Race Against Time

Strategies to Maintain California’s Locally Owned Bridges

2019 Public Works Officers Institute & Expo - April 5, 2019 - San Diego, California
Introduction

SESSION OBJECTIVES

1) Raise awareness of the fact that our local bridge inventory is deteriorating faster than we can take care of it

2) The federal HBP is not a big enough program to address local bridge needs

3) Encourage investment in the local bridge inventory outside of the federal HBP with simple projects.
...all joints leak, all concrete cracks, and rust never sleeps. We will strive to capitalize
our way out of maintenance and maintain our way out of capital. It is our endeavor
to educate others that a bridge is as important to a highway as a diamond is to a ring.

-New York State Bridge Maintenance Credo
Introduction

PART 1 – THE PROBLEM
Speaker - Robert Newman, City of Santa Clarita
Local HBP Financial Update
Speaker - Max Katt, Quincy Engineering
Local Streets & Roads Needs Assessment - Bridge

PART 2 – SOLUTIONS TO THE PROBLEM
Speaker - Chris Sneddon, Santa Barbara County
Speaker - Matt Randall, Placer County
Update on new HBP Policies
BIC Goals, Examples, & Asset Management

PART 3 – Q&A WITH PANEL MEMBERS
Part 1 - The Problem

Local Bridges Are Deteriorating Faster Than We Can Replace & Fix Them
LOCAL HBP FINANCIAL UPDATE

Program Financial Policy Recap:

Funding Levels of Local HBP:

$294M / year

$219M - On System

$75M - Off System

Annual Needs: $600M-$1,200M / year

Without increased local funding investment…

…current Rate Requires 200-year life-cycle
LOCAL HBP FINANCIAL UPDATE

Program Financial Policy Recap (continued)

Pre-2010
- Difficulty Delivering HBP OA & Apportionment
- Open Ended Programming for HBP Eligible Projects
- Off-System Waivers Needed Annually for Poor HBP Off-System Delivery
- Toll-Credits Implemented for 100% Funding for Off-System HBP (2010)

Goal: Improve Overall HBP Delivery (Especially the Off-System Program)

2011-2015
- HBP Delivery Improvement Realized (100%+ OA Delivery)
- Add-Ons & High-Cost Projects “Acceptable”

2016
- HBP Program Commitment Maximum @ 20+Years of Projects
- “Functionally Obsolete” Flag Eliminated with Corresponding Eligibility

2017
- Developed Conceptual Prioritization Policy to Reduce HBP Backlog

2018
- Implemented Project Prioritization
LOCAL HBP FINANCIAL UPDATE

Prioritization Implemented in 2018
LOCAL HBP FINANCIAL UPDATE

Prioritization Implemented in 2018

On-system List:
82 projects for $180 million accepted
36 projects for $157 million not programmed

Off-system List:
19 projects for $54.6 million accepted
47 projects for $108.2 million not programmed

83 projects for $265 million total unmet needs
LOCAL HBP FINANCIAL UPDATE

HBP Program Commitment Update

Goal: Reduce Program Backlog to 15-Years

<table>
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<th>2018</th>
<th>2019</th>
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<td>On-System Commitment:</td>
<td>$3.6B</td>
<td>$3.6B</td>
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<td>Off-System Commitment:</td>
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<td>$1.1B (18.2 Years)</td>
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- Making progress but the HBP is still over-committed
- Road-blocks include cost-increases and “add-ons”
- New program policies explained later
- Significant Amount of Unfunded Needs
LOCAL STREETS & ROADS NEEDS ASSESSMENT - BRIDGES

Present Needs Condition Assessment

• Analysis based on local agency NBI data
  Data Accuracy

• Work items assigned by Condition Ratings
  Performance Measures. SD = “Poor”

• Dollar Costs assigned by Work Items
  Comparative Bridge Costs. Cost Inflation

• Present Needs used to predict Annual Needs
  National Bridge Investment Analysis System
LOCAL STREETS & ROADS NEEDS ASSESSMENT - BRIDGES

Work Items by SR, Classification, Condition State

If (SR \leq 50) \& (Bridge is SD or FO)

Bridge qualifies to be **Replaced**

Run Replacement Routine (See Replacement Flowchart)

Does the bridge require Deck Rehabilitation or Deck Replacement?

Does the bridge require Widening?

Does the bridge require Strengthen?

Does the bridge require Seismic Retrofit?

