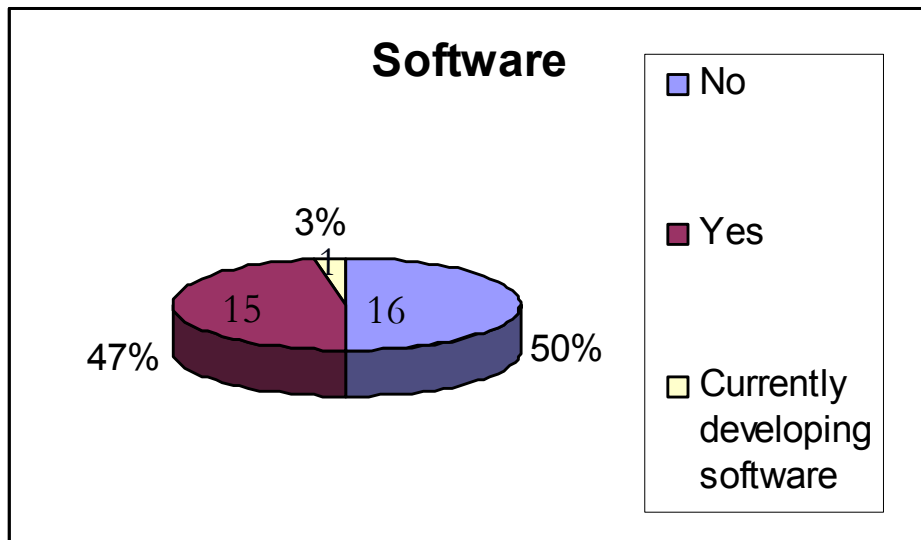
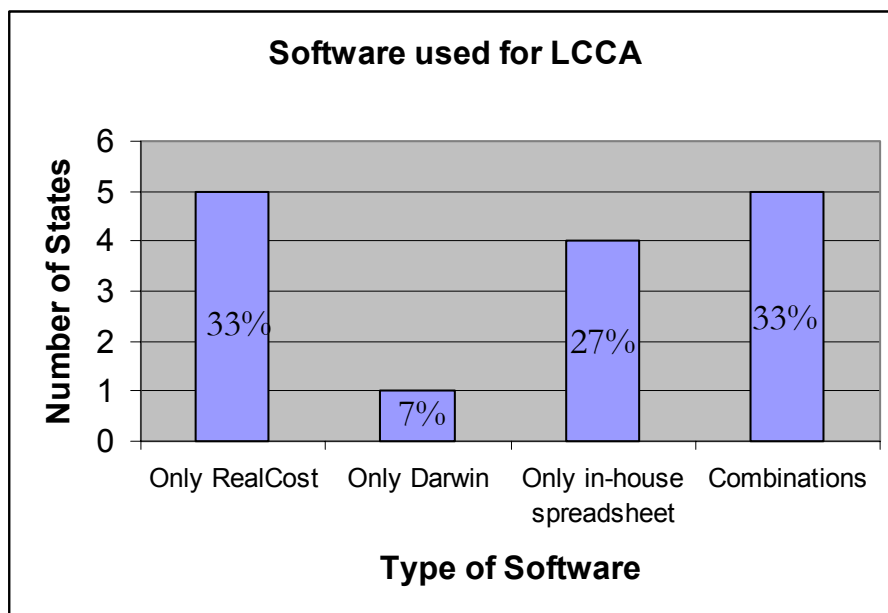


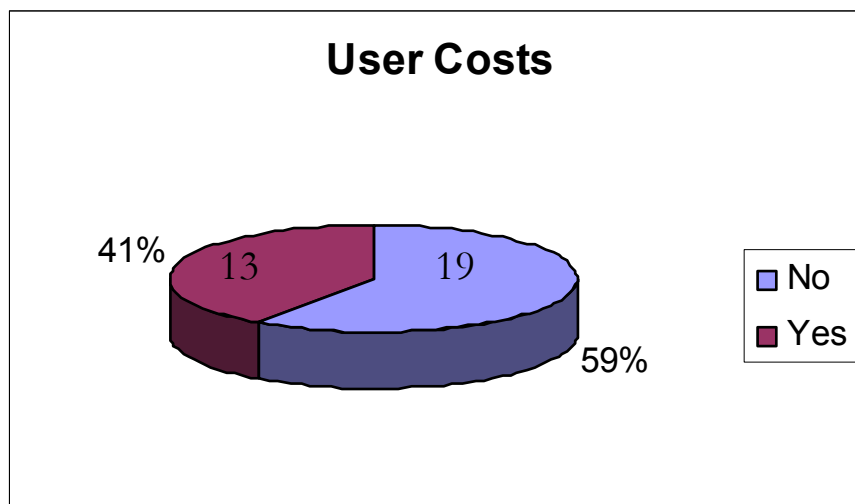
2. Do you use any specialized software?



