Maine Bridges

Inspection, Management, Funding & Repair

Mid-Coast Regional Planning Commission
Annual Meeting 2016

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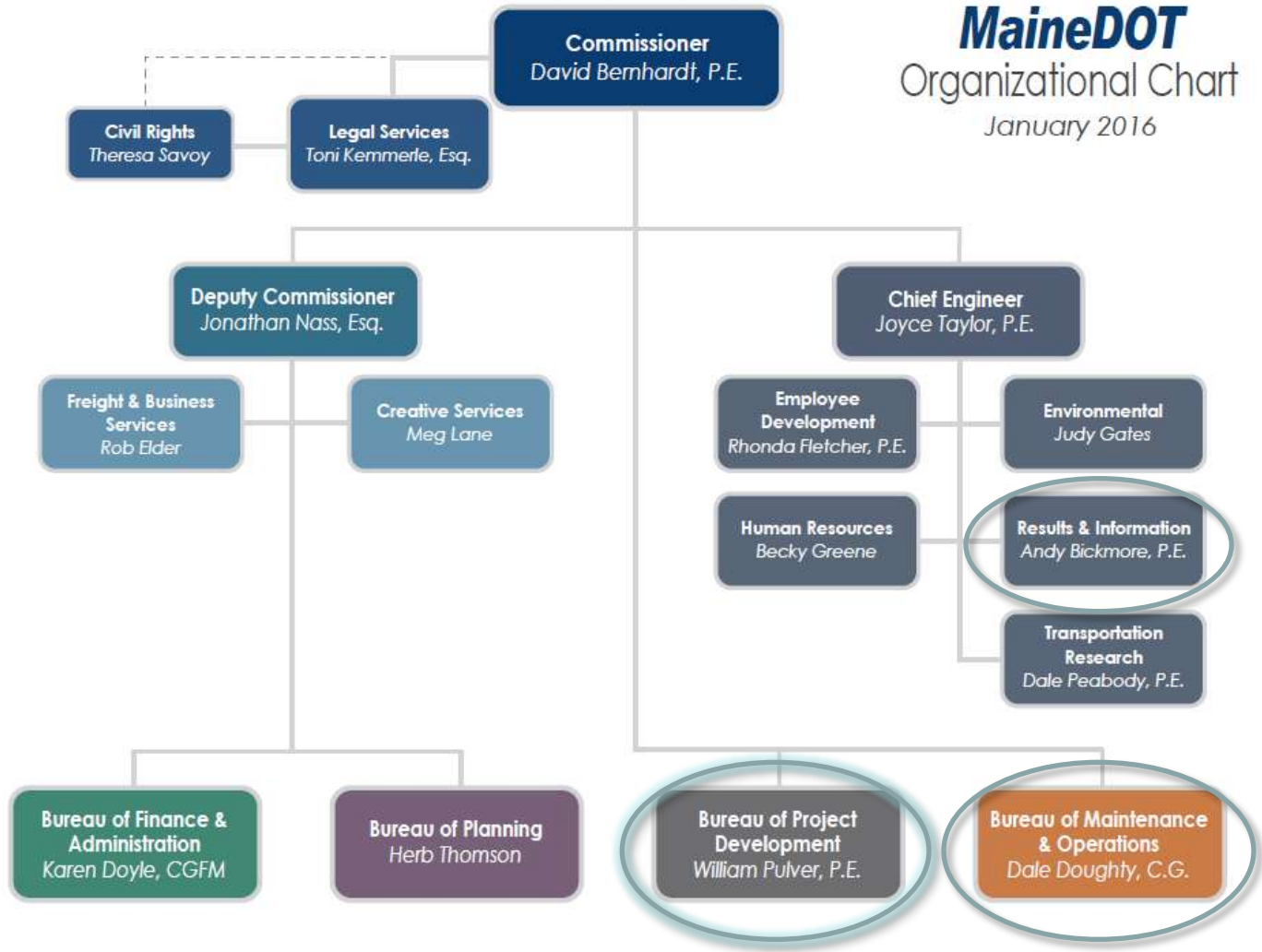
Outline