If (50 < SR \leq 80) \& (Bridge is SD or FO)

Bridge qualifies to be **Rehabilitated**

Run Rehabilitation Subroutine (See Rehabilitation Flowchart)

Legend:

FO = Functionally Obsolete
HWY = Highway
Ped = Pedestrian
RR = Rail Road
SD = Structurally Deficient
Struc. = Structure
LOCAL STREETS & ROADS NEEDS ASSESSMENT - BRIDGES

Costs for Replace, Rehab, Strengthen, Widen, Seismic

Construction, Preliminary Engineering, Environmental, ROW, Utilities, Permits Construction Engineering, Restoration

Caltrans Construction Cost Index

Year

LOCAL STREETS & ROADS NEEDS ASSESSMENT - BRIDGES

2018 Present Needs Cost

$4.9 Billion "Total Needs"
10-Year Annual Projection (NBIAS)

Local Streets & Roads Needs Assessment - Bridges

Bridge Investment Needs by Annual Budget

~$500 - $600 MM/Year
LOCAL STREETS & ROADS NEEDS ASSESSMENT - BRIDGES

10-Year Annual Projection (NBIAS)

Average Sufficiency Rating by Annual Budget

Percent Poor by Annual Budget

~$600 MM/Year
LOCAL STREETS & ROADS NEEDS ASSESSMENT - BRIDGES

Bridge Needs Takeaways

• Cost Numbers vary based on methods and assumptions

  California LA Bridge Needs
  $62,747,906,054 Total Funds for 100 years for Local Agency Bridges.
  $627,479,061 Total Annual Funds for Local Agency Bridges.

• A large percentage of the Inventory is coming due for replacement

• It is more costly to replace a bridge now compared to original construction
SUMMARY OF “THE PROBLEM”

- California’s Local Bridges are deteriorating faster than we are fixing or replacing them
- Reliance on the HBP
  - HBP doesn’t provide enough funding for all local bridge needs
  - HBP is still overcommitted
  - Local Agencies are requesting more HBP funding than the available

Discussion Questions:

1) Approximately what portion of local funding goes to bridge investment?
2) What’s keeping your agency from investing in bridge assets?
PART 2 - THE SOLUTION
Broden Investment In Local Bridge Assets
NEW HBP POLICIES

DLA-OB 19-01 Project Delivery Policy

“Meters” Projects Into Program

Delivery Failure Penalties without Communication by February 1st

No New Projects for Agencies...

- w/PE>10-Years w/o ROW Authorization
- w/ROW>5-Years w/o ROW Certification

Exceptions will be granted with status report

- Example – Historic Bridges

Solution to Over-Committed Program and Delayed Project Delivery
NEW HBP POLICIES

FHWA Policy Improvements

Result of Federal Audit of California HBP

Call for updated current & future ADT

Long Approach Limits to 10% Structure Cost

Clarifications required for non-participating bid items

Clearer policies for new bridge width eligibility

Solution to help focus HBP funding on bridge needs

FHWA proposed HBP Policy Improvements
Attachment to August 16, 2016 FHWA Letter – Areas to Improve Based on this Review

Review Findings and Improvement Recommendations:

1. Average Daily Traffic (ADT) and Future ADT
   - ISSUE: ADT and Future ADT need to be current for the National Bridge Inventory and bridge replacement program documentation. ADT values submitted on the T-C project application paperwork was found to be filled in with arbitrary values and dates. (Additional Note: ADT will not be an item in the future NBI. ADT will be submitted annually by Roadway Owners to HPMS which will be used when examining bridge program needs.)
   - SOLUTIONS: The Future/Design ADT is 20 years from the construction date. To determine the Design ADT, the current ADT is measured and used with appropriate growth factors to calculate the 20-year Future/Design ADT. Recommend not requiring submission ADT values on T-C forms and strengthen language to ensure 20-year Design ADT is used in bridge replacement design.

2. Approach Roadway length
   - ISSUE: Approach Roadway length needs to be minimized for bridge replacement projects. Currently, approach roadway lengths are set at total lengths of 200 feet for Off FAS and 400 feet for On FAS bridge projects. Longer approach lengths must be approved by DLA.
   - SOLUTIONS: Improve language to limit the approach roadway length to that of “10 percent of the bridge construction costs” or high cost bridge replacements, limit from pavement seat to pavement seat.

3. Bridge Project Item eligibility for Federal-aid reimbursement
   - ISSUE: Some Bridge Project items are not easily determined by others for reimbursement. Some items, if not included in the Local Agency Program Guidance, may not be reimbursable.
   - SOLUTIONS: Tabulate bridge project items as participatory and non-participatory for Federal-aid reimbursement. Some will by case and must be approved by Caltrans (DLA). Tabulate what items are eligible and not eligible for Federal-aid in bridge project contract documents.

