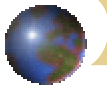


## *European Asphalt Pavement Warranties Scan*

Presentation for  
2003 NCAUPG Annual Meeting  
January, 2003



## *European Asphalt Warranty Scan*

- ⊕ Motivation for the Scan
- ⊕ Purpose and Scope
- ⊕ What happens on a scan
- ⊕ Summary Observations and Key Findings
- ⊕ Conclusions and Recommendations



## *Action Drivers*

- What is the driver behind warranties?
  - ❖ Improved pavement performance
  - ❖ Reduce agency resources for project administration
  - ❖ Promote innovation and creativity
  - ❖ Reduce overall construction costs



## *Action Drivers (Cont.)*

- ❖ Promote partnerships and risk sharing
- ❖ Mandates from legislature
- ❖ European Experience with warranties
  - 1990 European Asphalt Study Tour (EAST)
  - 1993 Contract Administration Techniques for Quality Enhancement Study Tour (CATQUEST)



## *Evolution of warranties*

- 1890's to 1910's
  - ▣ HMA patented
  - ▣ 10 or 15 year warranty
  - ▣ Material and workmanship



## *Warren Brothers Warranty Seal*





## *Evolution of warranties*

- ✿ 1920's
  - ▣ Patent protection lost
  - ▣ Warranties discontinued
- ✿ 1950's
  - ▣ Federal participation in construction
  - ▣ State responsible for maintenance
  - ▣ Warranties not allowed
- ✿ 1990's
  - ▣ States request ability to use warranties
  - ▣ Federal participation allowed under SEP-14
  - ▣ Use of warranties approved with Federal participation



## *FHWA International Technology Scanning Program*

Bringing Global Innovations to U.S.  
Highways





## *FHWA International Technology Scanning Program*

- ◉ Joint effort between FHWA and AASHTO
- ◉ Collaboration with NCHRP
- ◉ The three agencies:
  - ▣ Identify priorities
  - ▣ Organize scanning studies
  - ▣ Help implement key findings
- ◉ Since 1990 over 60 Scanning Studies have been conducted



## *Scanning Study Methodology*

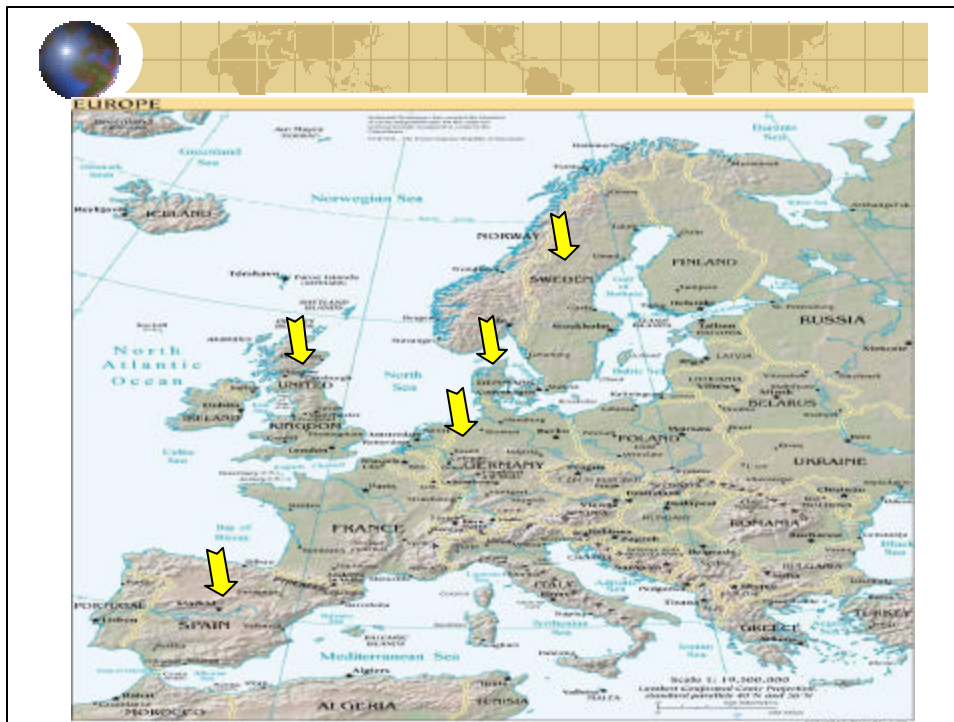
- ◉ Assemble Team of US Experts
- ◉ Conduct "Desk Scan" to Select Topics/Countries
- ◉ Send "Amplifying Questions" to Host Countries
- ◉ Two-Week Scan Tour
- ◉ Final Report and Implementation



## *Scan Team Affiliations*

- FHWA
- AASHTO
- NAPA
- NACE
- APWA
- Academia





## *Scanning*

- ▣ Meetings, Meetings, & Meetings
- ▣ Site Visits
- ▣ Travel
- ▣ Cultural Opportunities



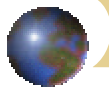












## *Summary Observations*

- Most European countries have a long history warranties on pavement construction
- All have at least 1 to 4 year warranties of materials and workmanship
- Several have 5 year performance warranties
- Many countries are trying 10 to 18 year Warranties



## *Warranty Definitions*

### • Warranty

- ▣ Performance-based contract
- ▣ Guarantees the integrity of a product
- ▣ Contractor responsible for replacement of defects

### • Warranty Period

- ▣ Pre-specified for repair defects in the product
- ▣ Vary by type of warranty and product
- ▣ Provide assurance of performance, but not to unnecessarily inflate contract prices