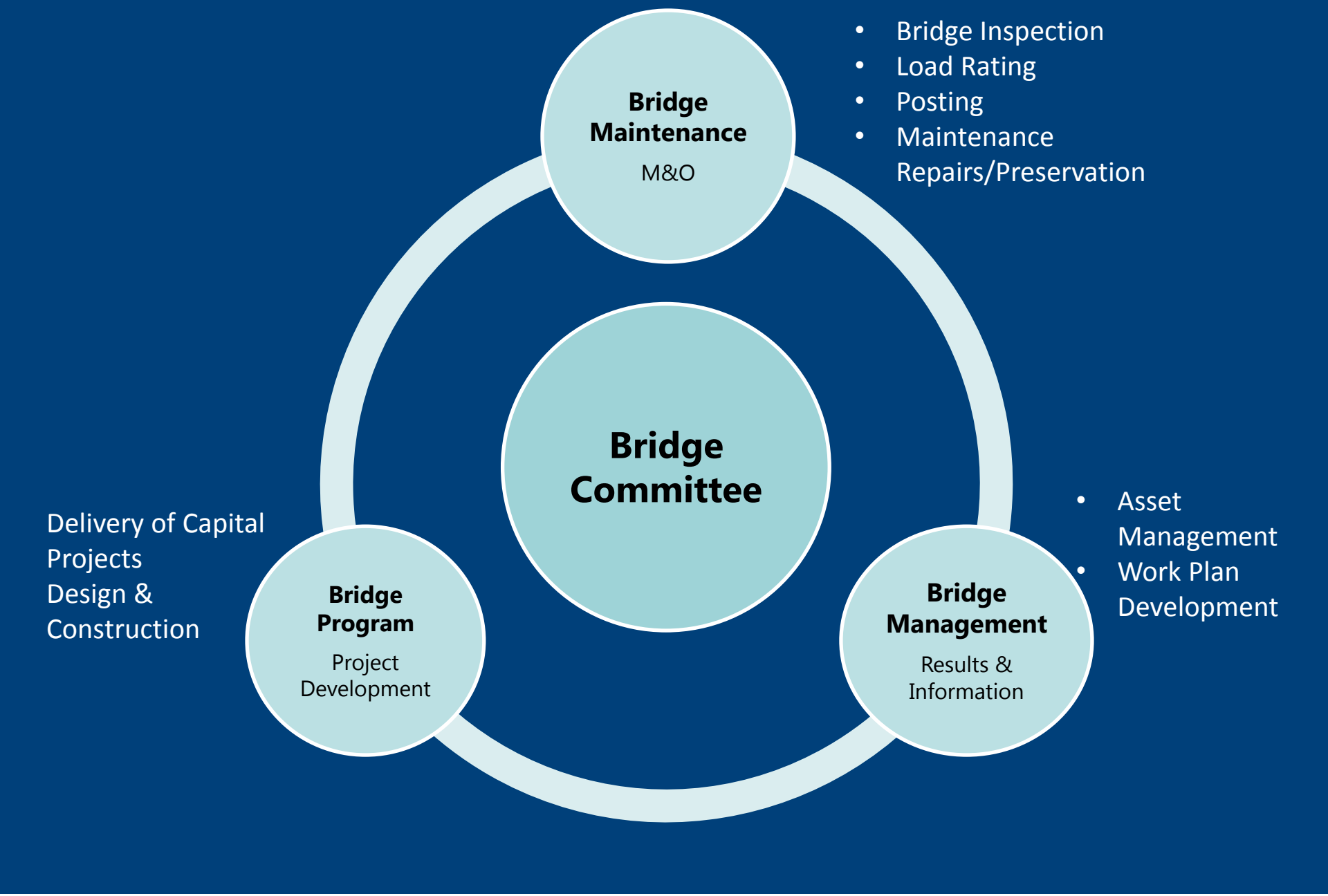
- MaineDOT Organization
- Maine Bridge Statistics
- Bridge Inspection
- Bridge Management
- MaineDOT Work Plan
- Funding
- Keeping or Bridges Safe
- Project Delivery

Thomaston, Wadsworth Street Bridge

MaineDOT Organizational Chart

January 2016




Bridge Maintenance
M&O
• Bridge Inspection
• Load Rating
• Posting
• Maintenance Repairs/Preservation
Bridge Committee
Delivery of Capital Projects Design & Construction
Bridge Program
Project Development
Bridge Management
Results & Information
• Asset Management
• Work Plan Development

Maine Bridge Data

- 2,515 Bridges (span longer that 20')
- 1,374 Minor spans (spans 10 to 20')
- State of Maine owns and manages 2,744 bridges (70%)
- Maine's bridge network replacement cost - $7.56 Billion
- Average service life of traditional bridges is 70 years
- Average service life of metal culverts is 50 years
- MaineDOT inspects about 2,000 bridge each year with a staff of ±12
- 265 bridges and minor spans in Knox and Waldo Counties