4. Widths of bridge project lanes and shoulders
   - ISSUE: At times the width of a bridge is being built wider than that determined using AASHTO criteria.
   - SOLUTION: AASHTO widths must be determined upon knowing the calculated Design ADT and the roadway classification. Documentation in the Local Agency Program Guidance (LAPG) must define eligible reimbursement widths so Local Agencies that have minimum standards exceeding AASHTO standards or desire to build wider lanes, medians, shoulders, bicycle lanes, and/or sidewalks understand what will be at their expense and what is reimbursable. Any adjustments to accommodate wider bridge widths using Federal-aid funds must be approved by DLA.
NEW HBP POLICIES

High Cost Project Policy Changes

- Program is committed to fund $2.1 billion of High Cost Projects
- Available funding not sufficient to fund all needs
- Potential cash flow or additional metering requirements in future

Solution to help ensure HBP funding is available for a wide range of needs
NEW HBP POLICIES

Renewed Focus on Scour Critical Bridge Requirements

- Caltrans reports that POA’s are not being updated
- FHWA ER Funds not available if Scour POAs are not completed with documentation
- Scour projects are highest priority in FTIP funding and prioritization policies
- Don’t forget your Scour POA Commitments!

Solution to keep agencies accountable and help fund most important needs
NEW HBP POLICIES

Asset Management for Locally Owned NHS Bridges

- Caltrans Implementing California Transportation Asset Management Plan

- Percentage of local bridges very low

Solution to fund most important NHS needs

Question: Would it be helpful to implement Asset Management for local bridges? State-wide or on a Local Level?
PREVENTATIVE MAINTENANCE

Maintenance Similar to an Overlay that Anyone Can Complete

- Deck Treatment / Repair
- Joint Repair
- Barrier Repair
- BIC Eligible
**SIMPLE BRIDGE INVESTMENT CREDIT PLAN**

- Get BIC approved
- Perform work
- Final credit approval
- Use the credit

Generally applied to smaller maintenance projects
1) Use local funds for maintenance
2) Apply credit to a larger HBP project match
SIMPLE BRIDGE INVESTMENT CREDIT PLAN

EXAMPLE

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number: 51C0016
Facility Carried: JALANA ROAD
Location: 7.7 MI WEST OF SR 1
City: 
Inspection Date: 05/09/2017
Inspection Type: Routine FC Underwater Special Other

Bridge Inspection Report

WORK RECOMMENDATIONS

Red Date: 02/23/2010
Action: Deck-Methacrylate
Work By: LOCAL AGENCY
Status: PROPOSED

CONSTRUCTION SITE MANAGEMENT LS 1.0 $10.00 $10.00
PREPARE WATER POLLUTION CONTROL PROGRAM LS 1.0 $10.00 $10.00
TRAFFIC CONTROL SYSTEM LS 1.0 $15.00 $15.00
METHACRYLATE BRIDGE DECK SY 75.0 $1.00 $75.00

Total approved cost estimate $110.00

Approved cost $110

- Must be HBP eligible work
- Build to same standards
- Agreed upon credit max
## Engineering Estimate

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**Total Approved Cost Estimate:** $110.00

## Final Pay Invoice

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**Total Construct Cost:** $100.00

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**Simple Bridge Investment Credit Plan**

1. **Get BIC approved**
2. **Perform work**
3. **Final credit approval**
4. **Use the credit**

**Agreed to max credit: $110**

**Scenario A:** Actual cost < $110 → **BIC credit: $100**

**Scenario B:** Actual cost > $110 → **BIC credit: $110**
SIMPLE BRIDGE INVESTMENT CREDIT PLAN

EXAMPLE

Get BIC approved  Perform work  Final credit approval  Use the credit

Bridge Replacement → $1,000 project

HBP (88.5%) → $885

BIC Credit → $100

Local Match → $15

Local Match Reduced by 87%
FUTURE POLICY IDEAS

Funding Ideas

• State for Federal HBP Swap
• Terminate Toll-Credit Match for Off-System Bridges
• Project Funding Cap

Organizational or Management Ideas

• Implement Local Bridge Asset Management
• Revisions to Eligibility Requirements
• Expansion of Bridge Investment Credit
• Maintenance Crew Training

Changes to Existing Policy or Feedback on Recent Changes
THANK YOU Q&A