Future Plans for AASHTO ME Pavement Design Software

Linda Pierce, Chair
AASHTO DARWin Task Force
January 13, 2008
Presentation Outline

- DARWin Task Force
- Current software status
- Development of DARWin-ME
- Future enhancements/modules, etc.
DARWin Task Force Members

- Linda Pierce (Chair), Washington State
- Imad Basheer, California
- Julian Bendana, New York
- Andrew Johnson, South Carolina
- Michael Pologruto, Vermont
- Trenton Clark, Virginia
- Laura Fenley, Wisconsin
- FHWA Liaison: Chris Wagner
Acronym Definition

- DARWin 3.1
  - Current AASHTOWare software

- MEPDG v1.0
  - Software developed under NCHRP 1-37A

- DARWin-ME v2.0
  - Develop/enhance MEPDG v1.0 into AASHTOWare software
Current Software

- DARWin 3.1 is the latest software version of the 1993 AASHTO Guide for Design of Pavement Structures
- Current Contractor
- Sunset planned for 12 months following release of DARWin-ME v2.0
DARWin-ME Development

- Intellectual property rights transferred from NCHRP to AASHTO – December 2007

- Project development is in two parts:
  - Part 1 – MEPDG v1.0
    - Help files
      - Completion by mid-March 2008
    - Maintenance
      - User help and support for MEPDG v1.0
      - Bug tracker maintenance
      - Bug fixes
DARWin-ME Development

- Part 1 – MEPDG v1.0 continued…
  - ARA to create a high-level software design document
    - Describe software aspects
    - Understandable to a third party reviewer
      - Software architecture
      - Interface functions
      - Inputs and outputs
      - Procedural design (i.e., modularity).
DARWin-ME Development

- Part 2 – Development of DARWin-ME v2.0
  - Independent Source Code Review (?)
  - List of enhancements
    - Developed by DARWin Task Force and reviewed by Lead States Group and NCHRP 1-40 Panel
    - Potential enhancements (not an extensive list)
      - Increase computational speed
      - Ability to optimize for thickness design
      - Inclusion of backcalculation results for rehabilitation design
      - Ability to establish agency specific libraries (materials, traffic, climate)
DARWin-ME Project Solicitation

- Project Solicitation Proposal Package
  - Combine resources to develop/enhance software
  - Provides business case for states to support DARWin-ME production software effort
  - Funding commitments
  - Cost for DARWin-ME will be based on:
    - Enhancement items identified by DARWin Task Force
    - Independent source code review, if needed
    - Joint Technical Committee on Pavements (JTCoP) input
  - Commitment from at least 10-12 agencies will be required to proceed
DARWin-ME Development

- Based on successful project solicitation:
  - Appoint new DARWin-ME Task Force
    - 5-7 members (selected from agencies who have participated in solicitation)
  - Develop and issue Request for Proposals
  - Select software development contractor
  - Begin development
    - 15-18 month development cycle
DARWin-ME Funding

- Existing DARWin Task Force funding and new development grant funds from AASHTO Capitalization Fund contribution (~ $100K+ commitment by AASHTO):
  - MEPDG v1.0 maintenance
  - High level software design document by ARA
  - Project solicitation proposal
DARWin-ME Funding (cont.)

- Project Solicitation contribution:
  - Request for Proposal
  - Development of Production Grade Software of DARWin-ME v2.0

- Potential sources of funding
  - DARWin Task Force request to FHWA
  - Non-matching SP&R Funds
    - Split of funding over two fiscal years potentially
DARWin ME Timeline

- Winter 2007/2008
  - ARA high-level software design document
  - Support and maintenance of MEPDG v1.0
  - DARWin Task Force agrees on approach for developing DARWin-ME v2.0
  - Draft project and solicitation proposals

- Fall 2008
  - If solicitation successful, appoint Task Force Members
Opportunity for Enhancements

- Upon successful release of DARWin-ME v2.0
  - All member agency who participate in the solicitation will have the opportunity to obtain source code
  - Agreements with AASHTO will apply
  - Allows for state enhancement with the intent that it will be shared with AASHTO
    - AASHTO Joint Technical Committee on Pavement intent to maintain one official version of software
Opportunity for Enhancements

- DARWin Task Force request for information on needed enhancements from state users
  - Issues related to software operation
  - Enhancements to aid in software use
  - Conduct “webinar” type session to discuss issues

- Send comments/suggestions to – piercel@wsdot.wa.gov
DARWin-ME User’s Group

- Composed of all DARWin-ME licensee’s
- Annual meetings
  - Discuss software functionality
  - Discuss needed enhancements
  - Trouble shoot
  - Networking
- DARWin Task Force members will be members of user group (back-to-back meetings)
  - Direct link for developing and prioritizing software enhancements
Questions