Indiana Department of Transportation (INDOT) Program Development Division.

Bridge Management Process
Purdue Road School
March 30, 2005

INDOT, Bridge Management Process
“Major Functions”

INDOT Bridge Management process is an ongoing series of activities that includes but not limited to the following tasks:

1- Develop, Maintain & Operate the Indiana Bridge Management System (IBMS) software.

2- Bridge Improvement Projects.

3- Monitoring Bridge Projects.

4- Bridge Preventive Maintenance Program.
INDOT, Bridge Management Process Cont’d

1- Develop, Maintain & Operate the Indiana Bridge Management System (IBMS).

- Developed by Joint INDOT &Purdue University, Civil Engineering Dept. through JTRP as a research project using federal (SPR) funds.
- National Bridge Inspection (NBI) data as input.
- 43 input items from NBI data.
- Output of each module is Input for the next module.

INDOT, Bridge Management Process Cont’d

- IBMS Modules:
  - Decision Tree (Dtree), Cost, Rank and Optimization Modules
  - Deterioration models with predictions for different bridge components and road classes.
  - Ranks projects based on Total Disutility and Cost Effectiveness.
  - Recommends different alternatives with cost at any given year within the analyses limits including Do Nothing.
INDOT, Bridge Management Process Cont’d

Prior to the Stage I of the INDOT, Program Development Process-State (PDP-S) or, “call for projects”:
- IBMS Operation
- Perform Analyses
- Generate Report w/recommendations
- District Bridge Engineers
  Review/Comments/Considerations
- Re-evaluations.

INDOT, Bridge management process, Cont’d

2- Bridge Improvement Projects:
As part of the PDP-S Process Stage II or, Project Management Group (PMG) process includes:

- Review;
  - Bridge Inspection/inventory data/pictures
  - Support documents(FA3)
  - Duplications
  - Location / Kit.

- Prioritize;
  - Needs
  - Scope, Rehab Min.(2-3) / Replace(5years)
  - FY Workload / Fund Availability.
INDOT, Bridge Management process, Cont’d

3- Monitoring:

- Annual District/Design/Program Development Divisions Meetings
  * Check Status
  * Change/pull/push projects
  * Update information (uniformity)

- Other Involvements:
  Provides comments and facilitate/coordinate meetings to assist project advancements.

INDOT, Bridge Management process, Cont’d

- Engineering Assessments/ Environment Sections
  * Design Division.
  * Land Acquisition Division
  * Budget & Fiscal Management Division.
  * FHWA.
  * DNR.
  * Consultants
4- Bridge Preventive Maintenance Program
- Additional Assistance to District Bridge Crew; that IBMS is not recommending.
- FHWA, agreement
  * STP, funds
  * $500,000/contract/district/year
  * Limited work items
  * Documents developed in-house (No consultant)
- September 2001- July 2003
* 8 contracts (data available)
* Total 171 bridges
* Average cost, $18,652.42/bridge.

Results:
- Prevents Further Deterioration,
  * Minor work will not become major reconstructions,
  * Avoid unexpected Traffic/lane restrictions,
  * Drop in number of bridge rehabilitation projects that normally done through consultants,
  * Extended Service life 3-5 years,
  * Cost saving while maintaining the network’s health.
INDOT's Overall Bridge Conditions, in Term of Sufficiency Ratings

- 2.90% 2.70% 9.50%
- 18.40%
- 66.50%

INDOT Bridge Improvement Projects (Capital vs Conditions)

Year Funds In $M

1996 121 86.5
1997 127.5 89.5
1998 118 92.7
1999 154 94.3
2000 153.5 96.8
2001 136.5 99.8
2002 101.4
2003 94.5
2004 104
2005 100
2006 100
2007 100

R² = 0.8866
R² = 0.3985
INDOT, Bridge Management Process, cont’d.

Comments, Questions?

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