Average Bridge Age

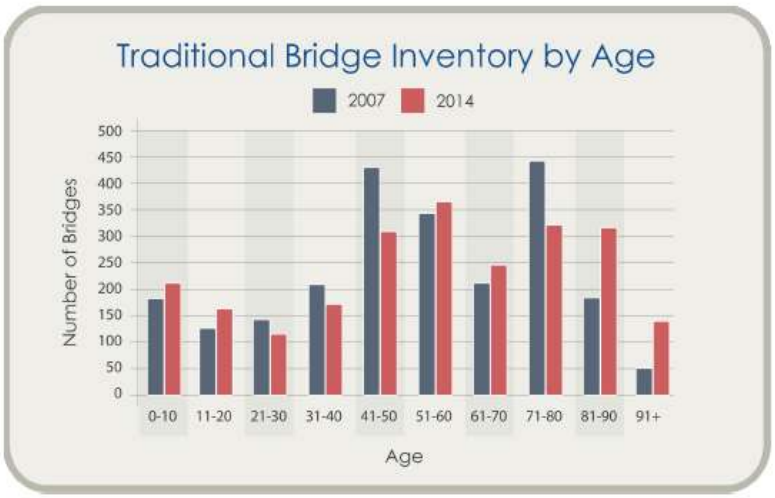
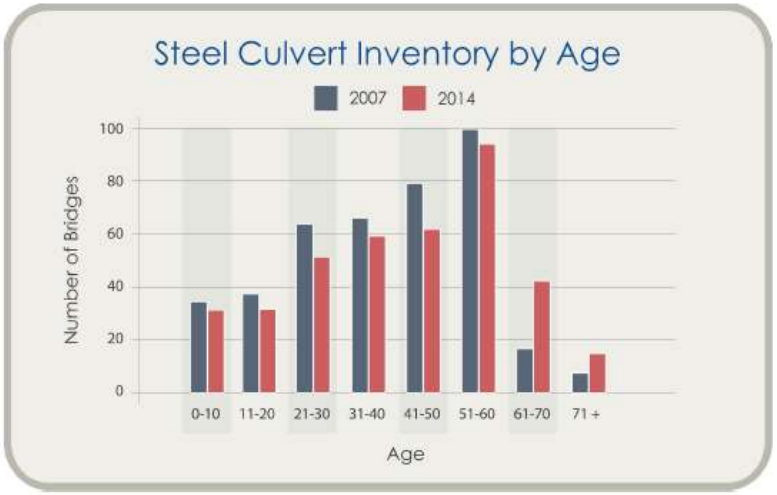
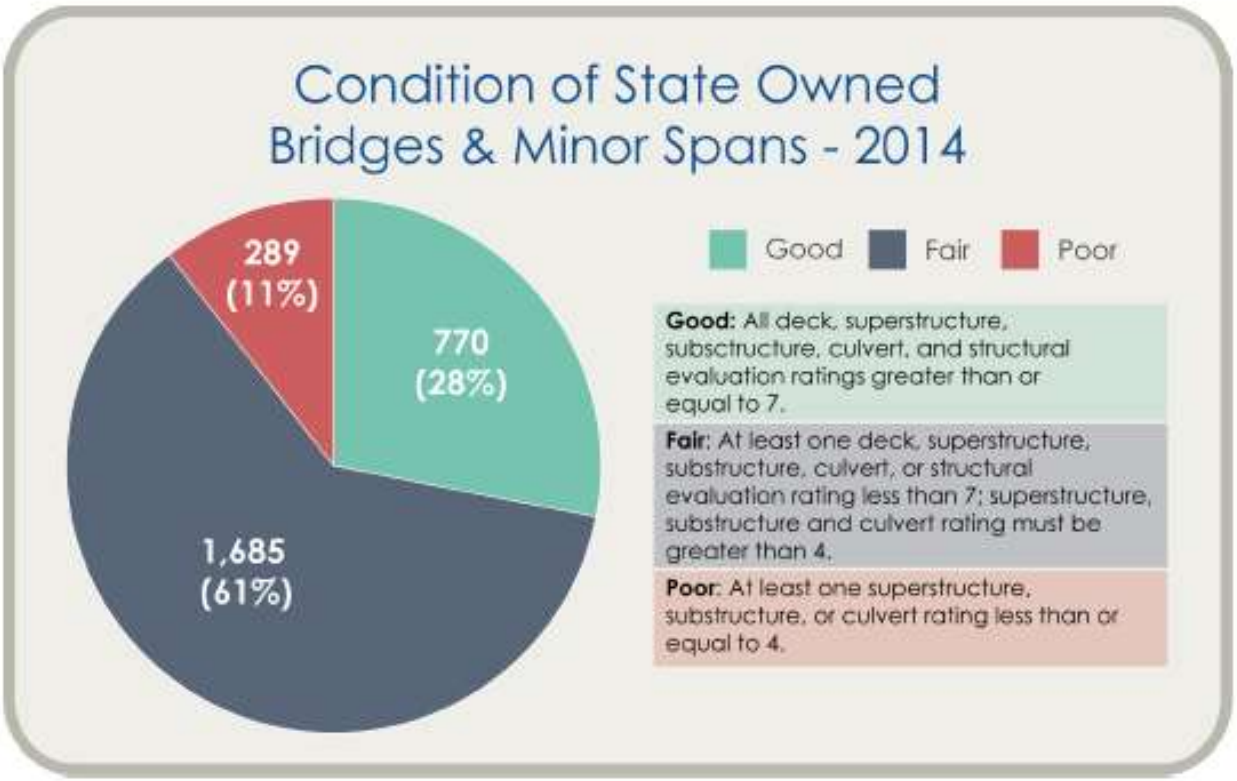


Chart 1



Bridge Condition



Bridge inspection

MaineDOT inspects all bridges and minor spans on public ways at least once every 24 months in accordance with National Bridge Inspection Standards (NBIS)

- Inspections are reported annually to FHWA
- Data used to determine the safe load capacity of our bridges and candidates for MaineDOT's capital and maintenance work

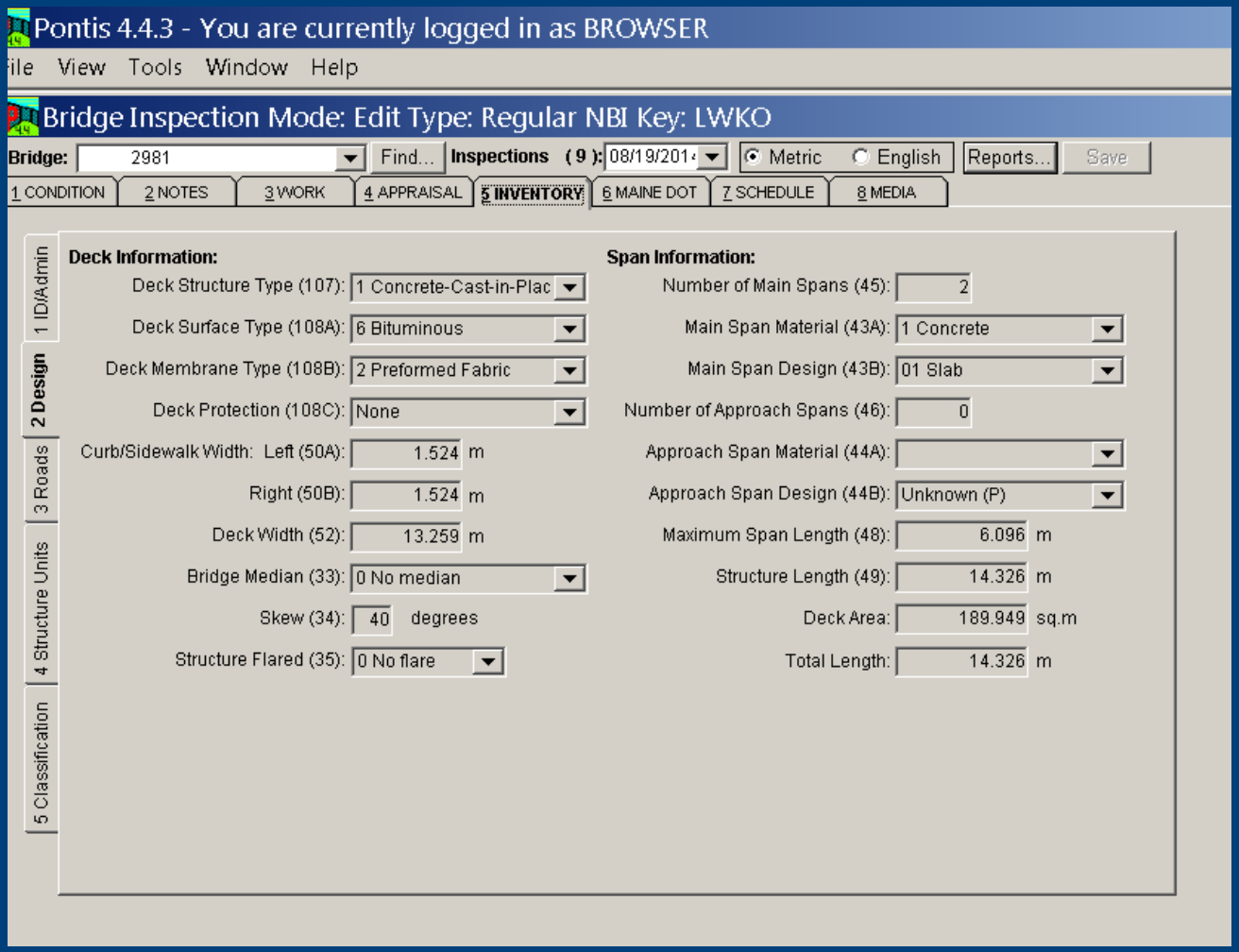
National Bridge Inspection Standards (NBIS)

