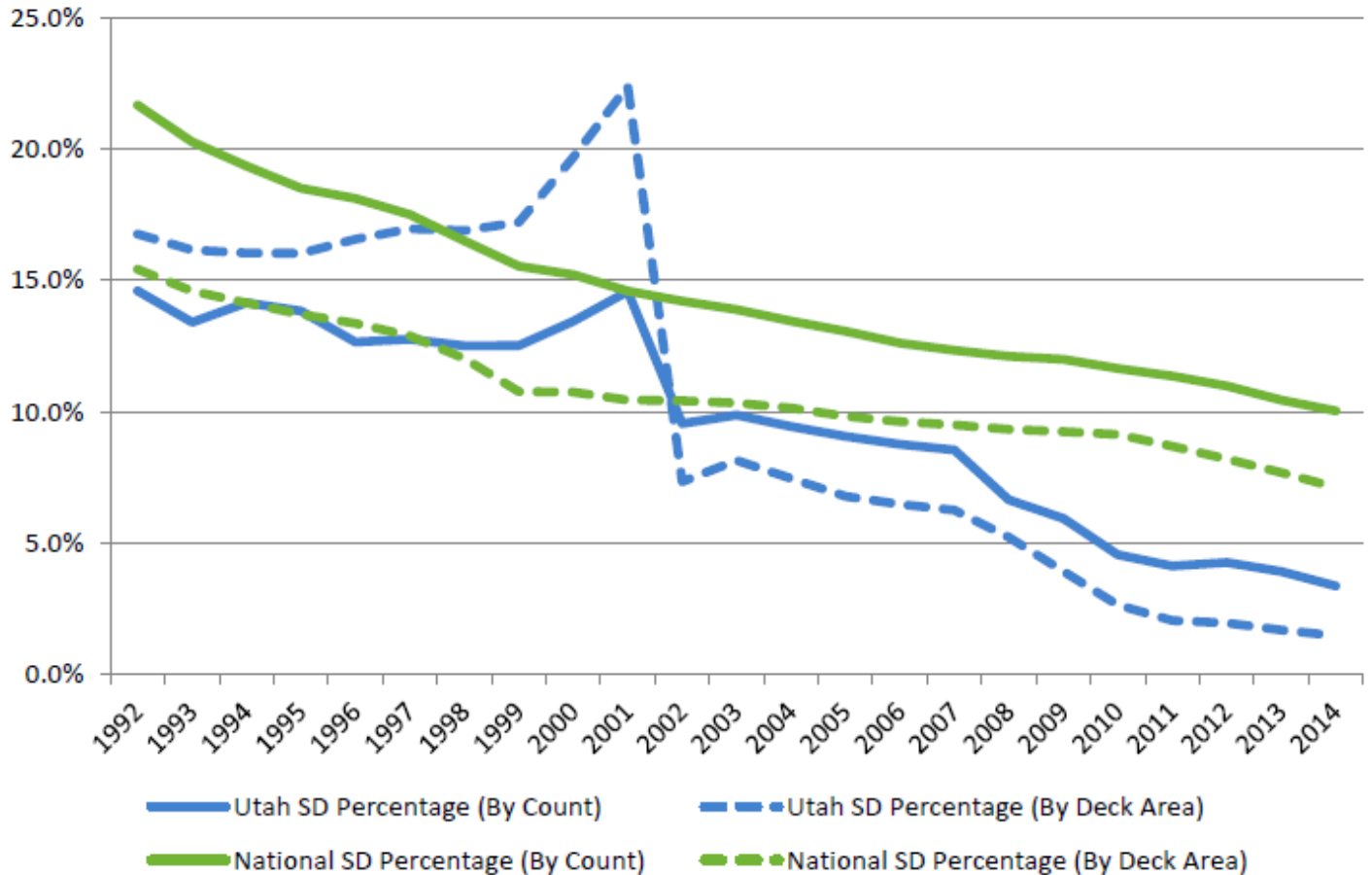
Type	Count	SD Count	Count Percentage	Deck Area (SF)	SD Deck Area (SF)	Deck Area Percentage
NHS	8	0	0.0%	9,652	0	0.0%
Non-NHS	1,068	59	5.5%	2,603,410	63,464	2.6%
Total	1,076	59	5.5%	2,613,062	63,464	2.6%

Note: Culverts are included in this table, which affect structure count but not deck area.

