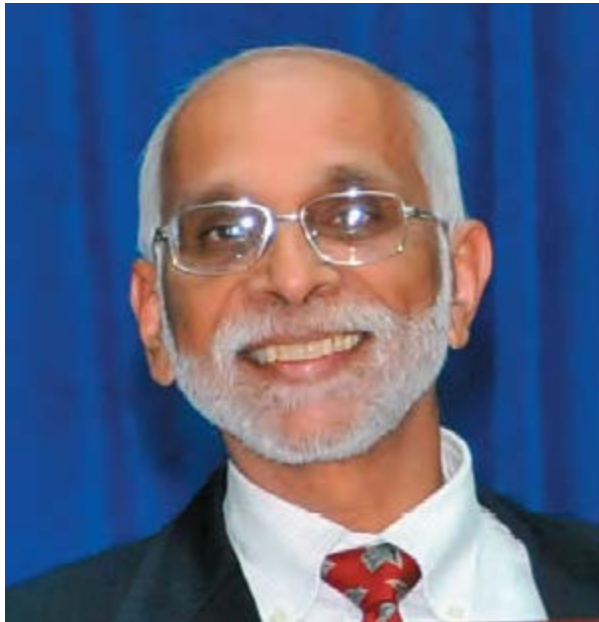


# Concept Design for an Online Information Source for Major Surface Transportation Projects: A Discussion Paper

Presented by Benjamin Perez and Jagannath Mallela, WSP  
June 27, 2017

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# Discussion Paper Overview



# Legislative Context

- To the maximum extent possible, the FAST Act directs FHWA and the Bureau to:
  - Identify procurement thresholds for transportation project cost and schedule increases
  - Measure cost and delivery schedule changes
  - Monitor how performance outcomes vary with different procurement methods
  - Collect project-specific information and make it openly available on the internet
- *This research addresses considerations for a first step*

# A Two Tiered Project-Specific Approach to Data Collection

- Tier 1 provides basic descriptive and project outcome information collated from existing sources
- Tier 2 elements would support advanced research and analysis using information not captured in existing repositories
- Based on feedback from industry stakeholders, initial focus on compiling Tier 1 data
- The Tier 1 and 2 elements could be adjusted based on availability and data quality
- Tier 1 -- First increment would test approach, usefulness and burden
- Tier 2 information retained for potential use by other researchers

# A Two Tiered Project-Specific Approach to Data Collection

- Comprehensive Information Source Tier 1
  - Provides benchmark information on project delivery
  - Uses existing data sources for all major projects
    - FHWA Center for Innovative Finance Support Data
    - FHWA Major Project Database
    - FHWA Highway Performance Monitoring System (HPMS)
    - FHWA National Bridge Inventory (NBI)
- Comprehensive Information Source Tier 2
  - Provides detailed data for in-depth analysis
  - Could be assembled from project documentation where available based on Tier 1 experience

# Governance and Platform

- Decisions regarding these aspects will:
  - Be critical to functionality
  - Assert role of contributors, data owners, and managers
  - Have implications for sponsors' commitment and resources needed
- Paper provides basic options and makes recommendations



# Discussion Paper Development



# Information Source Target Audiences

- State DOTs
- Metropolitan Planning Organizations
- Transportation Procurement Practitioners
- Public Policy Officials
- Academics
- Private Sector Partners



# White Paper Organization

## Executive Summary

Chapter 1: Online Information Source Structure and Purpose

Chapter 2. Information Source Projects

Chapter 3. Tier 1 Data Requirements and Sources

Chapter 4. Online Information Platform

Chapter 5. Long-Term Maintenance and Enhancement

Chapter 6. Recommendations and Next Steps

Appendix A: FHWA Major Projects

Appendix B: Tier 2 Data Requirements and Potential Sources

# White Paper Review Process

- First Draft Delivered January 6, 2017
  - Reviewed by 10 industry and academic experts
- Second Draft Delivered March 3, 2017
  - Subject of a Round Table Reviewed on March 28, 2017 attended by industry experts
- Final Draft Delivered June 6, 2017
  - Reflect Round Table input and final FHWA comments and edit

# Information Source Goals

- Understand project procurement outcomes
- Facilitate benchmarking analysis
- Inform decision-making
- Validate decision-making
- Facilitate industry and academic research

***We address these goals by providing data to answer 21 Core Research Questions***

# 21 Core Research Questions

- Used to identify potential data to be included in the Information Source
- Information Source is an interim step -- provides data to help answer the questions, not the answers

# Comparing Outcomes for P3 and Non-P3 Procurements

- Cost performance
- Risk mitigation
- Scope evolution for P3 and non-P3 delivery
- Schedule certainty
- Procurement and oversight requirements
- Life cycle costs
- Financing costs

# Comparing Outcomes for P3 and Non-P3 Procurements (*cont'd*)

- Design and construction quality
- Maintenance quality
- Service quality
- Local subcontractor and disadvantaged business involvement
- Labor rates



