AASHTO MEPDG – "What's in it for you ??"

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NCAUPG

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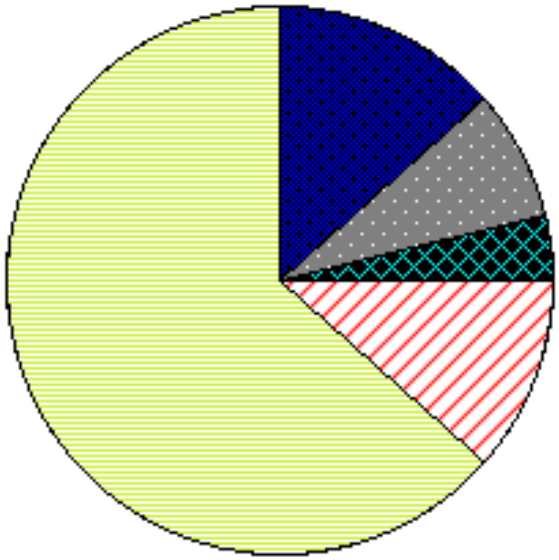
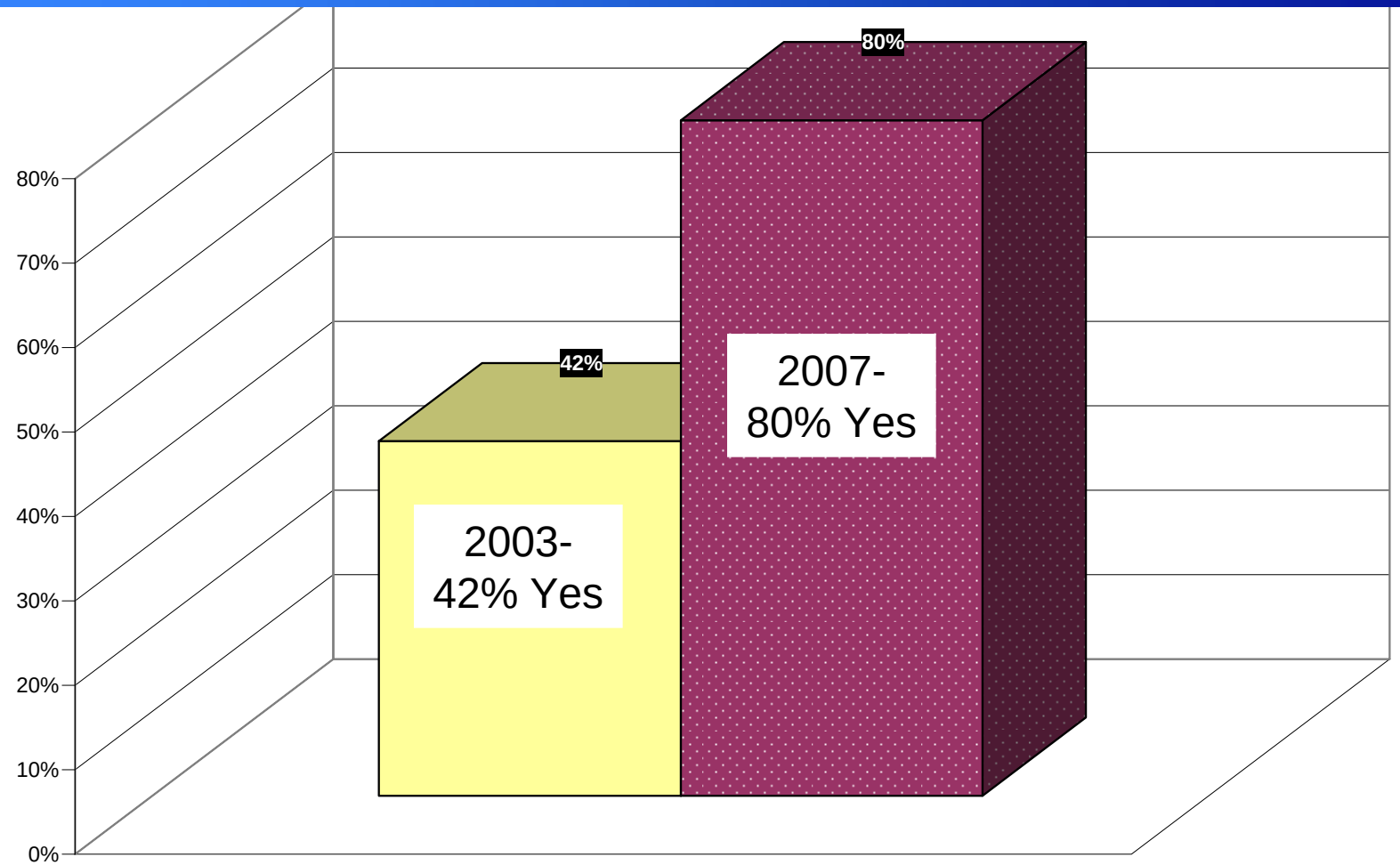
What's Being Used (2007 survey)



