Long Term Pavement Performance Program and Pavement Preservation

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Nashville, TN

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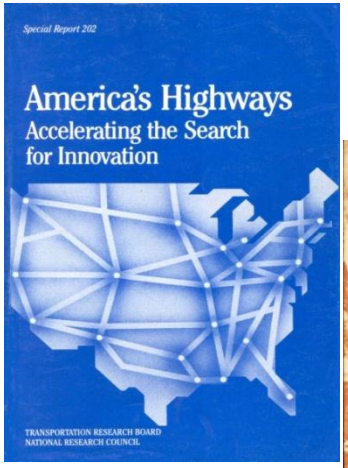
FHWA-LTPP

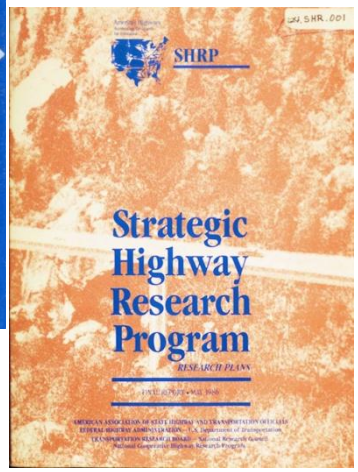
Introduction

- The LTPP program began in 1987 as the Strategic Highway Research Program (SHRP)
- The longest running highway research program in history
- Over 2,400 test sections
- 16 data modules, 430 tables, 8,000 data elements

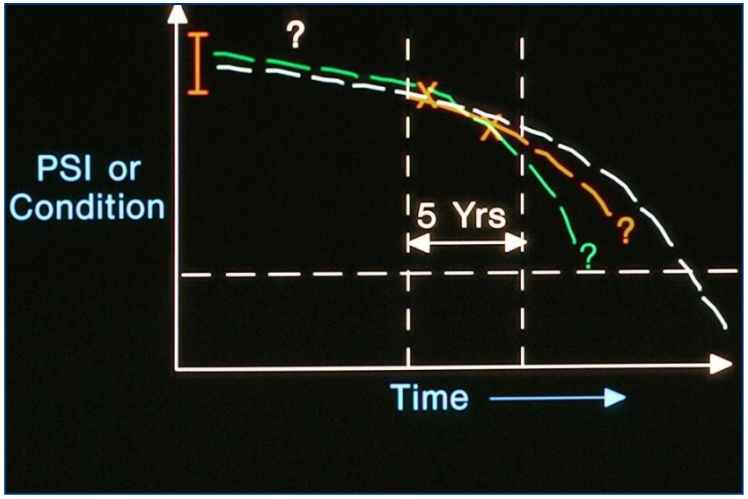
LTPP Mission Statement

To increase pavement life by investigation of various designs of pavement structures and rehabilitated pavement structures, using different materials and under different loads, environments, subgrade soil, and maintenance practices.





