Pavement Management in Indiana

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[Editor's Note: This paper — though submitted in outline form — makes its points quite clearly.]

I. What is Pavement Management?
   A. Different things to different people
   B. General Agreement:
      1. Organized decision-making process for deciding how to invest in pavements
      2. Involves objective information on pavement performance
   C. Little agreement beyond that
   D. Some people see prioritization as an obvious decision-making tool
      1. This is very common among states, cities, counties
      2. Most suitable if
         a. Limited data
         b. Only 1 rehabilitation action is being considered per highway section
      3. Suitable for local agencies
         a. Limited resources
         b. Relatively low levels of data collection
         c. Rehabilitation budgets not large
      4. Also used by many states
         a. Resources greater
         b. But decision-making process is complex
         c. Hard to use more complex decision-making tools
   F. IDOH uses prioritization now
      1. Districts submit prioritized lists
      2. Central Office (Planning) reviews lists, develops Highway Improvement Program (HIP)
      3. Project selections and rankings are based on judgement, experience, limited data
4. Not explicitly based on prediction of pavement performance
5. Not a formalized procedure

II. PM Committee reasoning
A. Develop procedure whereby the portion of the funding devoted to extending pavement life is spent as efficiently as possible
B. Much spending is to increase the service lives of existing pavements
   1. Resurface
   2. Rehabilitation
   3. Reconstruction
   4. Recycling
C. Some spending is not for extended life
   1. Experiments
   2. Serve new development
   3. Added travel lanes
   4. Guardrail, other appurtenances
D. Pavement Management allocates money available for extending pavement life in the "best" manner possible
E. But, if a project is not programmed, money will have to be spent on routine maintenance instead
F. If estimates of pavement life, project costs, and routine maintenance costs could be made, then
   1. Districts could make better submittals, based in whole or in part on pavement life.
   2. Programming by Central Office (Planning) would be based on same criterion
      a. Pavement life vs. cost trade-offs
      b. Average increase in pavement life for whole network could be estimated
      c. If not at least 1 year per year, then network is deteriorating
      d. This calculation can also be made on subnetworks
         i. Interstates
         ii. Primary
         iii. districts
         iv. etc.
   3. Justification to Governor and Legislature based on objective criterion
      a. Sufficient money should be allocated to prevent network from deteriorating in the long run
b. Since pavement rehabilitation is a major IDOH activity, this should lead to more realistic Highway budgets

c. Still, no one can guarantee what the legislature will do

III. The District’s role in a PMS

A. During the preparation of lists, attention should be given to pavement life.

B. In the analysis of which roads to include, pavement life should be a consideration

C. Pavement life estimates incorporate:
   1. Structural condition (condition survey)
   2. Roughness (current and past)
   3. Friction
   4. Traffic (ADT, truck classification)

D. Other valid considerations include:
   1. Political
   2. Complaints
   3. Geography
   4. Routine maintenance effort

E. For each project being considered, a determination is made of what rehabilitation is needed.
   1. This is being done now
   2. Eventually, several alternatives will be generated
   3. For now, to stay consistent with current procedures, one option will be recommended
   4. For the recommended rehabilitation, estimate:
      a. Cost of rehabilitation (done now)
         i. Cost related to extending pavement life (new)
         ii. Other costs (new)
      b. Years until section becomes unacceptable (new)
         i. This will require support from Central Office divisions: Research and Training, Design, Materials and Tests, JHRP
         ii. Also need centralized, integrated data base accessible from computer terminals — Computer Services

5. Supposing project cannot be included in program, then need estimates of
   a. Remaining life (routine maintenance only)
      i. if already unacceptable, this is zero
      ii. This will require support and data base also
   b. Most likely routine maintenance strategy
c. Annual cost of routine maintenance
d. These pieces of information are all new
e. Needed for trade-offs

F. As a first cut in developing list, perform a benefit-cost analysis
   1. Based on cost of obtaining extended pavement life
   2. Results in a list of those projects that yield highest benefits for money available

G. Final ranking will consider other factors, as above
   1. Data sheets with supporting data
   2. Comments if ranking is for reason other than extended life

IV. Central Office (Planning) role
   A. Responsible for balancing statewide concerns, available funds
   B. Develops HIP
   C. PMS applies to
      1. Resurface chapter
      2. Small portions of Reconstruction, Replacement Categories
   D. Benefit-Cost analysis
      1. Extended life still major criterion
      2. Statewide network extended life
      3. Subnetworks also
         a. Interstates
         b. Primary
         c. Districts
         d. other
      4. Results in a first cut statewide listing
      5. Other factors enter in final listing
         a. Political
         b. Complaints
         c. Geographic
         d. PSR
      6. Other factors as listed on data sheets, or as discovered by Planning
   E. Final list incorporated into HIP
      1. Scheduling problems
      2. Planning has existing procedures
      3. HIP approval procedures

V. Procedural changes summary
   A. Not a major change from present
   B. Districts still provide major input, make initial decisions
C. Central Office provides support to Districts
   1. Information processing and storage
   2. Analysis procedures
D. Planning performs programming

VI. Future
A. As time goes on, feedback will allow for improvement in decision-making
B. Information on pavement performance will be used to improve predictions
C. PM will provide more accurate information
   1. Better decisions
   2. Better pavement conditions