	Response Total	Response Percent
AASHTO 1972	6	12%
AASHTO 1981	0	0%
AASHTO 1986	0	0%
AASHTO 1993	33	63%
Individual State design procedure	7	13%
Combination of AASHTO & State procedure	4	8%
Other	2	4%
Total Respondents		52

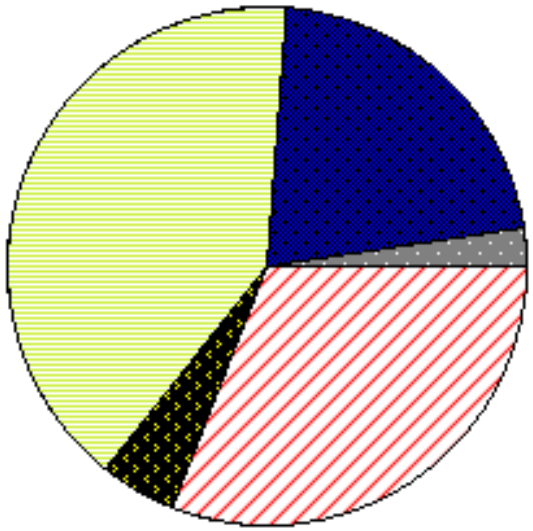
What's going to be used ?

Does your state have an Implementation Plan??



http://www.transportation.org/?siteid=59&pageid=2149

Change costs **Money** and **Time**, What's the benefit ?

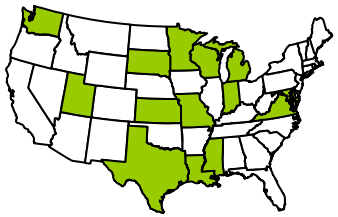


	Response Total	Response Percent
No	13	31%
Currently Using	2	5%
1-11 months	0	0%
1-3 years	17	40%
4-7 years	9	21%
> 7 years	1	2%
Total Respondents		42

How Long ??