LTPP's GOAL is…



To provide answers to

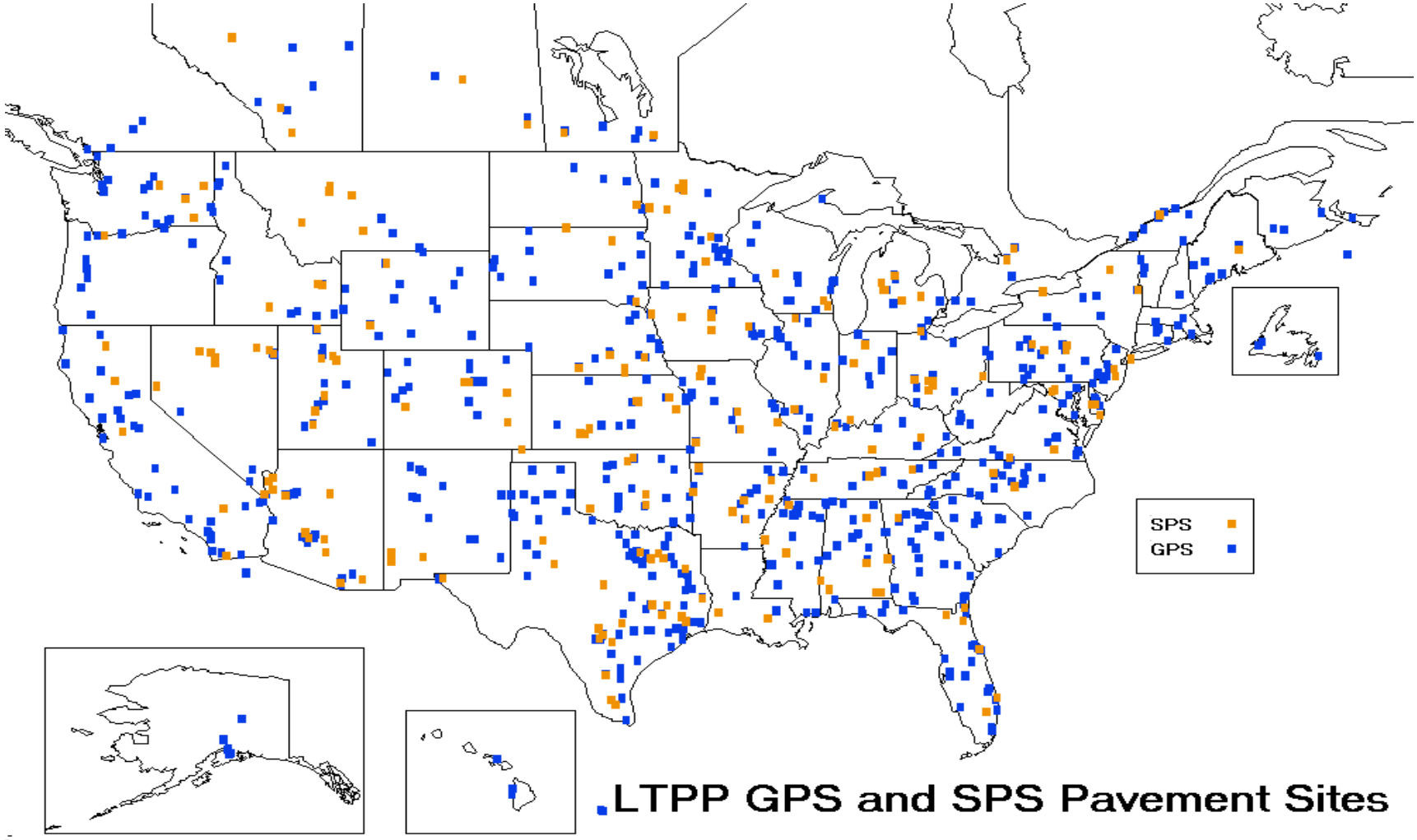
HOW and **WHY**

pavements perform as they do!