Eight states use the RealCost software which is a spreadsheet model released in 2002 based on The Federal Highway Administration (FHWA) Life Cycle Cost Analysis (LCCA) Bulletin of 1998. Three states use the Darwin software which is one of the American Association of State Highway and Transportation Officials (AASHTO) products. It is a general package that incorporates LCCA module. It is a powerful pavement design program and a computerized version of the 1993 AASHTO Guide for Design of Pavement Structures.



3. Does your DOT include User Costs in the analysis? If yes, in what ways does it consider it?

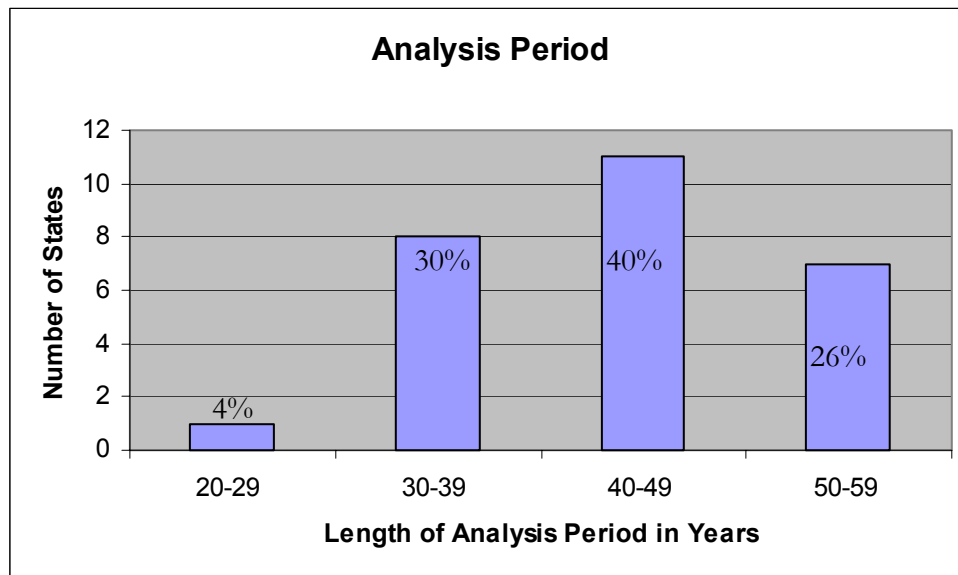


Alaska DOT estimates work zone user delay costs from the LCCA software developed by the Asphalt Pavement Alliance. California DOT considers traffic delay/detour, vehicle operating, and crash costs. Colorado DOT has a specialized “Work Zone – Road User Costs” software program. Connecticut DOT does not incorporate vehicle operating costs, but considers user delay costs. Idaho and Illinois DOTs are currently working towards considering user costs. Indiana DOT includes user costs in the analysis if traffic volume is a concern to the analysis. Kansas DOT computes user costs only if an alternate has adverse detour miles. Kentucky DOT estimates user costs with a program developed from the FHWA SA-98-079 Technical Bulletin. Louisiana DOT considers all user cost components outlined in the FHWA SA-98-079 Technical Bulletin. Maryland DOT includes user costs with agency costs in determining total costs for the project. Michigan DOT uses University of Michigan’s software “Construction Cost Congestion”. Their calculations are based on publication FHWA SA-98-079. New York DOT currently does not include user costs in their analysis, but their new software will include user costs. Utah DOT mostly considers delay costs. Washington DOT considers user delay costs in LCCA. They consider both day and night construction scenarios. They also consider other impacts in the Engineering Analysis.

4. What discount rate is used and how is it determined?

A majority of the states (twelve states) use a 4% discount rate in their LCCA calculations. Four of the states use a 3% rate. Two states use the Office of Management and Budget (OMB) discount rate. Ten states use values ranging between 3 and 5%. Three states run a sensitivity analysis for their discount rate.