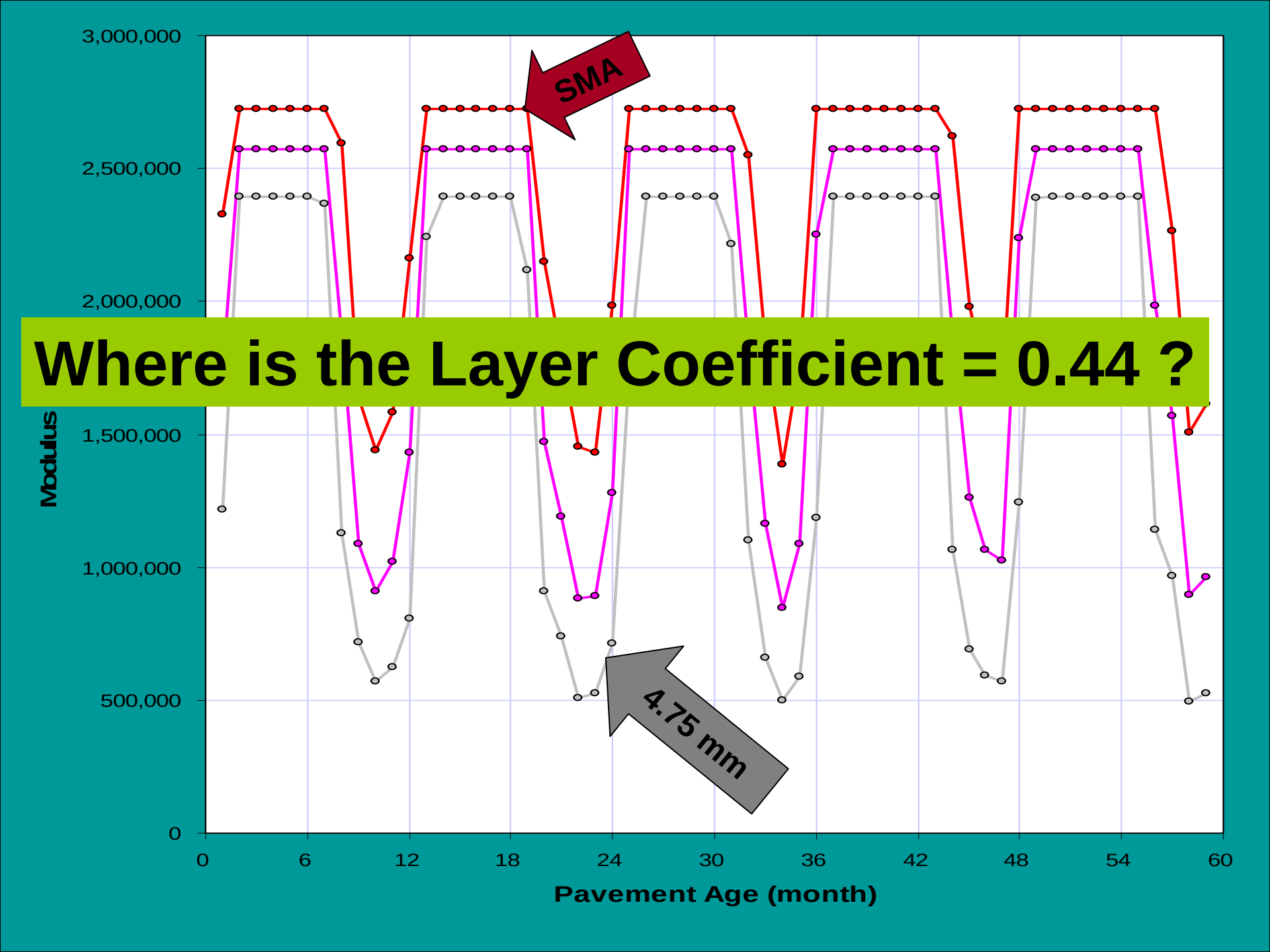
Implementation Timeframe

- Some DOT's Already Underway
- Others are Awaiting Other Efforts:
  - NCHRP Projects
  - FHWA Research Projects
  - Copy Other State Approaches
  - AASHTO Adoption
  - Windfall from Gas Tax Revenues
  - Hell Freezes Over



Pavement Design Aspect

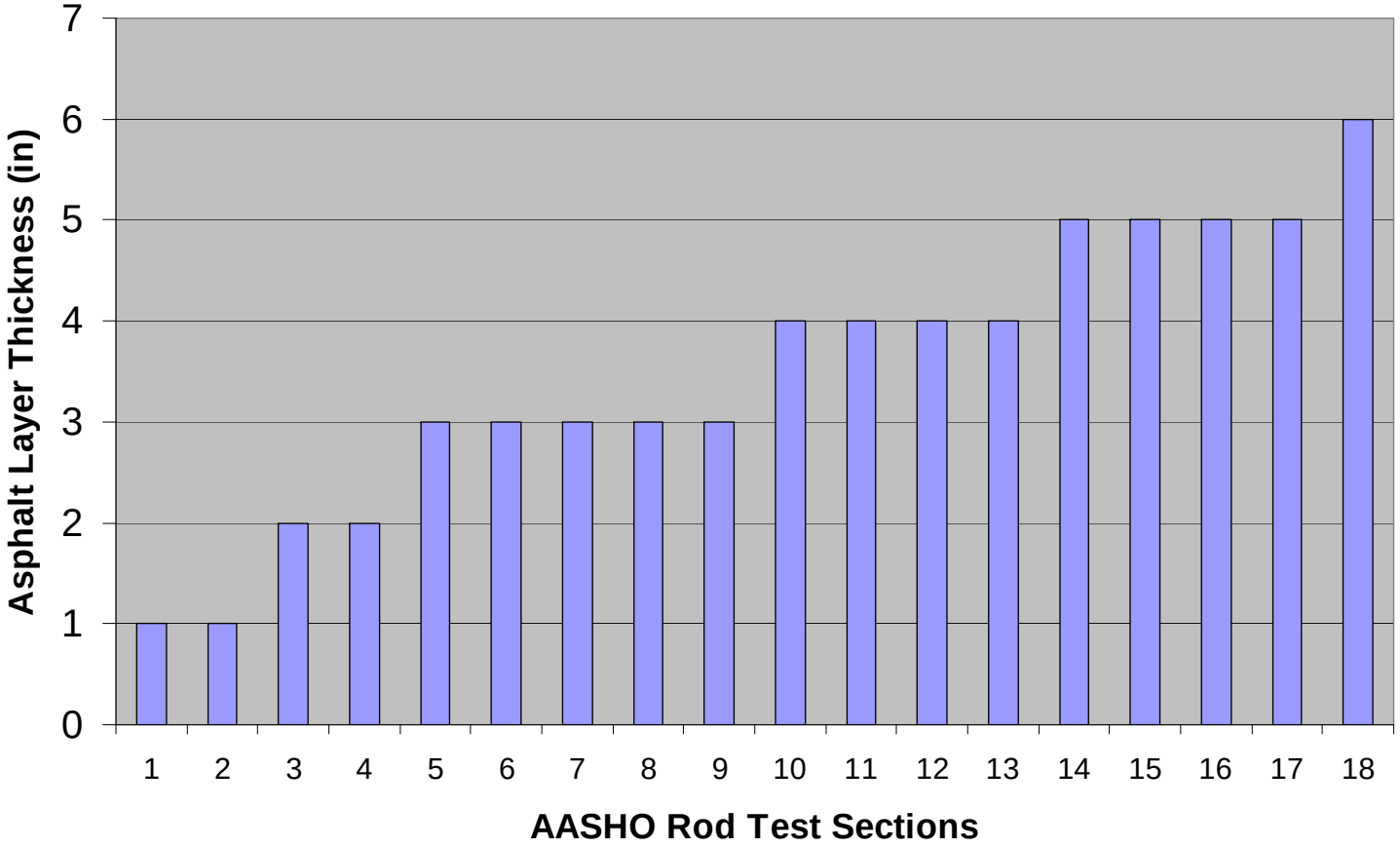
- Enhanced Material Characterization
- Better Traffic Characterization
- Climate integrated with design
- Reduce Over / Under design