- Federal regulations establishing requirements for:
  - Inspection Procedures
  - Frequency of Inspections
  - Qualifications of Personnel
  - Inspection Reports

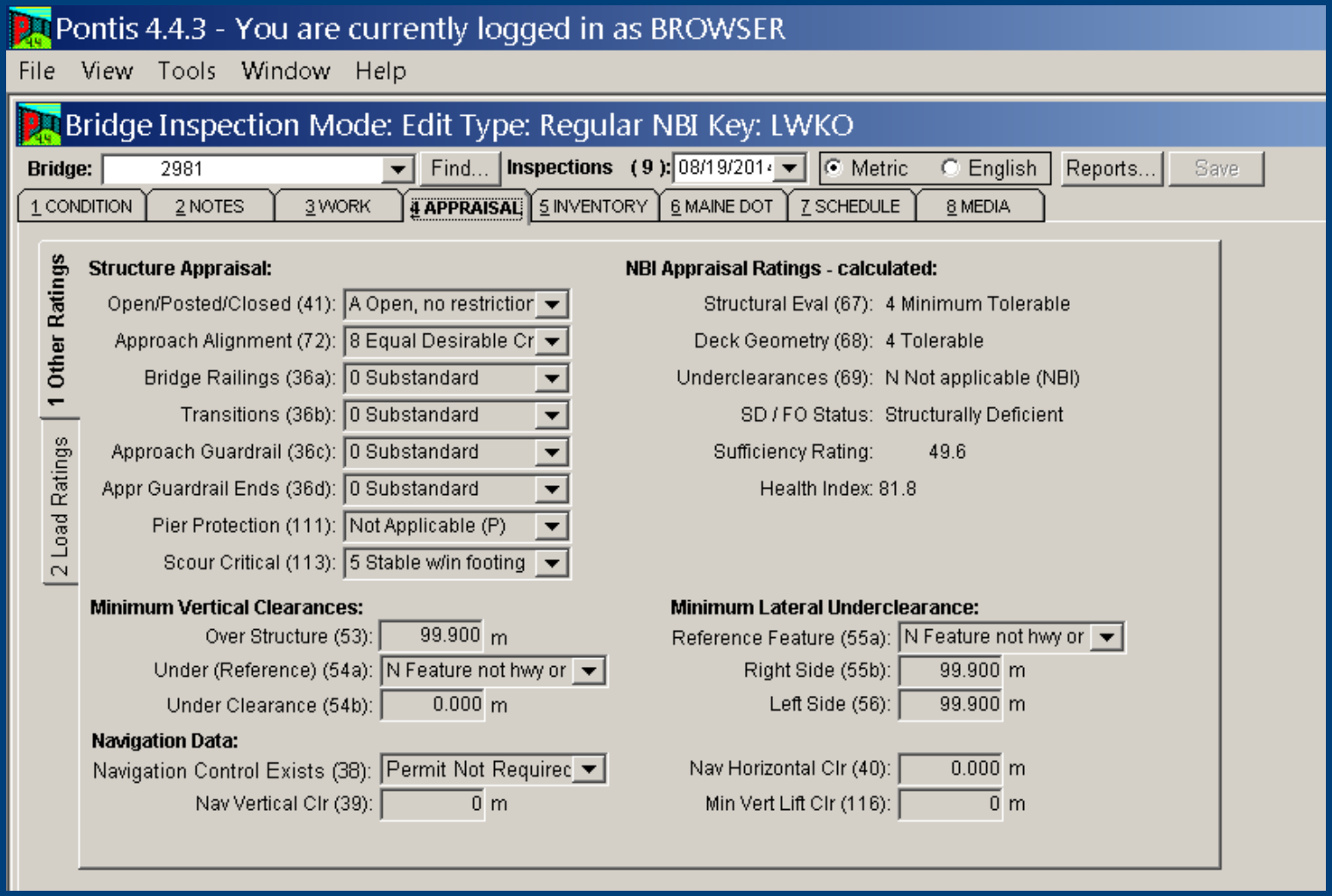
First established in the 1971 as a result of the collapse of the 2,235 foot Silver Bridge, at Point Pleasant, West Virginia

Types and Frequency of Inspections

- Initial (Inventory) – The first inspection of a new bridge or an existing bridge after a major rehabilitation
- Routine – Regularly scheduled inspections to determine the physical and functional condition of the bridge (not to exceed every 24 months)
- Damage – unscheduled inspection to assess structural damage (as needed)
- In-Depth – A close up, hands-on inspection to identify deficiencies not readily detectable using Routine Inspection (as needed)
- Special – Used to monitor known or suspected deficiencies such as settlement, scour or fatigue (typically 6 to 12 months)