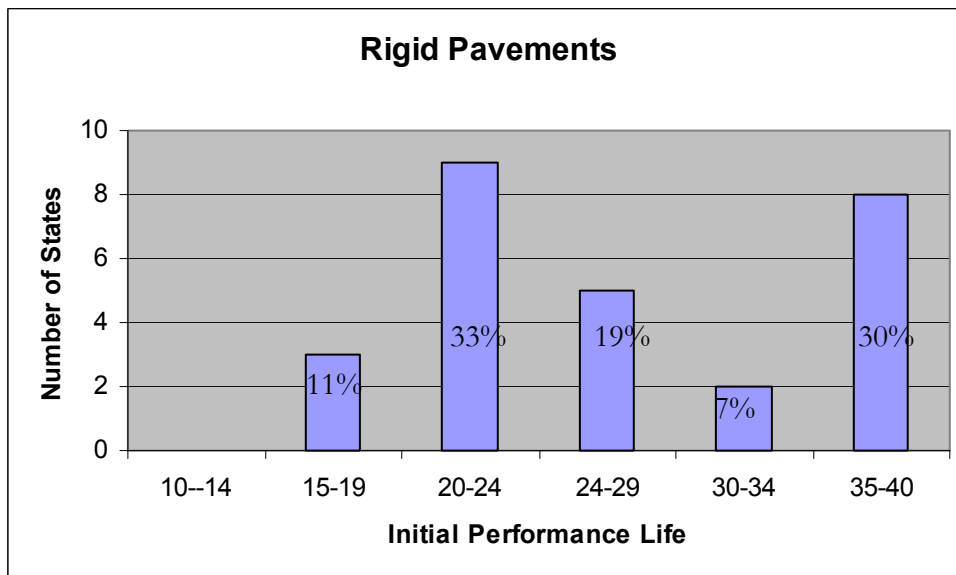
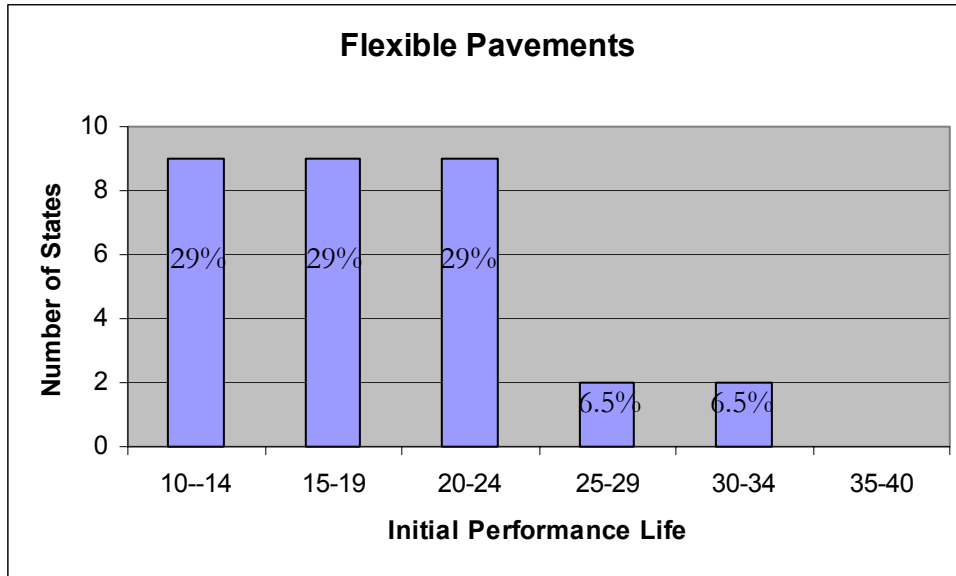
5. What analysis period is used? (If not a fixed value, please explain briefly)



The participating States indicated that analysis period generally depends on the type of pavement, rehabilitation strategy, and the proposed design life of the project.

6. What is the initial performance life assigned for:

- (a) Flexible Pavements
- (b) Rigid Pavements



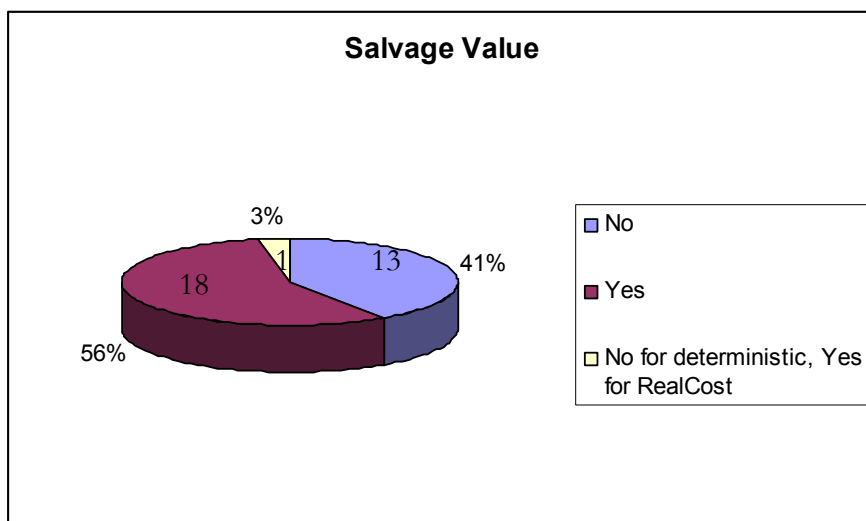
7. What treatments do you define as maintenance? As rehabilitation?