3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Modulus
0
6
12
18
24
30
36
42
48
54
60
Pavement Age (month)
SMA
4.75 mm
Where is the Layer Coefficient = 0.44 ?

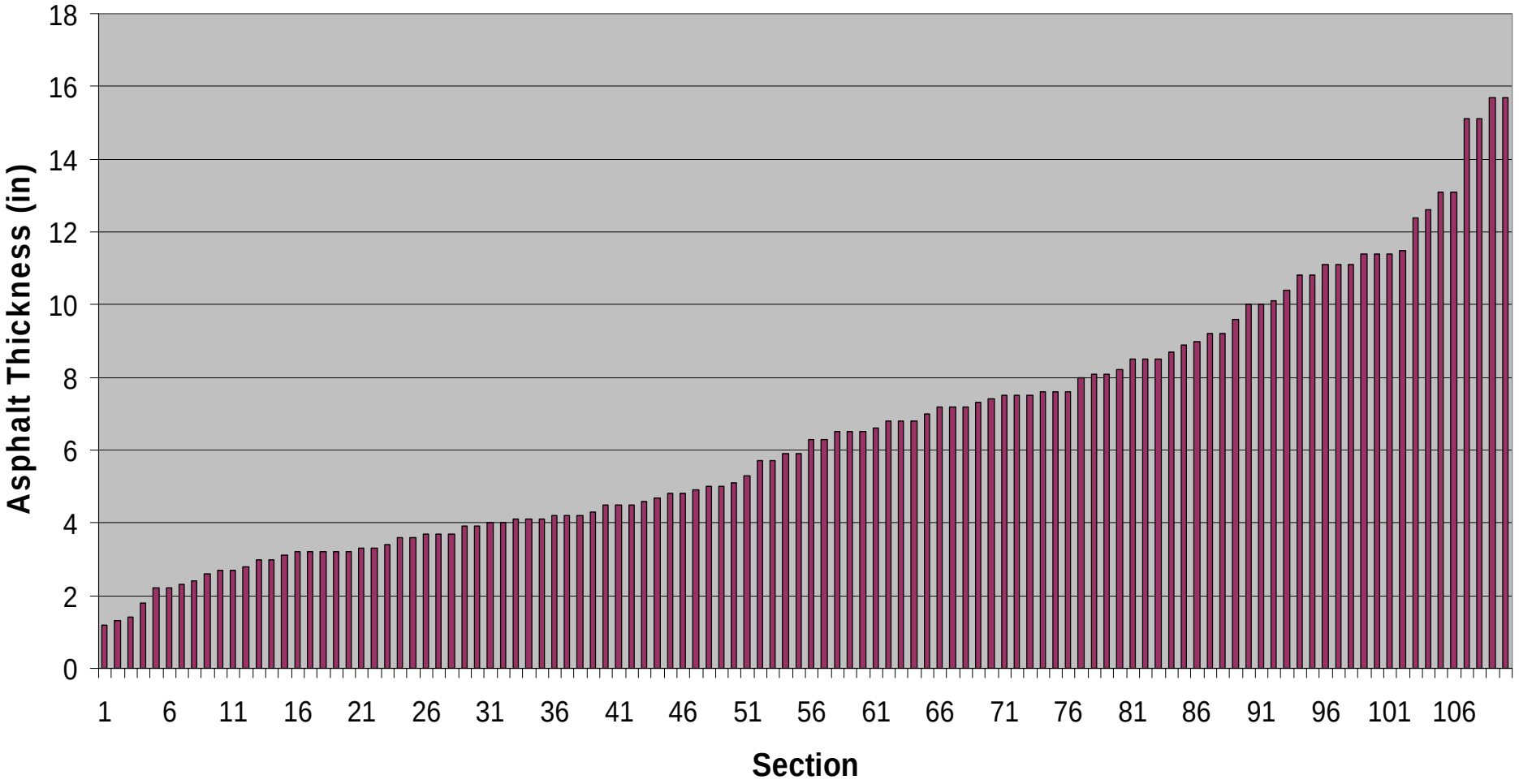
Materials Characterization

- ✓Fundamental Binder properties
  - ✓Superpave PG Grading
  - ✓Polymer Modified Binders need more characterization work
- ✓Specific HMA properties
  - ✓Dynamic Modulus
- ✓Sensitive to Volumetric Properties

Maximum thickness of the Asphalt Thickness at the AASHO Road Test?



Thickness Distribution of MEPDG Calibration Sections