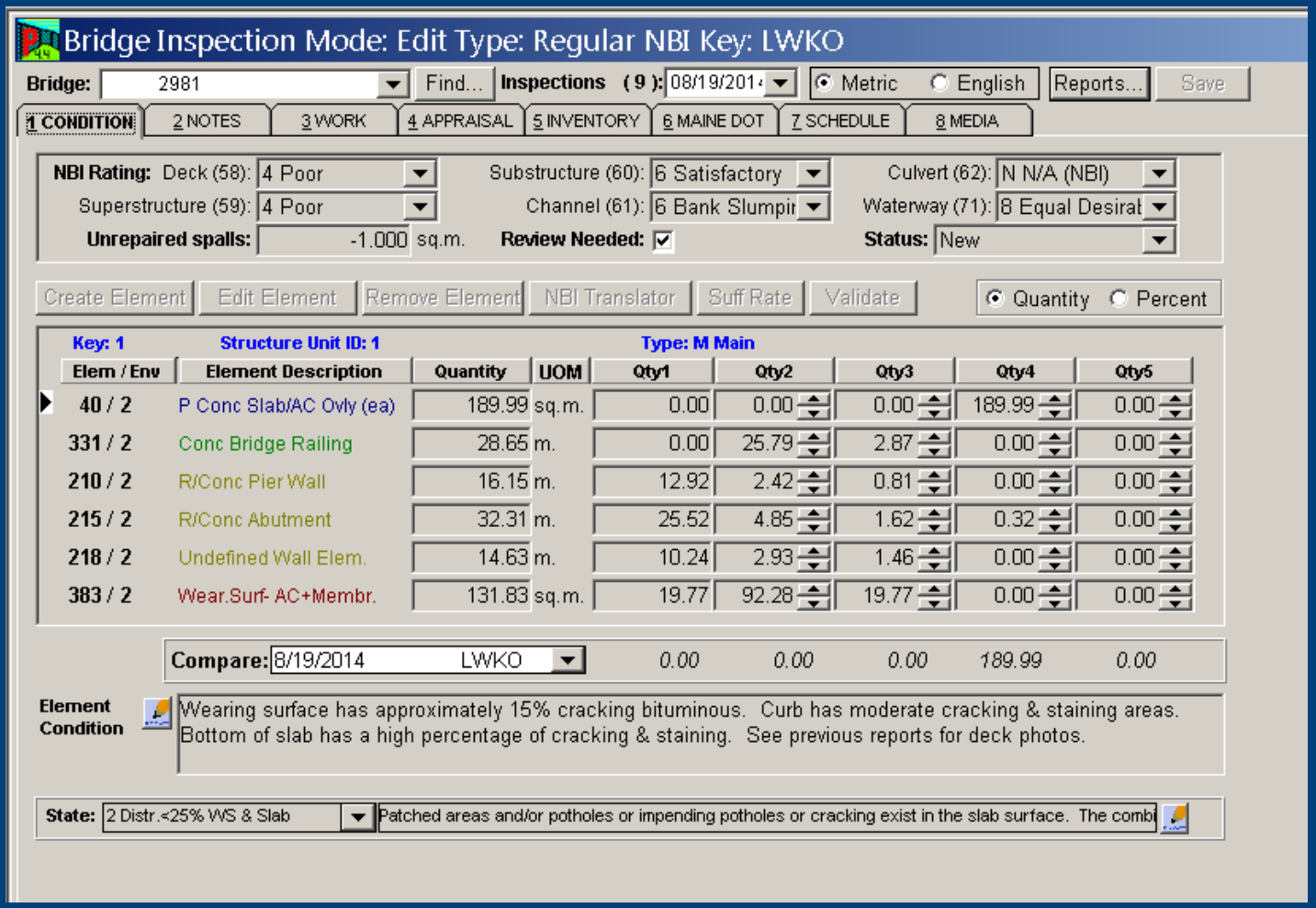


Inventory Items – bridge characteristics such as location, structure type, measurements, age, inspection dates, etc.



Appraisal Ratings – rating of a bridge components adequacy

Examples – under clearance, waterway adequacy, geometry



Condition Ratings – Assigns a good, fair, or poor rating to major bridge elements such as the deck, superstructure, substructure, channel or culverts

Roadway looking South

Wearing Surface

Upstream end

Downstream end

2981	Camden	Bakery	4-26-13

Bridge Management
Data Driven Asset Management

Bridge Management is responsible for analyzing available bridge data to:

- Select and prioritize Work Plan candidates
- Long term asset planning

http://www.maine.gov/mdot/about/assets/hwy/

Bridge Management

- Starts with Agency Collected Inspection Data
- Deighton dTIMS Bridge Management software
- Analysis focuses on condition of:
  - Condition Ratings
  - Appraisal ratings
  - Corridor Priority
  - Customer Service Level

Asset Management

- Highway Prioritization & Customer Service Levels
- Glossary
- Search Map by Town
- Documents

MaineDOT Asset Management - Highways

Below is MaineDOT's methodology to provide a fair, structured framework to prioritize programs and projects. There are two parts - the *Highway Corridor Priority (HCP)*, and the *Customer Service Level (CSL).*

See the glossary for the descriptions of each level in the priorities.

This data is available for viewing in the MaineDOT Map Viewer. Go to our "Search Map by Town" page to view maps by town.

Highway Corridor Priority (HCP) | **Customer Service Level (CSL)** | **CSL Mileage Summary**

Customer Service Level (CSL)

The second part of the method is determining the Customer Service Level (CSL) that measures MaineDOT managed highway assets (Priority 1-5) in three areas. The CSL uses customer-focused engineering measures to track highway (1) Safety, (2) Condition and (3) Serviceability, and grades them similar to a report card (A – F). The information below lists the individual measures that make up the overall service level grade. To view this data in our map viewer, click on a header below.