Some DOT's don't differentiate between maintenance and rehabilitation treatments and try to consider all costs in their analysis. Some on the other hand, don't incorporate maintenance costs into the analysis, but only calculate rehabilitation costs. In general, partial depth repair, full depth repair, joint and crack sealing, diamond grinding, HMA overlay, and unbonded overlay are the main rehabilitation activities considered for concrete pavements. Milling and overlay, pulverizing, cold-in place recycling are the most frequently considered rehabilitation options.

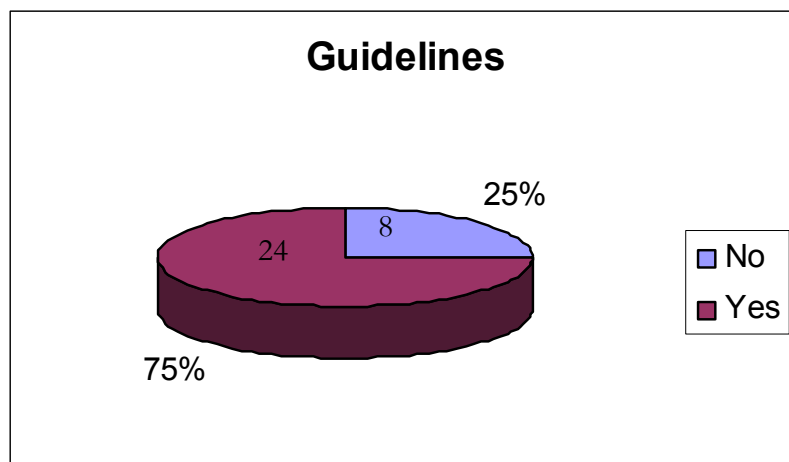
8. What are your DOT's decision criteria when pavement LCCA values for asphalt and concrete are very similar?

Several DOTs have pavement type selection committees that decide on the alternative when the LCC value is within 10% of each other. Some DOT's let their design engineer decide. For some of the DOT's the decision is based solely on the low cost alternative. Some of the factors considered when making a decision are adjacent pavement sections, type of work and constructability, past performance of each pavement type in the area, availability of aggregates in the area, location of project, the upfront costs, volume of traffic, availability of qualified contractors.

9. Does your DOT use salvage value or remaining service life?



10. Does your DOT have any agency guidelines or policies regarding the pavement selection process?



- **California:** <http://www.dot.ca.gov/hq/oppd/hdm/pdf/chp0600.pdf>
- **Colorado:** Section 9.9 Pavement Selection Committee in Chapter 9 of CDOT 2006 Pavement Design Manual
- **Florida:** http://www.dot.state.fl.us/pavementmanagement/pcs/pcs_pub.htm
- **Idaho:** <http://itd.idaho.gov/manuals/ManualsOnline.htm>
- **Illinois:** <http://www.dot.il.gov/desenv/BDE%20Manual/BDE/pdf/chap54.pdf> - pp. 87-98
- **Louisiana:** An article was written for the Transportation Research Board and was published in the Transportation Research Record #1900 Construction 2004 titled "Agency Process for Alternate Design and Alternate Bid of Pavements"
- **Michigan:** They have sent us their guidelines.
- **Minnesota:** <http://www.dot.state.mn.us/tecsup/tmemo/active/tm04/19mat02.pdf>
- **Missouri:** <http://www.modot.mo.gov/newsandinfo/PavementTypeSelection.htm>
- **New York:** VOLUMES I and II
(<http://dot.state.ny.us/cmb/consult/cpdmfiles/cpdm.html>)
- **South Carolina:** They have sent us their guidelines.
- **South Dakota:** They have sent us their guidelines.
- **Virginia:** <http://www.virginiadot.org/business/resources/bu-mat-MOI-6.pdf>
- **Washington:** <http://www.wsdot.wa.gov/biz/mats/Apps/EPG.htm> http://www.wsdot.wa.gov/biz/mats/pavement/Technotes/PTSP_Jan2005.pdf

- **Wisconsin:** <http://www.dot.state.wi.us/business/engrserv/cauextranet.htm>
- **Ontario,Canada:**
<http://192.75.156.22/sydneyweb/cgi/swebimg.exe?action=Attachments&key=ctcx&ini=splusweb&uid=public>

If you wish to see the complete results please visit:

<http://www.zoomerang.com/web/SharedResults/SharedResultsPasswordPage.aspx?ID=L22FD66SM7UA>