Number of ESAL's on the Road Test ?

Number of ESAL's currently on I-80 ?

Figure 23. Test vehicles, showing typical axle arrangements and loadings.

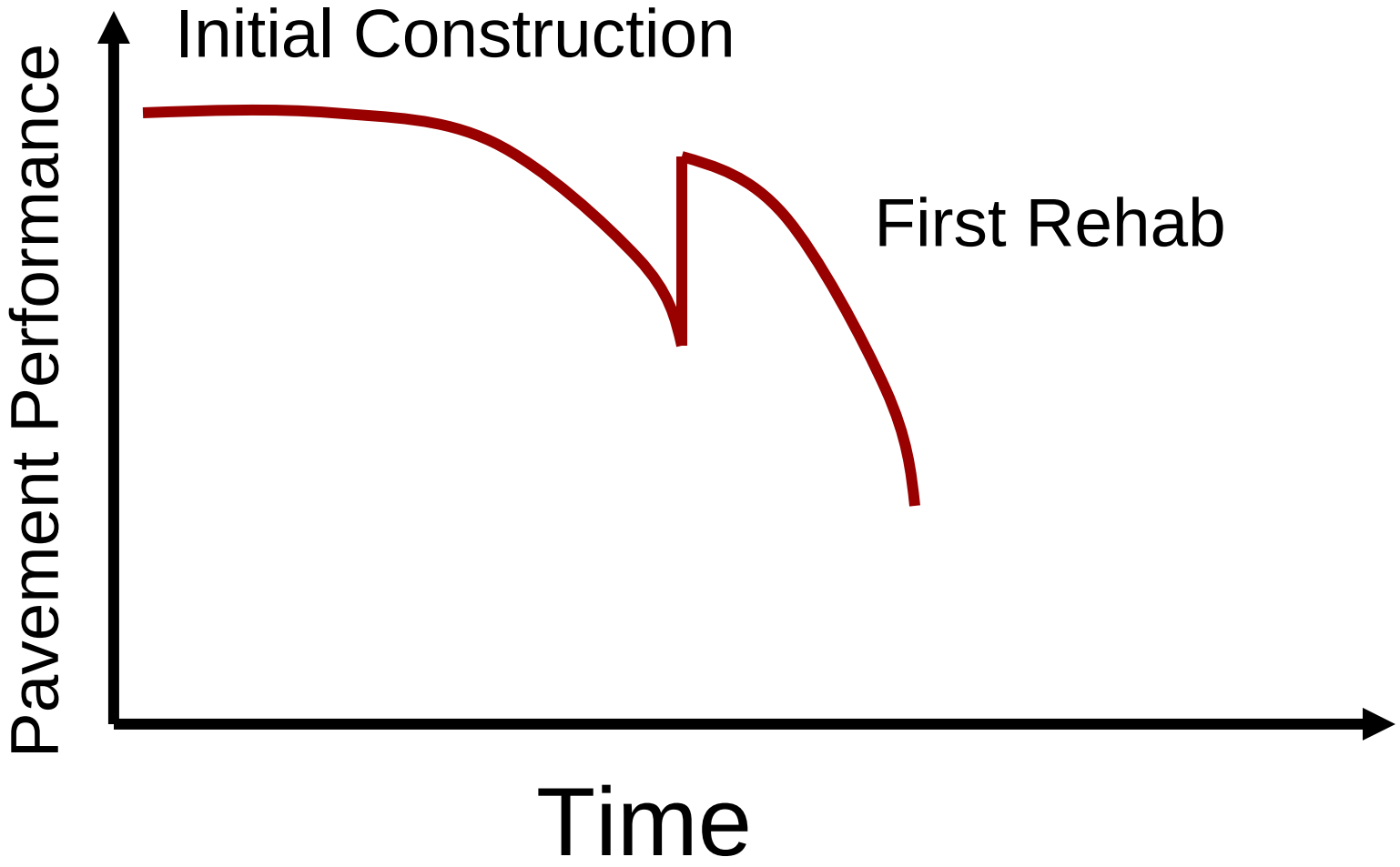
Implementation Plan Components

		Response Total	Response Percent
	Material Characterization (asphalt, concrete, unbound, rehabilitation)	37	88%
	Traffic Characterization	32	76%
	Climatic Properties Characterization	16	38%
	Local Calibration	36	86%
	Internal Training/Communication	25	60%
	Other view	13	31%
	Total Respondents		42