Safety

Crash History

Pavement Rutting

Paved Roadway Width

Bridge Reliability

Bridge Management

Typical Bridge scopes include:

- Culvert Rehab and Culvert Replacement
- Bridge Rehab and Bridge Replace
- Deck Rehab and Deck Replace
- Substructure Replacement
- Superstructure Replacement
- Joint Repair and Replace
- Paint Replace
- Wearing Surface Repair and Wearing Surface Replace
- Scour Countermeasures

dTIMS can also be used to determine long term funding levels needed to keep our bridge inventory in a state of good repair

MaineDOT

Work Plan

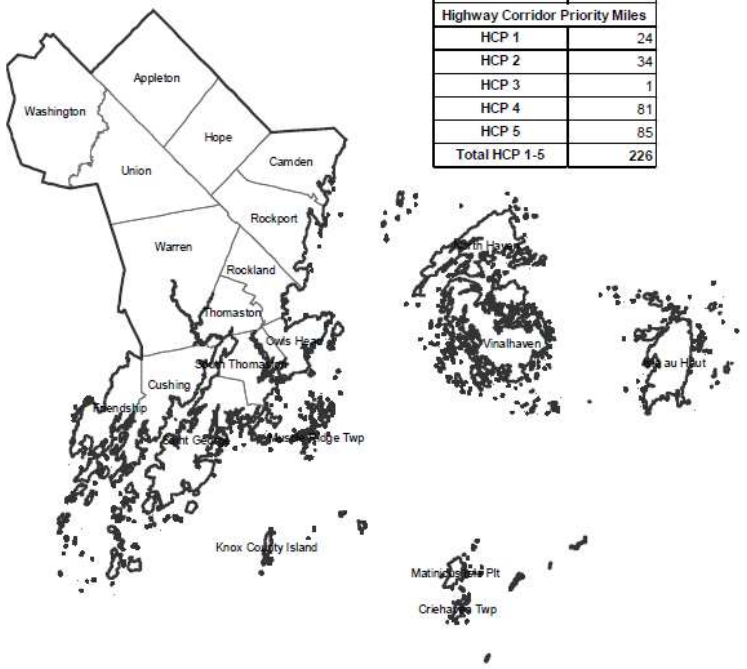
Calendar Years 2016-2017-2018

January 2016

Work Plan Development

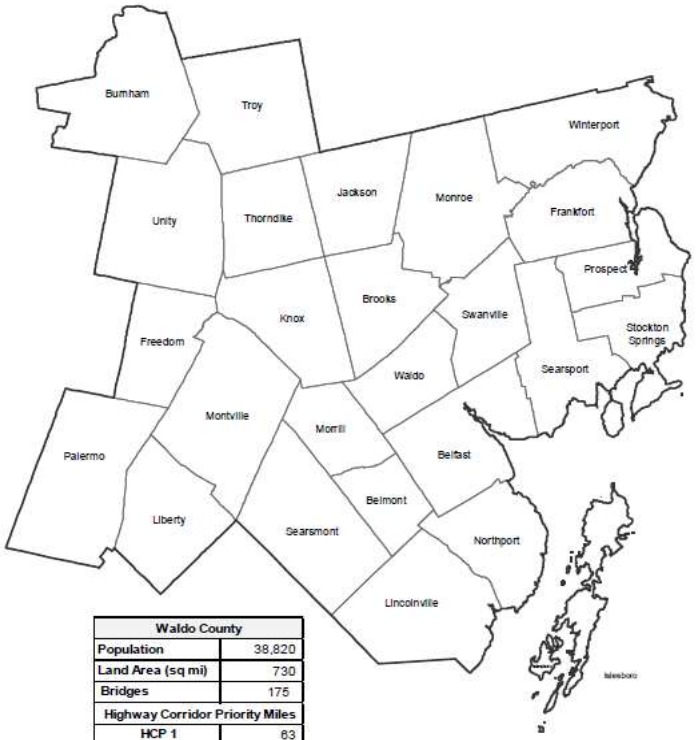
- 3 Year plan
- The final prioritization of projects for the Work Plan is done by the Bridge Committee
- Office and field reviews are conducted throughout the year to further refine candidate list
- Committee also reviews funding and scope for the first two years

Knox



Knox County	
Population	39,668
Land Area (sq mi)	365
Bridges	90
Highway Corridor Priority Miles	
HCP 1	24
HCP 2	34
HCP 3	1
HCP 4	81
HCP 5	85
Total HCP 1-5	226