Structurally Deficient, Locally Owned Bridges in Utah

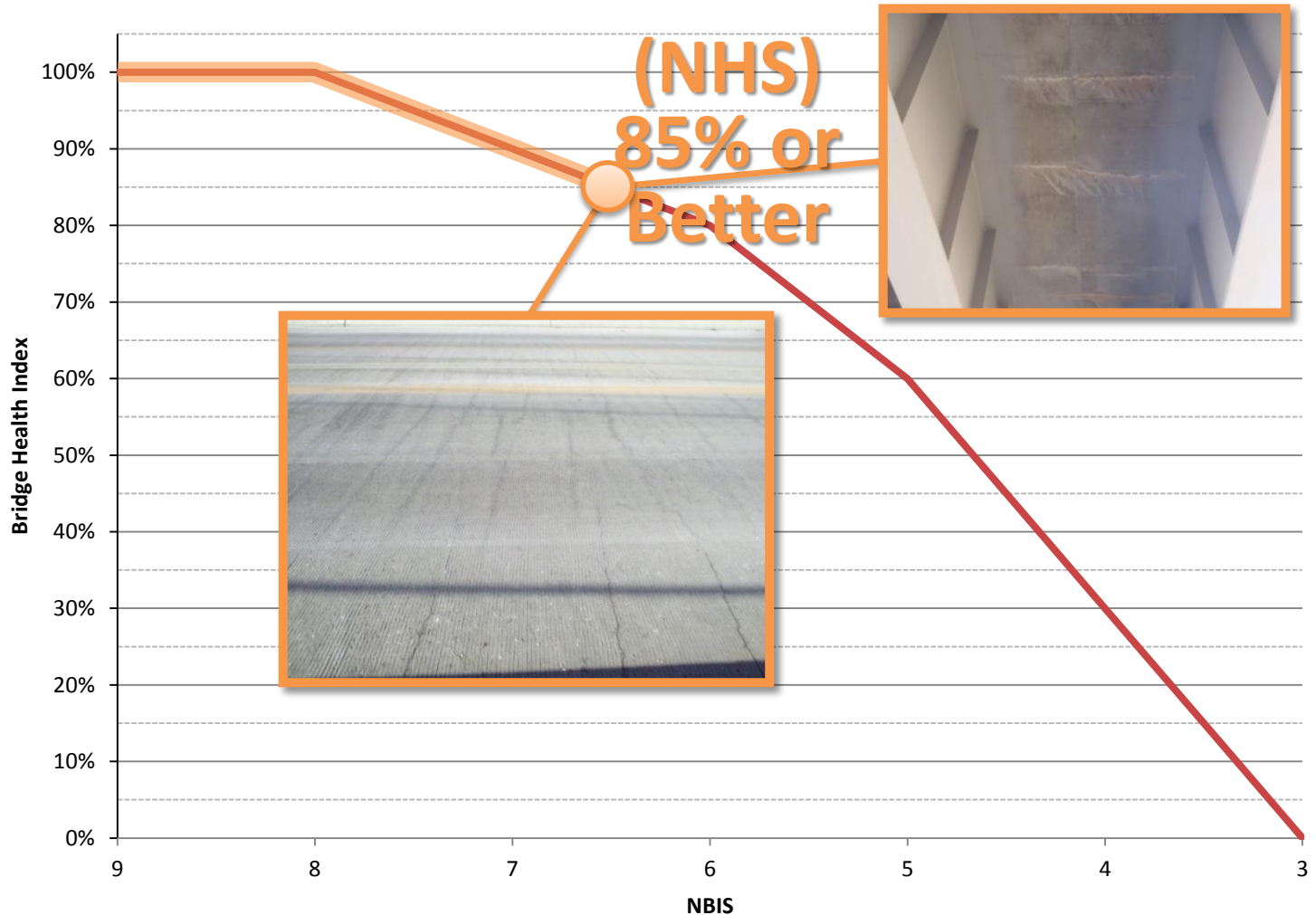
Bridge Performance Measures

Historical Data

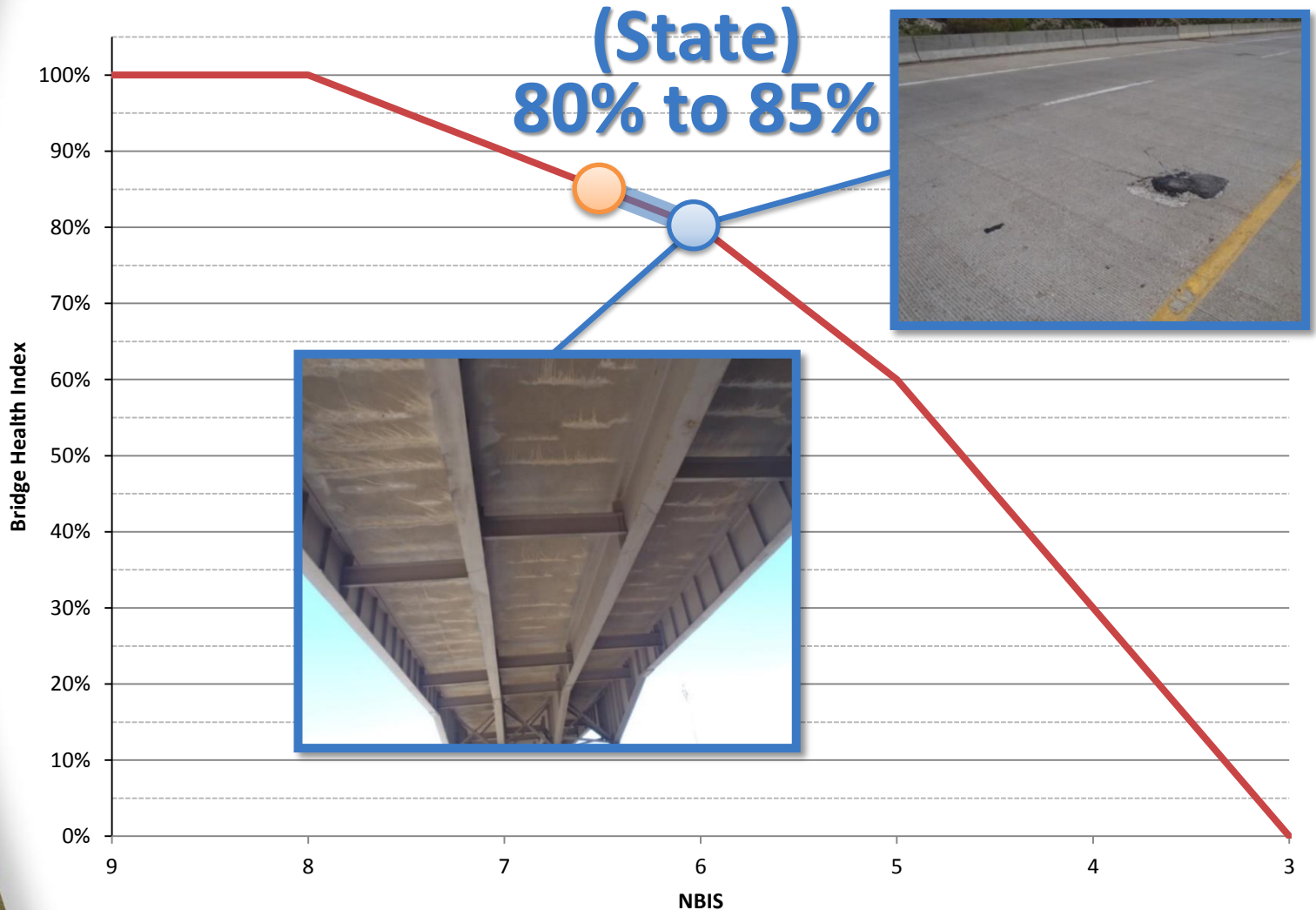


Percentage of Structurally Deficient Bridges – Utah vs. Nation

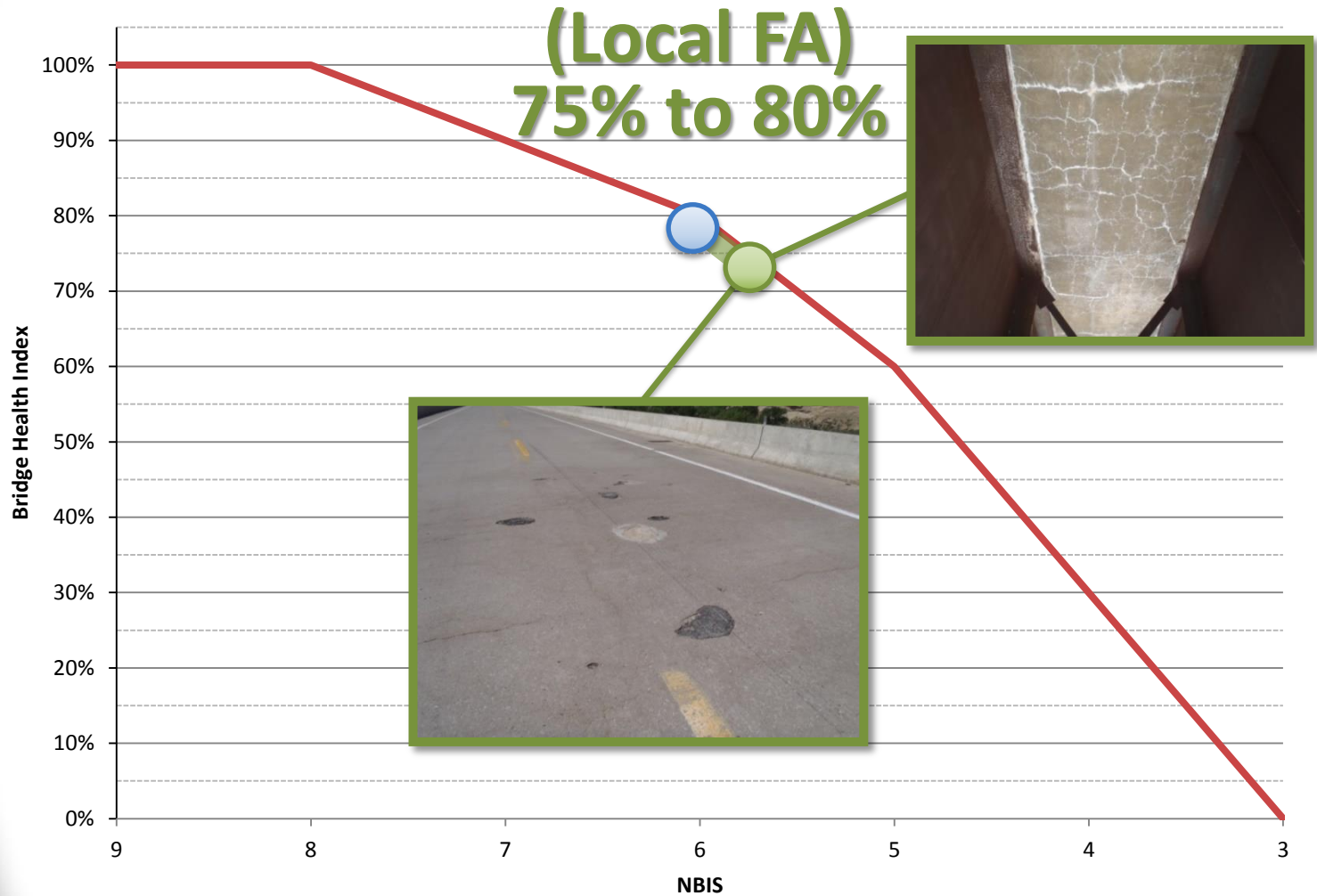
Bridge Performance Measures



Bridge Performance Measures



Bridge Performance Measures



Bridge Programs

Funding

	Funding				
	2015	2016	2017	2018	2019
Replacement/ Rehabilitation	\$15.2M	\$14.8M	\$19.8M	\$20.7M	\$21.0M
Preservation	\$3.5M	\$11.7M	\$21.7M	\$30.8M	\$30.8M
Total	\$18.7M	\$26.5M	\$41.5M	\$51.5M	\$51.5M

Bridge Programs

- Bridge Replacement/Rehabilitation Program
 - Bridge Inspection Program
 - Load Rating Program
- Bridge Preservation Program
 - Bridge Maintenance Program
 - Bridge Scour Program
 - Bridge Emergency Program

Bridge Programs

- Concrete deck protection
- Painted steel protection systems
- Parapet replacement



Thank you
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Questions?