MEPDG complements other areas

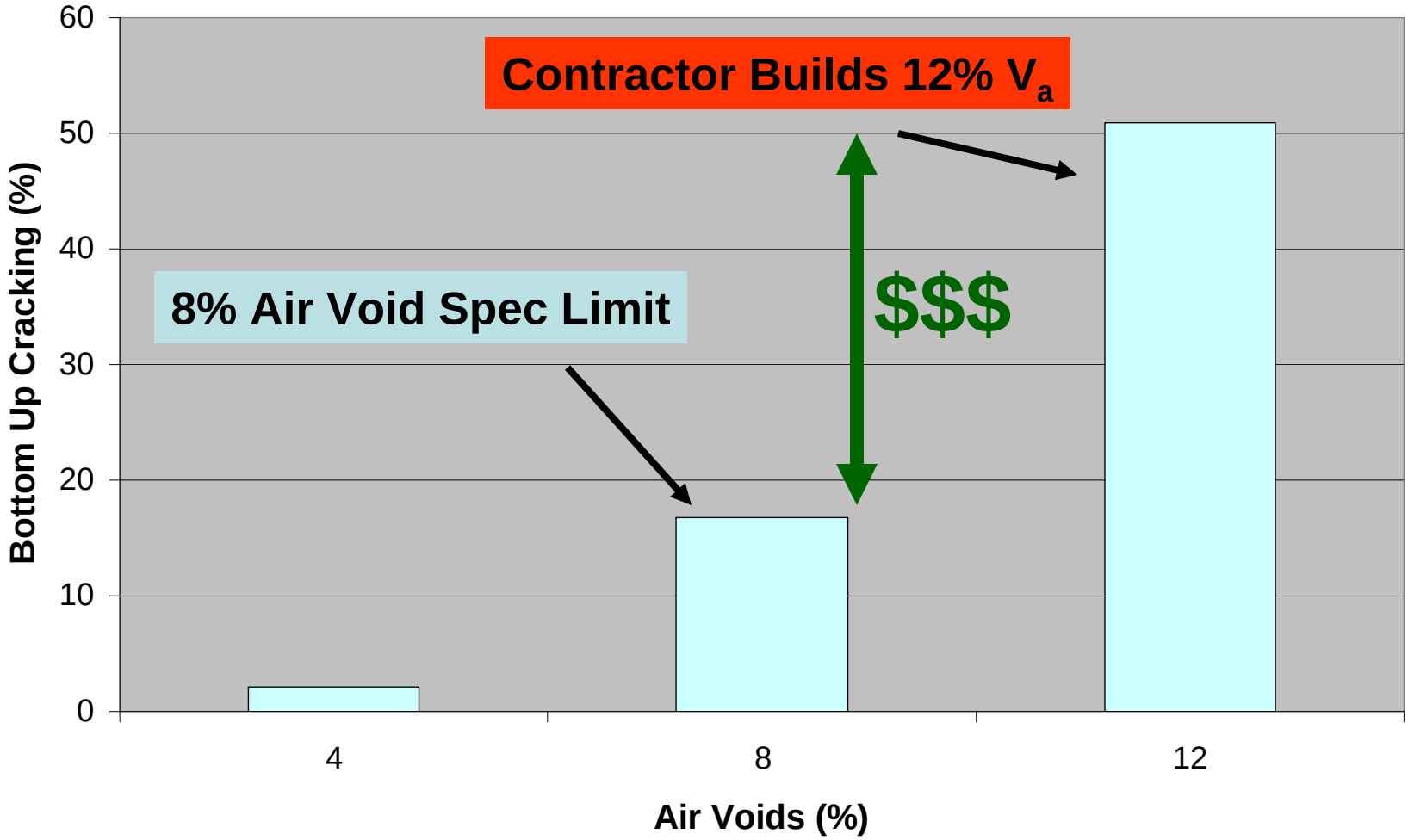
- LCCA
- Performance Related Specs
- Specification Tolerances
- Design Build

