BRIDGE PROGRAM EXPANSION

April, 2010

How Many Bridges Do We Maintain?

Statewide 17,300 Total Structures

Bridges – 12,600

Floating barge w/Bridge

Culverts

Pipes

What makes a Deficient bridge Deficient?

Deficient Bridge Definition

- A Bridge that is either:
  - Functionally Obsolete (Vertical or Horizontal) or
  - Structurally Deficient (Load Capacity)

How is the current bridge investment strategy working?

Program Status at a Glance

- Deficient bridges growing an alarming rate
  - 200 bridges becoming deficient annually
  - 100 bridges replaced annually
- Based upon the current investment approach, will have over 8000 deficient bridges within 20 years
- Over 4,000 bridges with **Timber Substructure** 40-60 years old, end of useful life

How can the program be improved without spending more money?

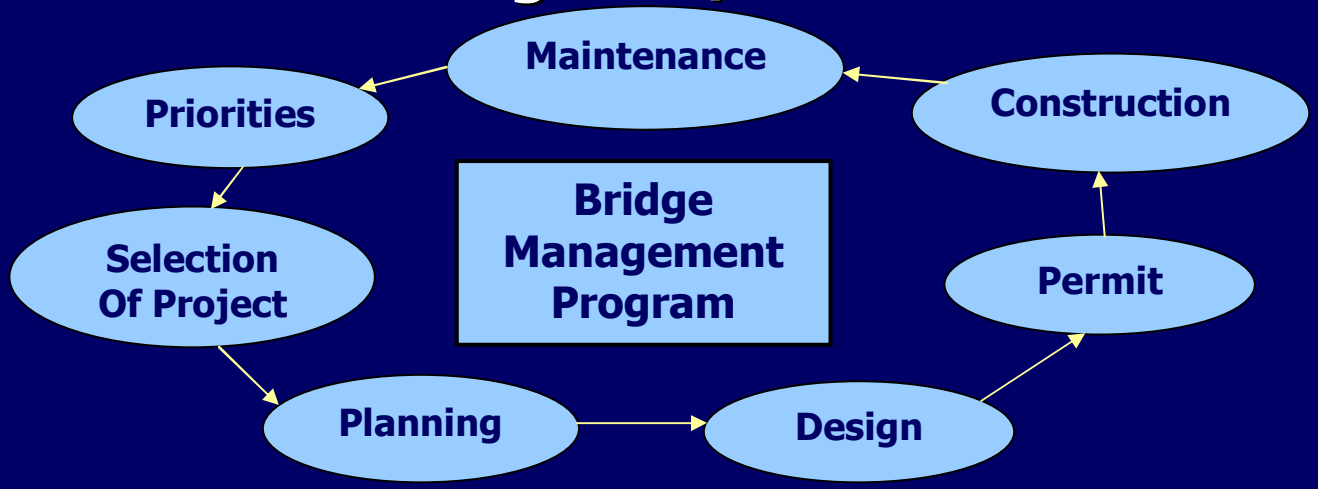
Optimize the Investment

"Keep Good Bridges Good" with a Mix of Fixes

- Maintenance
  - Routine & Corrective
- Preservation
  - Extend Service Life
- Rehabilitation
  - Restore to Current Design Standards
- Replacement
  - Useful Life Exceeded

Improve the Process

New Bridge Program
One Owner with Regional/Division Coordination



- Bridge Management – accountable for entire program
- Division Engineers are accountable for bridges in the Division
- Regional Team Approach - better efficiency and accountability
- On-site scoping minimizes alternatives, saving time and money
- Budget Based Design and Construction - spending accountability
- Reduced Design time frames
- Improved project selection process – bridge priorities consider all factors
- Tiered Design Standards - right size bridge for route (est. 25% savings)
- Division Managed Bridges