LTPP Objectives

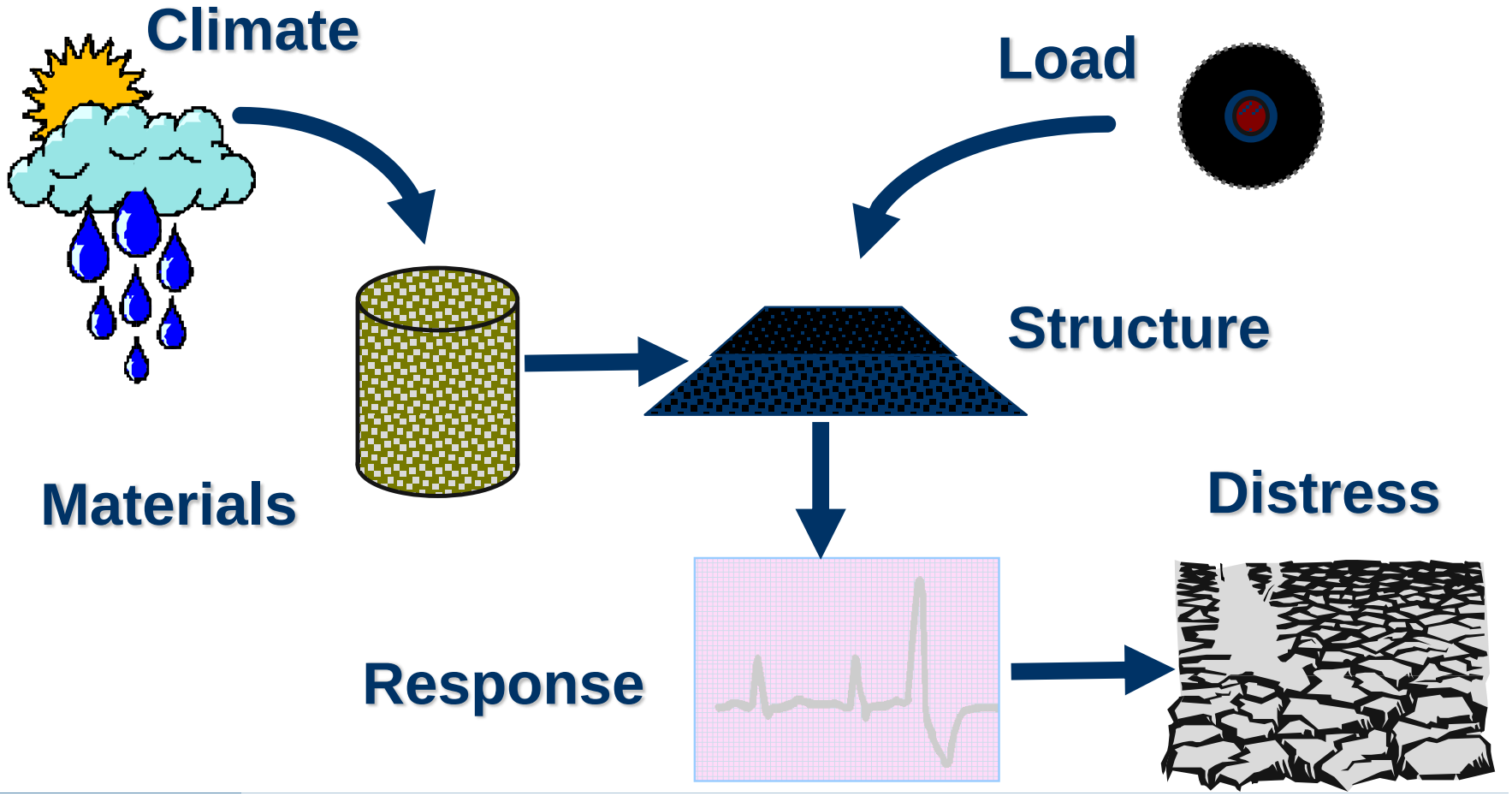
- Evaluate existing design methods.
- Develop improved design methodologies and strategies for the rehabilitation of existing pavements.
- Develop improved design equations for new and reconstructed pavements.
- Determine the effects of loading, environment, material properties and variability, construction quality, and maintenance levels on pavement distress and performance.
- Determine the effects of specific design features on pavement performance.
- Establish a national long-term database to support SHRP's objectives and to meet the future needs of the highway industry.