LCCA

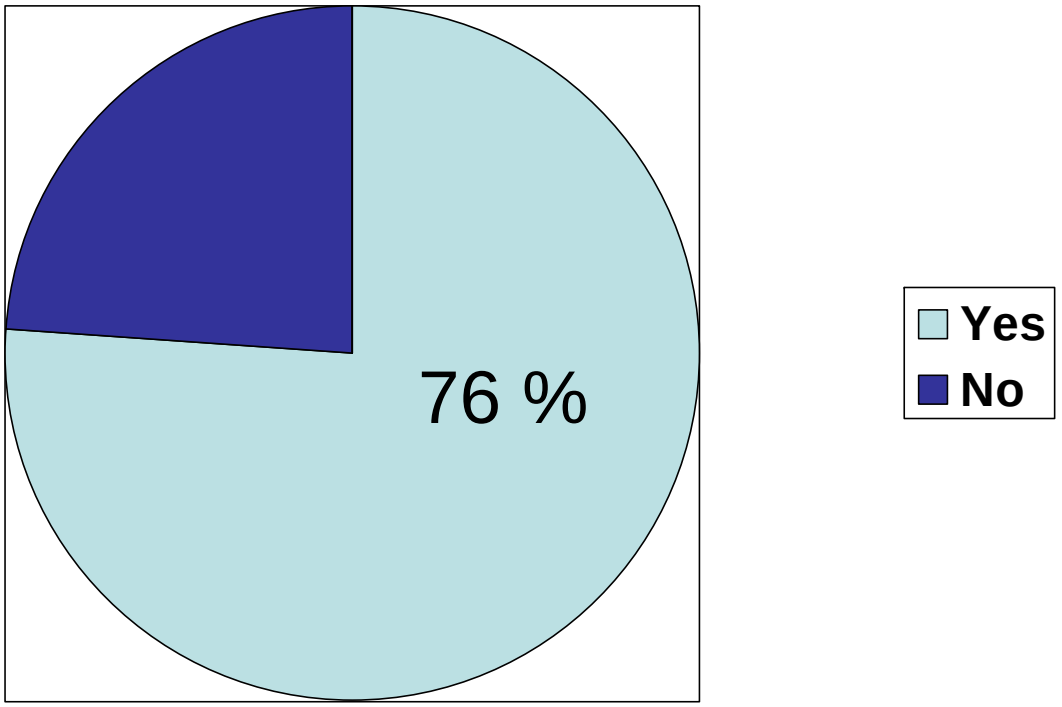

Initial Construction
First Rehab
Pavement Performance
Time

PRS Example

NCHRP 9-22

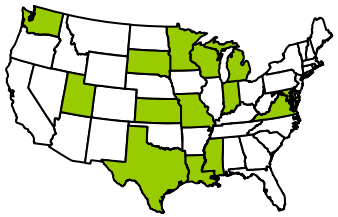


Does your state plan to use the MEPDG with PRS, LCCA, etc.. ?