STP BRIDGE PROJECT SELECTION

- State Bridge Management Unit (SBMU) prioritizes candidates by deficiency points and sends to Divisions
- Divisions review prioritized lists, choose candidates and returns list to SBMU
- Program Management Unit, PDEA and SBMU combine SBMU priorities list and Division lists into one final candidate list.
- Final candidate list returned to Divisions for comments on final list
- Division and SBMU negotiate any changes to final list
- Final candidate list sent to Program Management Unit to incorporate into new/updated STIP

DEFICIENCY POINT CALCULATION

DP = CP + WP + VP + LP

- **CP = Capacity Priority**
  - Posting needed for functional classification
  - ADT
  - Detour length
    - **User cost to avoid low posted bridges**
- **WP = Clear Deck Width Priority**
  - ADT
  - Width required for functional classification
  - Existing width
  - Accident costs due to narrow lanes
- **VP = Vertical Roadway under/over Clearance Priority**
  - ADT
  - Vertical Clearance required for functional classification
  - User costs to avoid problem clearances
- **LP = Remaining Life Priority**
  - General Bridge Condition

SUFFICIENCY RATING CALCULATION (SR)

SR = S1 + S2 + S3 –S4

- S1 = Structural Adequacy and Safety
  - Condition grades for Superstructure and Substructure
- S2 = Serviceability and Functional Obsolescence
  - ADT
  - Approach roadway width
  - Deck clear width
  - Deck condition grade
  - Vertical clearances
- S3 = Essentiality for Public Use
  - ADT
  - Detour Length
- S4 = Special Deductions
  - Detour Length
  - Traffic Safety features
    - Bridge Rail and Approach guardrail

Project Selection

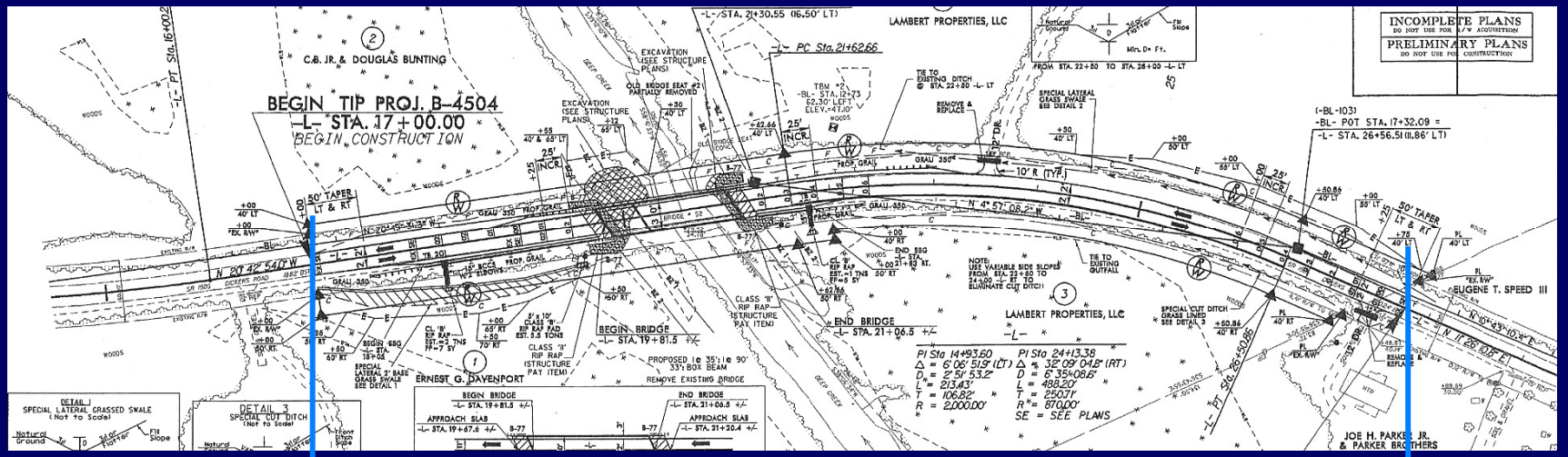
- Bridge Management Prioritization
  - Utilizes Bridge Management System
  - Replacements Chosen by Deficiency Points
- Division Prioritization
  - Established by Deficiency Points
  - Safety and Mobility
  - Maintenance Costs