Test Sections

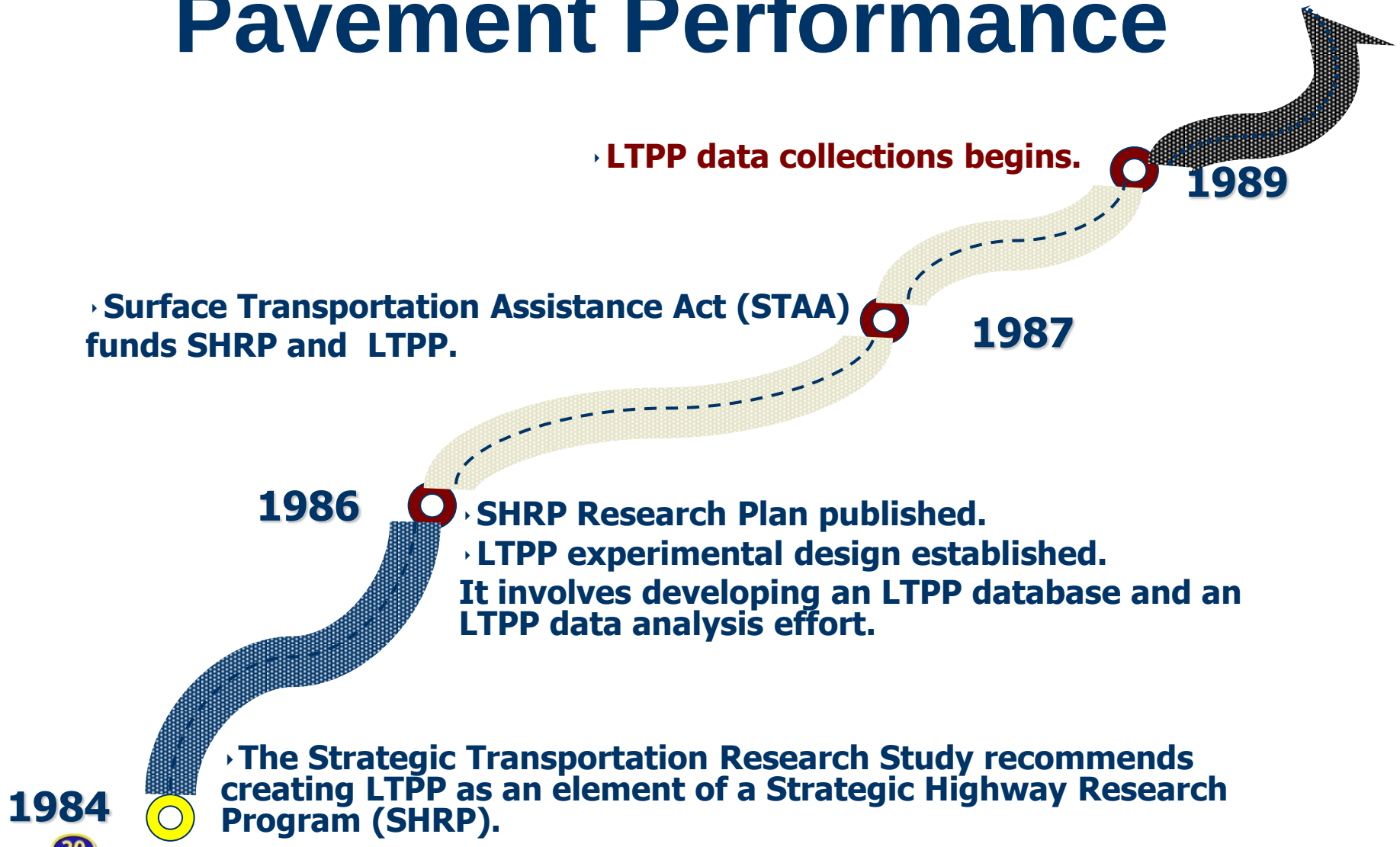


LTPP GPS and SPS Pavement Sites

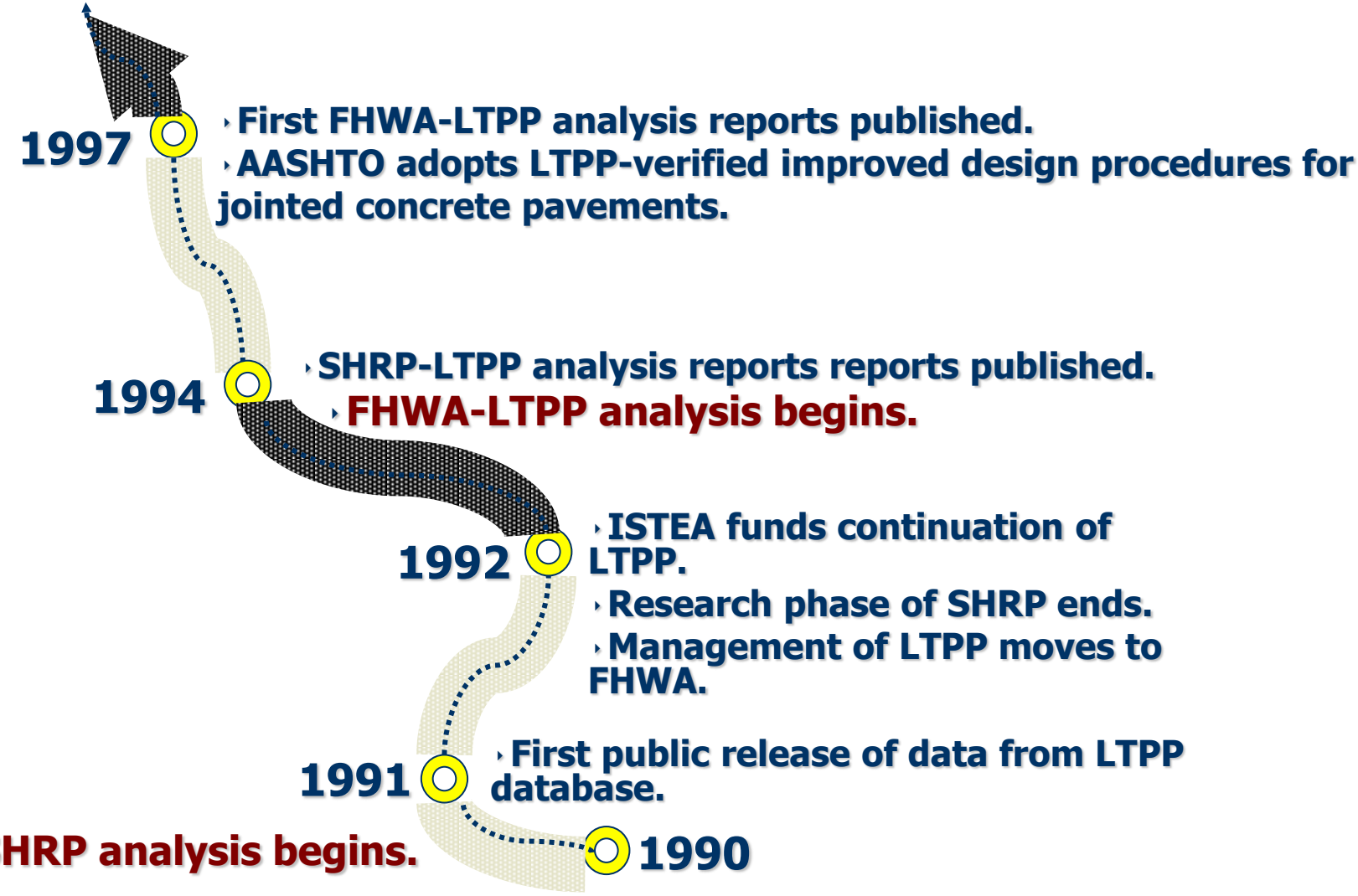
LTPP Data & Information



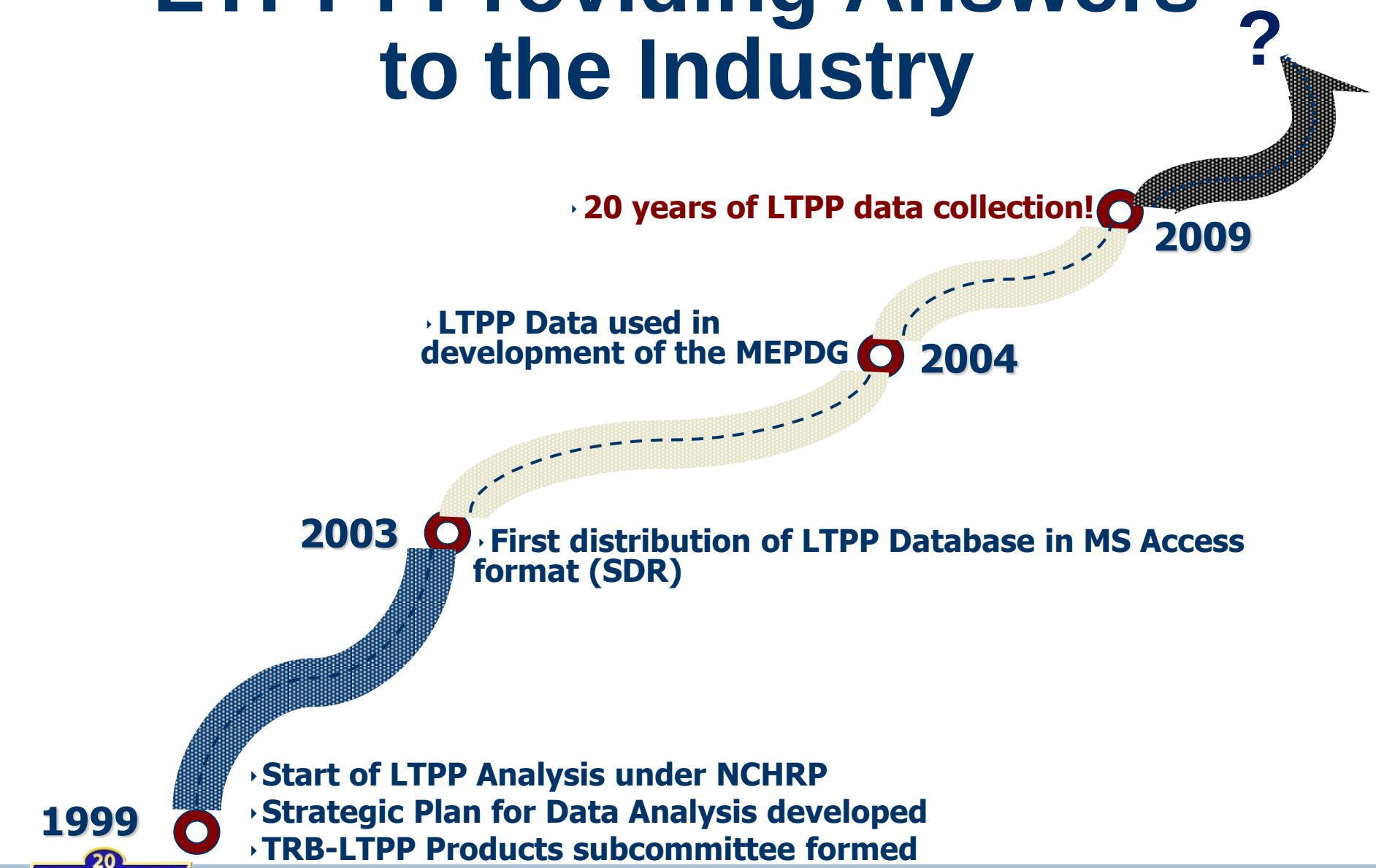
LTPP: Understanding Pavement Performance



LTPP: Data Analysis



LTPP: Providing Answers to the Industry



General Pavement Studies (GPS)

1 > Asphalt Concrete (AC) on Granular Base

2 > AC on Bound Base

3 > Jointed Plain Concrete Pavement

4 > Jointed Reinforced Concrete Pavement

5 > Continuously Reinforced Concrete Pavement

6 > AC Overlay on AC Pavements

7 > AC Overlay on Portland Cement Concrete (PCC)

9 > Unbounded PCC Overlays on PCC Pavements

General Pavement Studies (GPS)