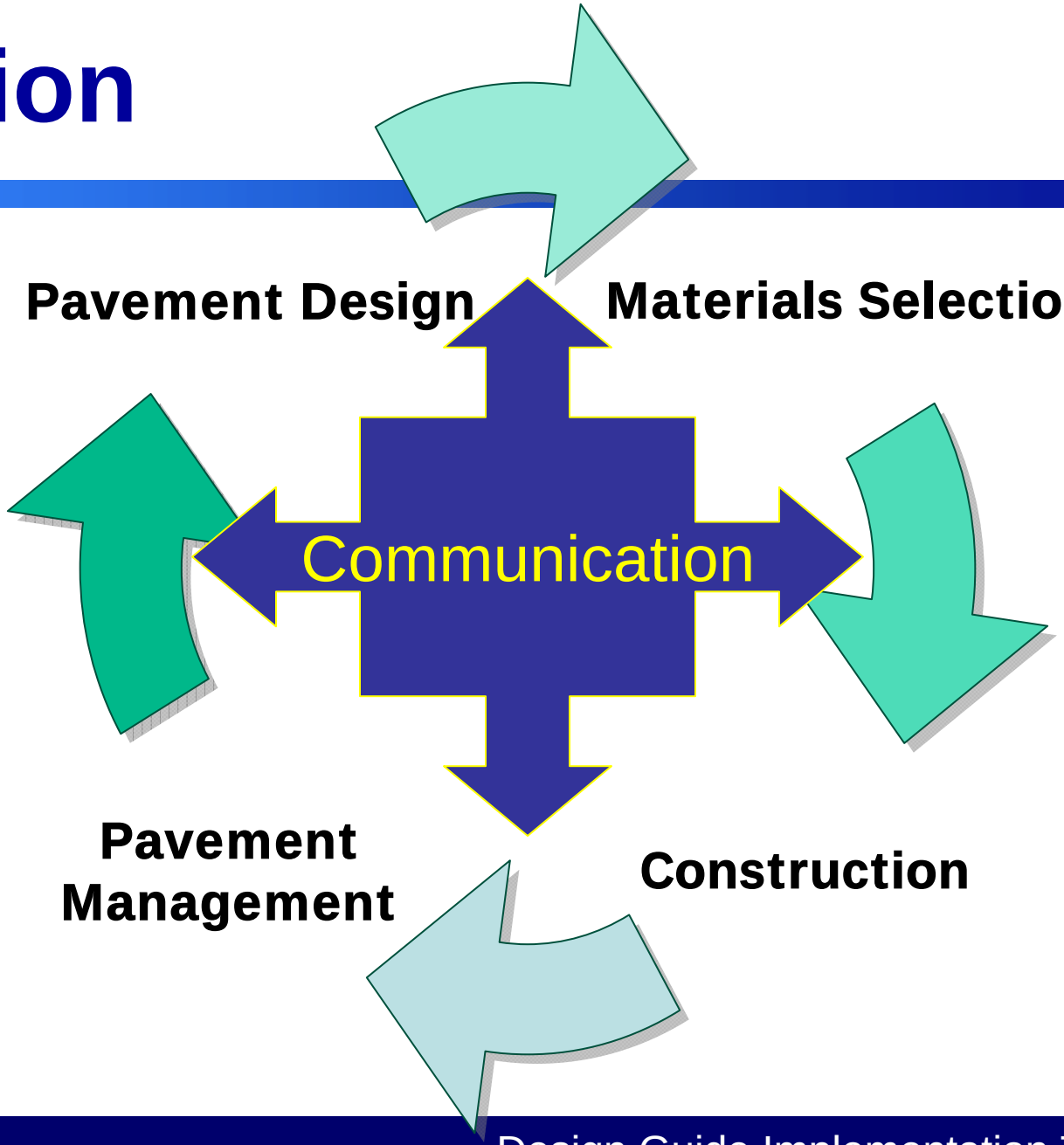


Reasons for Change

- Reduce Over-and-Under Design Costs
- Legislative Mandate
- Consider Alternative Designs/Unique Conditions
- Rational Basis for Warranties, LCCA, PRS, QC/QA, Pay Factors
- Forensic Investigations
- Impact of Management Decisions on Pavement System
- Tie Design to Construction



Integration



Coordination

- Look for opportunity to share resources
  - 50% of States plan to work with other State DOT's with Implementation
  - Materials Characterization
  - Calibration Data
  - Traffic Classification and Weight

DARWin ME Timeline

- Sunset Previous AASHTO Design Software
- Fall 2007
  - Sign intellectual property agreement with TRB
- Winter 2007/2008
  - Contract to review source code
    - Identify if modifications are needed for making software modular
    - Interface with third party software

DARWin ME Timeline (cont.)

- Spring 2008
  - Results of independent review and issue Request for Information (RFI)
- Summer 2008
  - Issue project solicitation proposal package for funding commitments
- Fall 2008
  - Develop and issue Request for Proposals (RFP)
- Winter 2008/2009
  - Select contractor
  - Commence development shortly thereafter (15-18 month cycle)

Opportunity for Enhancements

- Upon successful release of DARWin-ME
  - All member agency licensees 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
- JTCoP intent
  - One version of DARWin-ME

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

Perspective

- 1960 – Completion of Road Test Experiment
- 1961-62 AASHO Interim Guide for the Design of Rigid and Flexible Pavements
- 1972 AASHTO Interim Guide for the Design of Pavements
- 1981 Revised Chapter III on Portland Cement Concrete Pavement Design
- 1986 Guide for the Design of Pavement Structures
- 1993 Revised Overlay Design Procedures
- 1998 Supplement to Concrete Design Procedures

Place Your Bets !!

- It took 25 Years (1961 – 1986) for the current AASHTO procedure to change from Interim to Standard Design
- How long for the MEPDG ??
  - Officially adopted as Interim in Fall 2007

Things to remember

- All pavement design systems need:
  - Quality Materials Characterization
  - Recognizes Climate with Design
  - Quality Traffic Data
  - Calibrated to local conditions
- The MEPDG has raised the bar for each of these criteria……

Evolution

The MEPDG is not perfect…..BUT;

The MEPDG provides a reasonable and structured platform for continuous improvement.

Questions?


A SYMBOL OF FREEDOM
INTERSTATE
50
YEARS
1956 - 2006
AASHO
TEST ROAD SITE
1956-1962
NON-DESTRUCTIVE
WEATHER LOOP
EISENHOWER
INTERSTATE
SYSTEM