Division Managed Projects

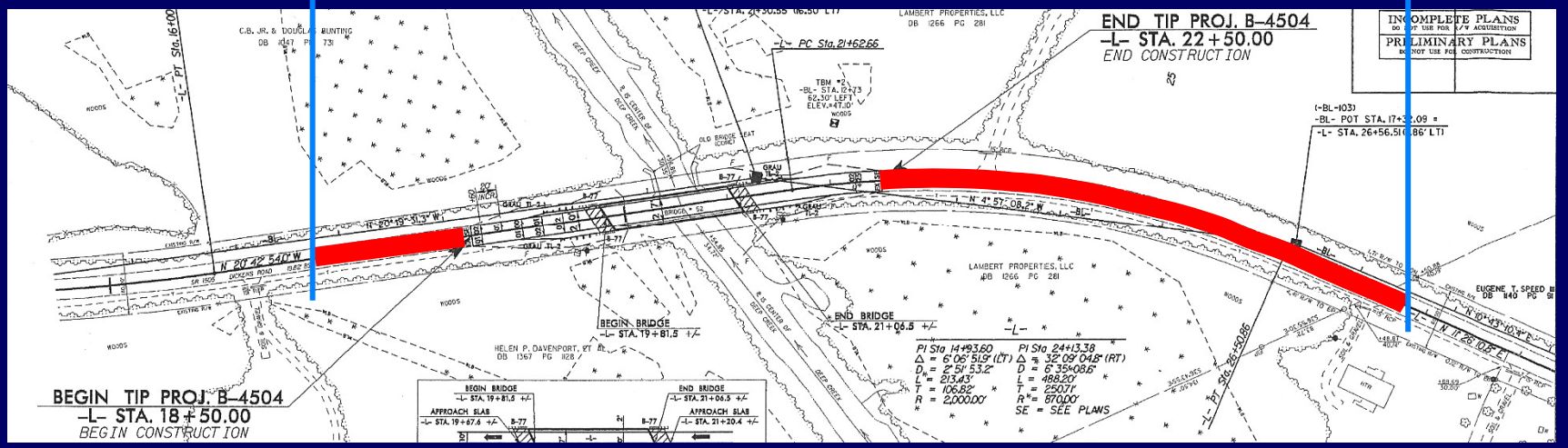
- Simple Replacement Design assisted with PEF
  - Off Site Detours
  - Limited FEMA studies
  - Construction less than $1.2M
  - No major utility or RW impacts
  - No or Minimal Environmental Studies
- Central Review of Critical Items (Preconstruction Units)
  - Hydraulics
  - Structures
  - Geotechnical

New Process – Tier Design

Old Standard



New Standard



What is our current investment in the bridge program?