## *Warranty Definitions*

### • Materials and Workmanship Warranties

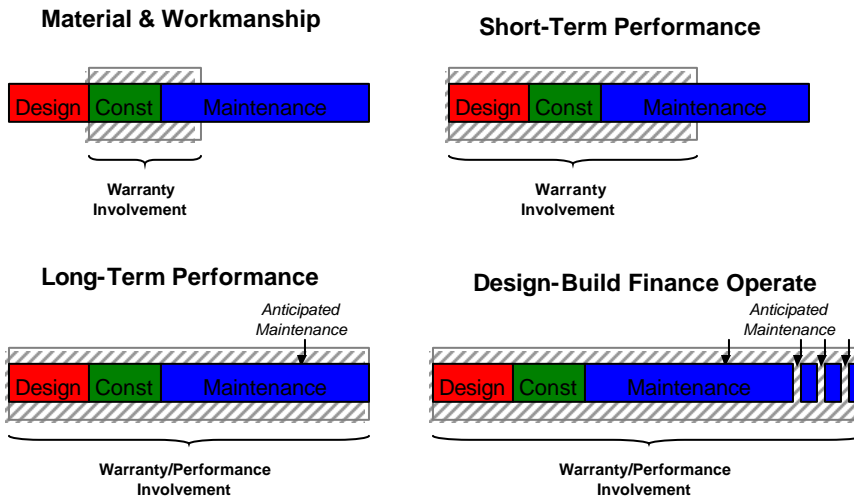
- ▣ Contractor responsible for correcting work elements within the contractors control
- ▣ Includes distresses resulting from defective materials and/or workmanship
- ▣ Methods specifications

### • Performance Warranties

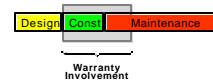
- ▣ Includes full responsibility for pavement performance
- ▣ Contractor designs some level of structural pavement and/or mix decisions
- ▣ Performance specifications



## Summary Observations



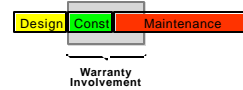
## Key Findings



- ❖ **Material and Workmanship Warranties**
  - ❖ At a minimum all host countries used W&M warranties on traditional contracts
  - ❖ Ensures contractor builds the pavement specified by owner
  - ❖ Ensures contractor will fix any defects resulting from improper materials or inferior installation.



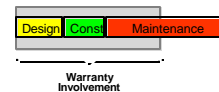
## Key Findings



- M&W Warranties (cont.)
  - ❖ Majority of countries seek remedy from the prime contractor
  - ❖ Warranty periods varied
    - United Kingdom: 1 year
    - Spain: 2 years
    - Germany: 4 years
  - ❖ Performance indicators
    - Rutting, cracking, durability



## Key Findings

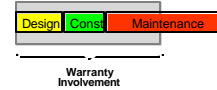


- Performance Warranties
  - ❖ Denmark and Sweden use performance warranties on traditional contracts
  - ❖ UK utilizes performance warranties on their design-build contracts
  - ❖ Performance warranty includes W & M
  - ❖ Also includes performance of the complete pavement structure





## *Key Findings*



- Performance Warranties (cont.)
  - Contractors responsible for some or all of the pavement design
  - Allows for greater level of innovation
  - Performance criteria:
    - Rutting, cracking, and durability
    - Ride and friction



## *Key Findings*

- Best-Value Procurement
  - All host countries use best-value procurement in lieu of low bid
  - Award of contract based upon technical and/or performance items in addition to cost
  - Criteria includes safety, innovation, environmental impact, schedule, etc.



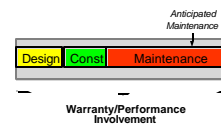
## Key Findings

- Best-Value Procurement (cont.)
  - Denmark includes additional years of warranty as a criteria
  - All use a transparent process but criteria and weighting vary
  - All stated it was critical to the warranty program



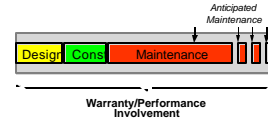
## Key Findings

- Alternative Contracting
  - Pavement performance Contracts (PPC)
    - Warranty period closer to design life
    - Contractor responsible for designing, constructing, and maintaining the pavement performance to a pre-specified level
    - Warranty period ranged from 11 to 20 years
    - Allows much more innovation, also substantially more risk.
    - All countries were employing or experimenting





## Key Findings



### Alternative Contracting (cont.)

#### Design-Build-Finance-Operate (DBFO)

- Used in Spain and the UK
- Private sector provides long-term financing, operation, and maintenance
- Duration 25 to 30 years
- Delivers a higher quality product and provides a benchmark for public sector performance



## Recommendations

### Federal

- ❖ Require M&W warranties on all federally funded projects
- ❖ Explore development of long-term performance warranties
- ❖ Promote/enable best-value and prequalification legislation
- ❖ Create an asphalt warranty resource center



## *Recommendations*

### State

- ❖ Create model warranty documents (AASHTO)
- ❖ Implement M&W warranties
- ❖ Implement short-term performance warranties
- ❖ Enable best-value and prequalification procedures



## *Recommendations*

### Industry

- ❖ Become educated on warranty issues and risks
- ❖ Participate in warranty policy discussions
- ❖ Propose on warranty projects
- ❖ Consider providing operation and maintenance services



## *Implementation*

- ⊗ Awareness
  - ▣ Publications and presentations
- ⊗ Understanding
  - ▣ Implementation guides and models
- ⊗ Commitment
  - ▣ Federal, State, and Local endorsement
- ⊗ Action
  - ▣ Compilation and evaluation of implementation results



## *HMA Pavement Warranties*