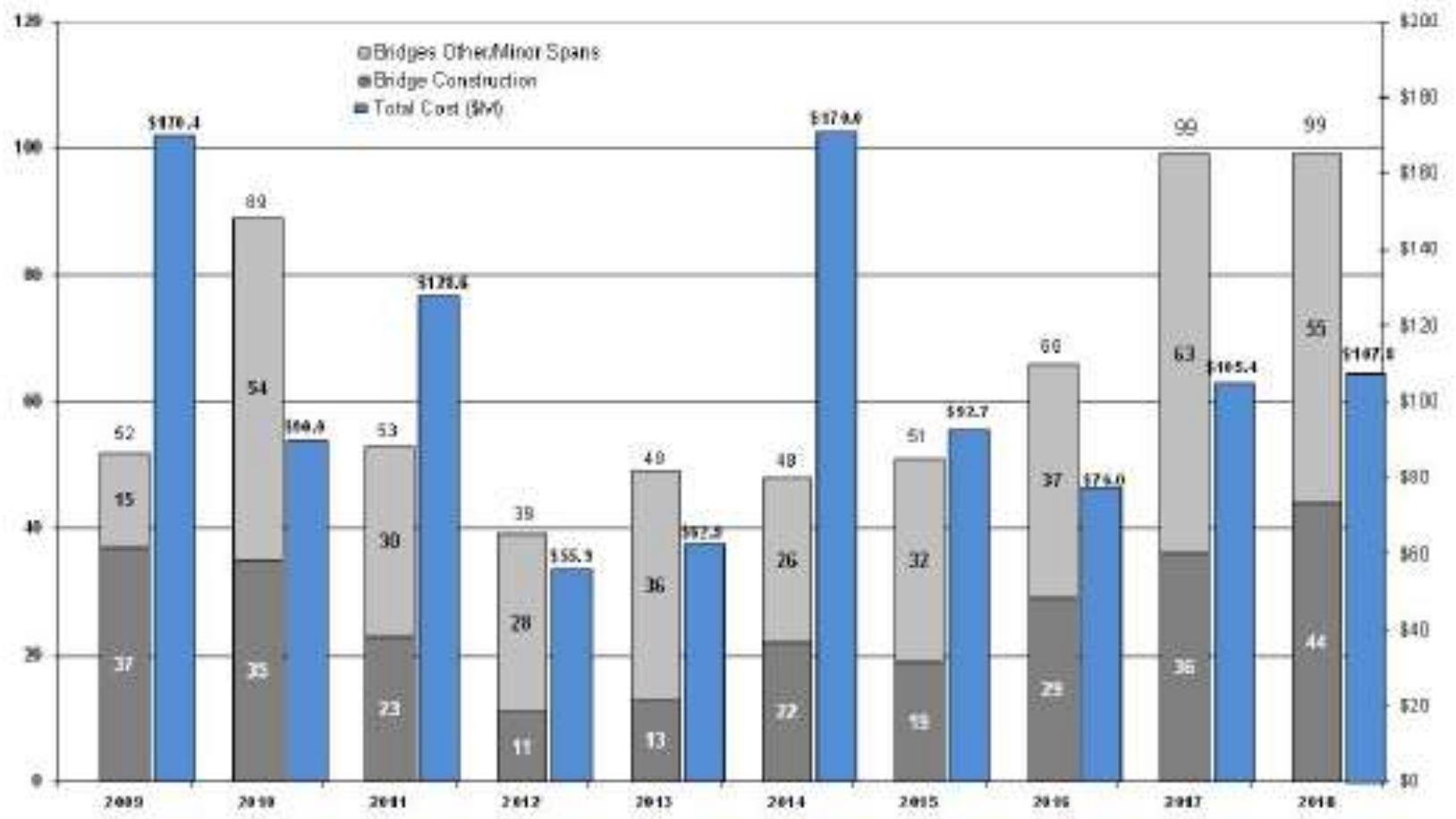
Waldo



Waldo County	
Population	38,820
Land Area (sq mi)	730
Bridges	175
Highway Corridor Priority Miles	
HCP 1	63
HCP 2	16
HCP 3	58
HCP 4	114
HCP 5	120
Total HCP 1-5	372

http://www.maine.gov/mdot/projects/workplan/docs/2016/MaineDOTWorkPlan2016_2017_2018.pdf

Bridge Projects by Calendar Year



Funding, Resource Assumptions and Resource Allocation

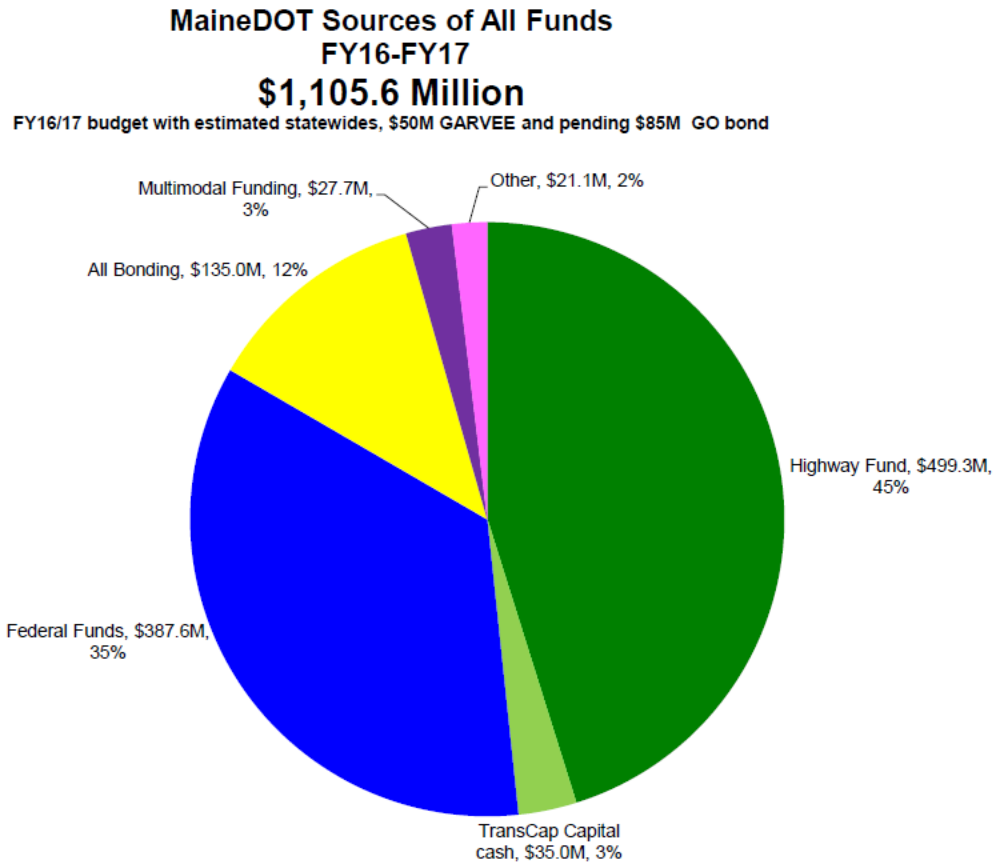
Funding

Development of the *Work Plan* requires that the funding that is available to support the work described first be identified and categorized according to eligibility. The major funding sources that combine to provide the financial resources that support the *Work Plan* include:

- Federal Highway Administration (FHWA) Formula Funds
- Federal Transit Administration (FTA) Formula Funds
- Federal Aviation Administration (FAA) Formula and Entitlement Funds
- USDOT TIGER and Other Federal Competitive Grant Programs
- Federal Highway Administration Grant Anticipation Revenue (GARVEE) Bonds
- State Highway Fund
- State TransCap Revenue Account
- State Multimodal Transportation Accounts
- State General Obligation Bonding
- Funds Transferred from Other State Agencies
- Municipal and Private Funds

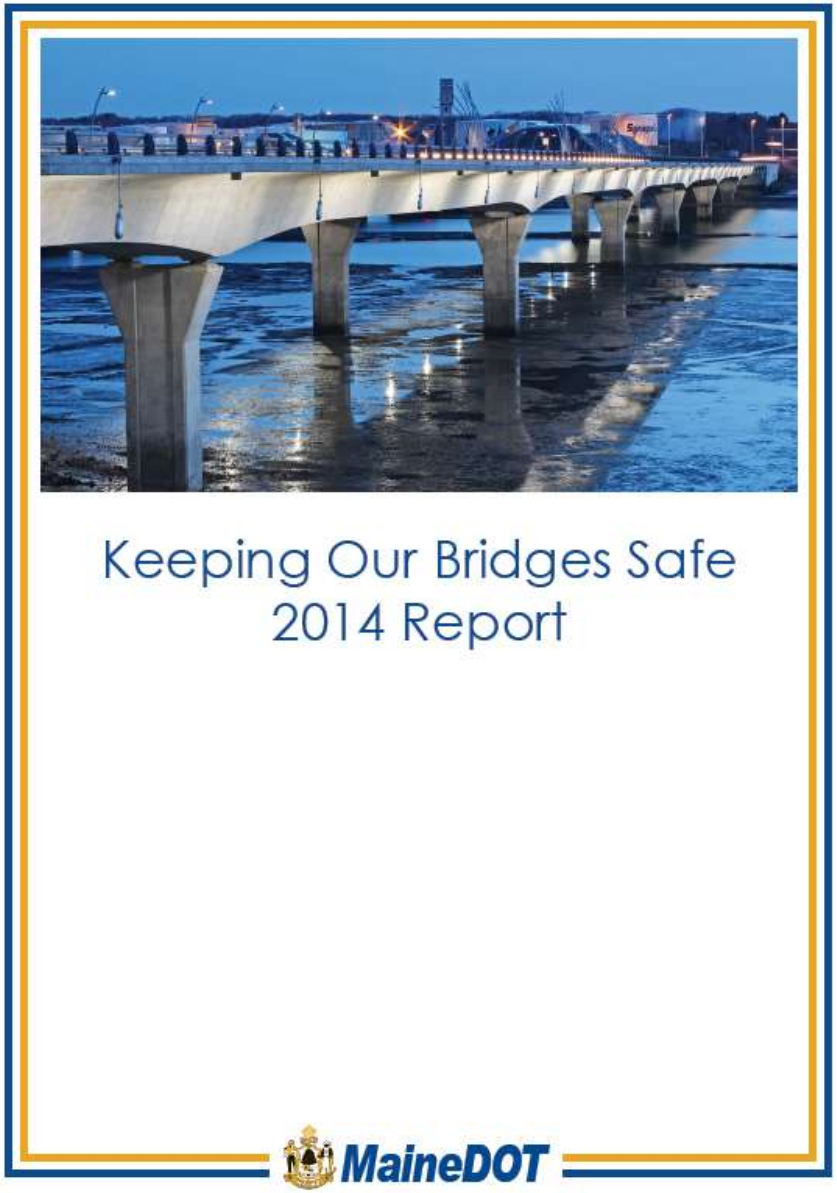
These funding sources must generally be directed to specific uses, with some restrictions:

- FHWA dollars must be used on federally eligible highway and bridge projects and programs, allocated by category (e.g., the National Highway System and bridges, Surface Transportation Program (STP), and Highway Safety Improvement Program.)
- FTA dollars can be used on federally eligible buses and bus facilities, certain ferry systems, passenger rail and transit operations.
- FAA dollars must be used for federally eligible projects on Maine's public airports.
- State Highway Fund dollars must be used to support the highway and bridge system, and cannot be used to support non-highway-and-bridge needs.
- State General Obligation Bond funding must be used on capital projects and is often directed to specific uses.
- Legislative requirements exist for certain uses (e.g., Local Road Assistance Program.)


MaineDOT Sources of All Funds
FY16-FY17
$1,105.6 Million
FY16/17 budget with estimated statewides, $50M GARVEE and pending $85M GO bond
Multimodal Funding, $27.7M, 3%
Other, $21.1M, 2%
All Bonding, $135.0M, 12%
Highway Fund, $499.3M, 45%
Federal Funds, $387.6M, 35%
TransCap Capital cash, $35.0M, 3%

Funding

1. TIGER Grants (Transportation Investment Generating Economic Recovery)
   - Three bridge projects for approximately $30M
2. Federal Funding
   - Reauthorization of the federal surface transportation programs (the FAST Act) has a modest increase in federal funding
3. State Funding
   - $100M in general Obligation bonding for CY2017 has been approved to voters in November



- Report on progress since 2007 report (scour, improved inspections, load rating & posting)
- Define current status of our bridges
- Establish strategies to improve overall condition of bridges
- Find opportunities to impact cost
- Identify funding needs

2007 KOBS resulted in increased bridge funding from roughly $70M to $110M over a four year period

http://www.maine.gov/mdot/pdf/kobs2014.pdf

KOBS Report 2014

- Status of bridges 2007-2014
  - # bridges older than the average (70 yrs) increased by 4%
  - Condition
    - 2% increase in good condition bridges
    - 4% decrease in fair bridges
    - 2% increase in poor bridges
- 2014 KOBS focuses on extending the life of our bridges through timely preservation and designing new bridges for longer life through quality designs, construction and materials
- Recommends a funding level of $140M per year to improve poor bridges and preserve fair and good bridges