- Focus on most commonly used pavement designs
- Experimental design: full factorial
- One 500 foot section per location

Primary Factors

Subgrade: fine & course
Traffic: medium & heavy
Temp: freeze and non-freeze
Moistures: wet and dry

Secondary Factors

AC thickness
AC stiffness
SN of base and subgrade
PCC thickness
Joint spacing

Specific Pavement Studies (SPS)

1 > Strategic Study of Structural Factors for Flexible Pavements
2 > Strategic Study of Structural Factors for Rigid Pavements
3 > Preventative Maintenance Effective for Flexible Pavements
4 > Preventative Maintenance Effective for Rigid Pavements
5 > Rehabilitation of AC Pavements
6 > Rehabilitation of Jointed PCC Pavements
7 > Bonded PCC Overlays on Concrete Pavements
8 > Study of Environmental Effects in the Absence of Heavy Loads
9 > Validation of SHRP Asphalt Specification and Mix Design (Superpave)

SPS-3 & SPS-4

- SPS-3: Evaluate the effectiveness of different maintenance treatments on flexible pavements
- SPS-4: Evaluate the effectiveness of different maintenance treatments on rigid pavements

New Experiments

- Warm Mix Asphalt
- Pavement Preservation
- ETG will be established for each project

Experiment Design

- Design Experiment
  - Preservation techniques
    - Flexible Pavements
    - Rigid Pavement
  - Climate Zones, Subgrades, Pavement Condition, Traffic Loading, etc.
- Material Testing