Current Bridge Funding

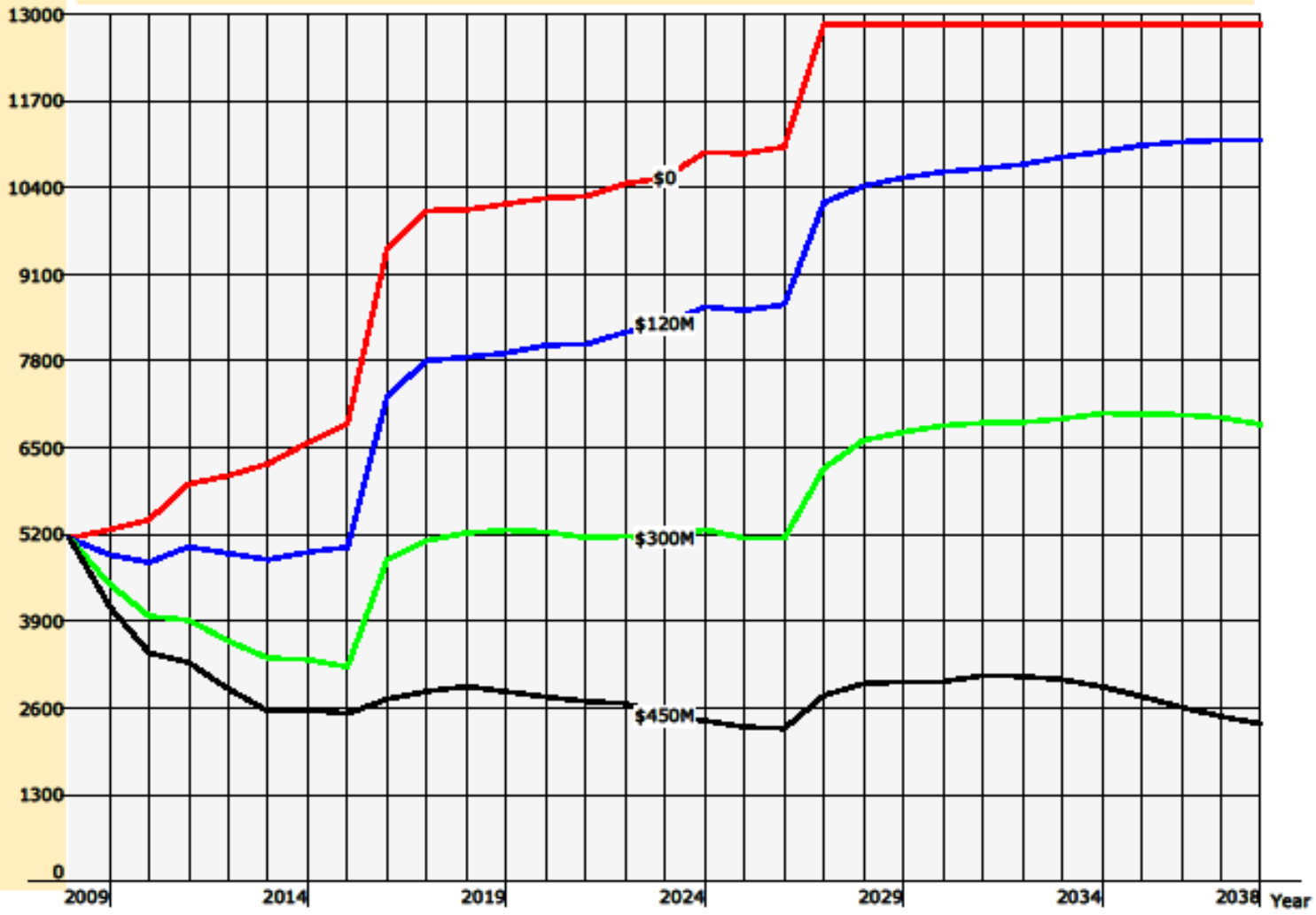
- Replacement Spending (Avg./yr next 5 yrs.) $158 M
  5-year Work Program – 284 bridges
  (includes Bonner, w/o Bonner $98 M avg./yr.)

- Preservation Program $5 M

What amount of investment improves the situation?

FEDERAL HIGHWAY ADMINISTRATION
BRIDGE INVESTMENT ALLOCATION SYSTEM

Multiple Budgets of structurally deficient and functionally obsolete bridges



All Bridges; on and off NHS

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Proposed Funding Adjustment

- Increase TIP fund investment to $300
  - Graduated approach, $120, $200, $300, yrs 2011, 2015, 2019
- Division Managed Bridge Replacements
  - Graduated approach $28, $56, $70 yrs 2011, 2017, 2020
  - Begin 2-3 bridges/Division yr 2010 increase to 3-5 yr 2016
- Review investment results each year with analysis tool

Questions?