Experiment Design

- Performance Testing
- Construction Data
- Other Testing

Expert Task Group

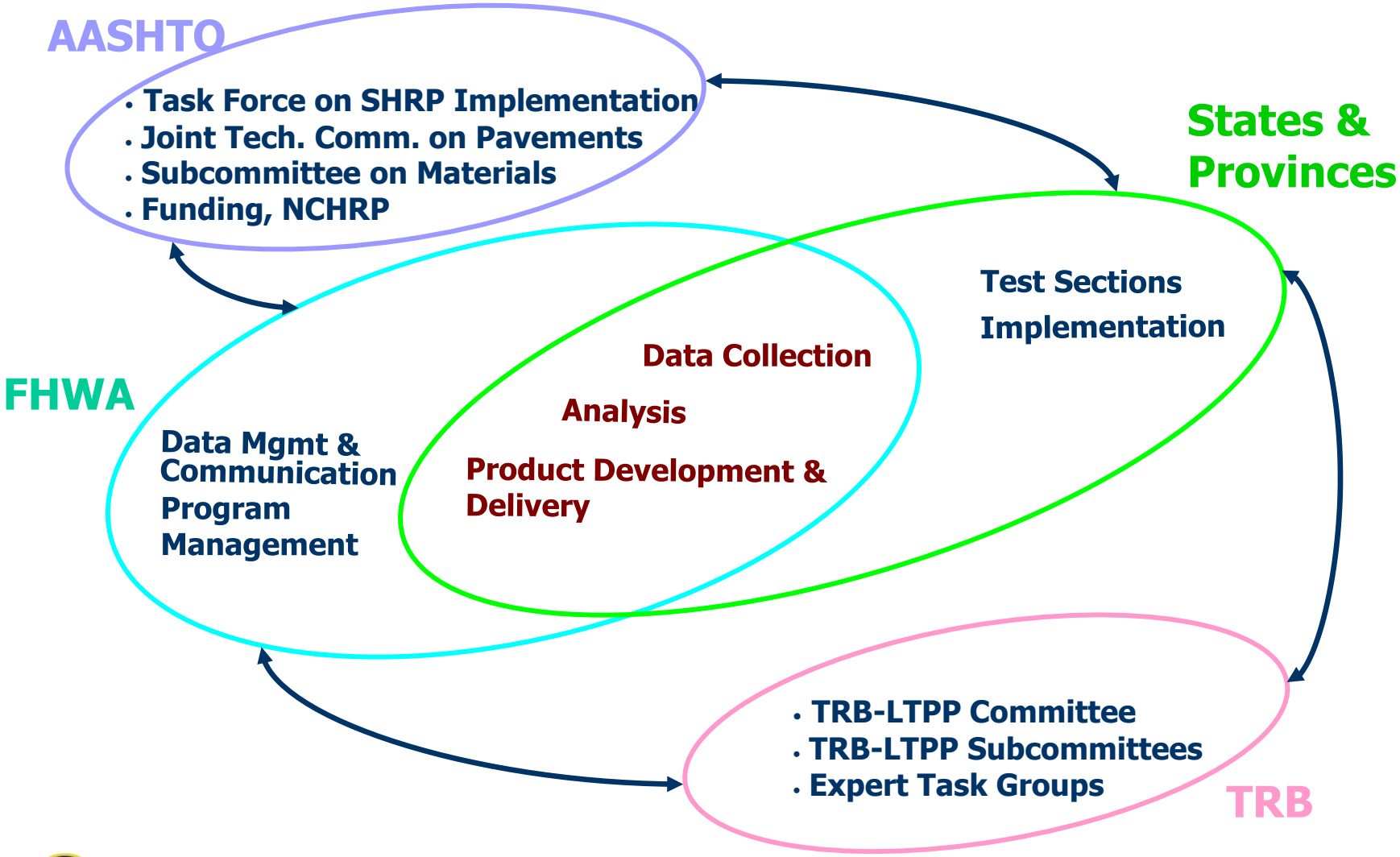
- 3 State DOT representative
- 3 Researchers
  - Universities
  - Consultants
- Industry Representatives

Time Table

- RFP to Contracts: Nov 2012
- RFP Posted: Jan/Feb 2013
- Contract Awarded: June 2013

The Partners

The Partners At Work



Thank You !

Any Questions?