# Information Source Projects



# FHWA Major Projects

- Cost of \$500 million or more using Federal funding
- 104 current projects
- 33 completed projects
- A variety of procurement models
  - Design-bid-build (DBB)
  - Design-build (DB)
  - Design-build-finance-operate-maintain (DBFOM) concession

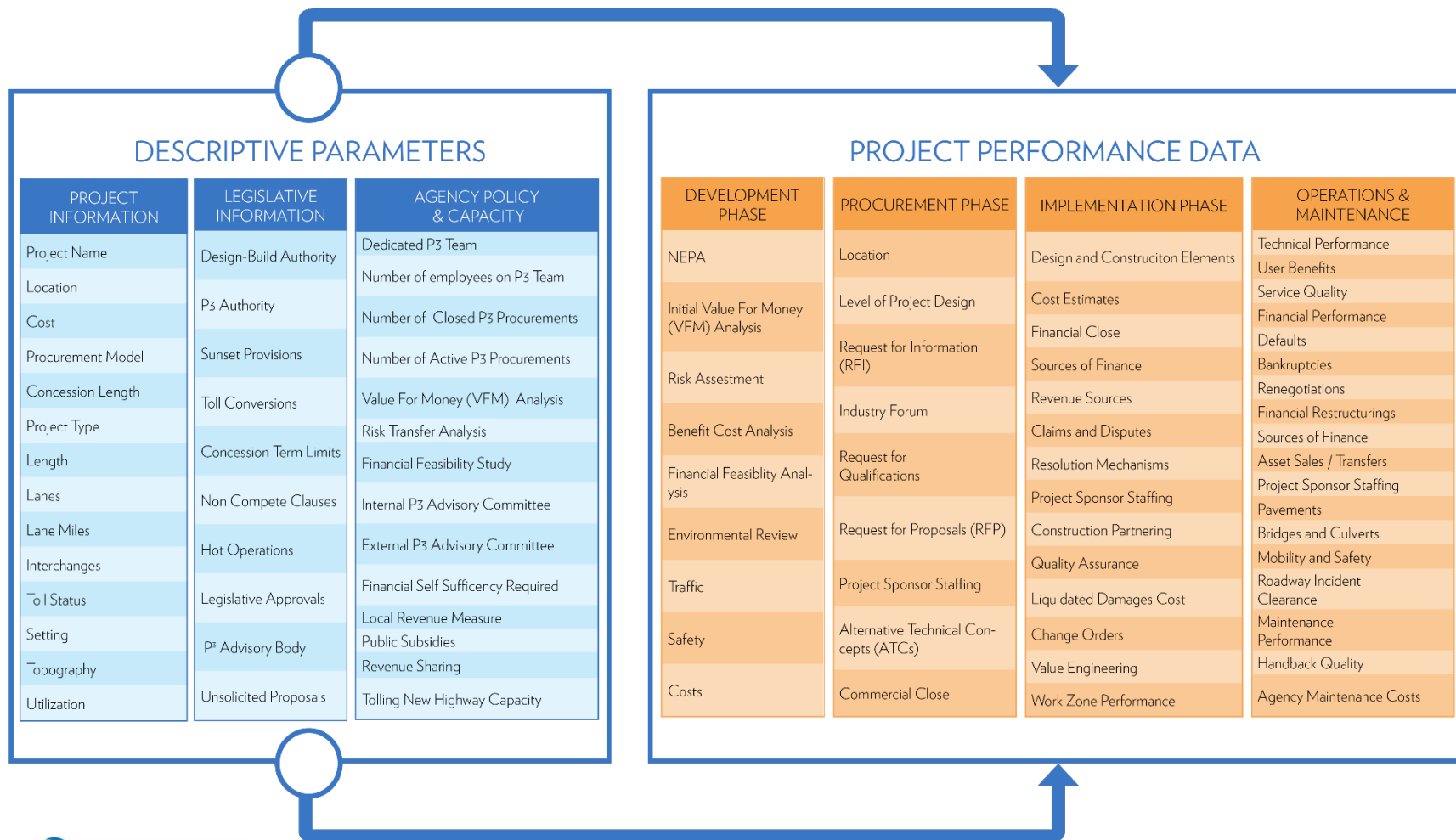
# Tier 1 Data



# Tier 1 Data

- Higher level benchmark library
- Intended for decision-making assistance and project performance review
- To be assembled for all FHWA Major Projects

# Relational Database Structure



# Tier 1 Data

- Can be assembled from EXISTING repositories
  - FHWA Center for Innovative Finance Support Data
  - FHWA Major Projects Database
  - FHWA Highway Performance Monitoring System
  - FHWA National Bridge Inventory
  - Electronic Municipal Market Access (EMMA)Website
  - State DOT project delivery websites
  - National Conference of State Legislatures

# Questions





# Online Information Platform



# Online Information Platform

- Purpose:

- Compare project performance outcomes for different delivery methods

- Content:

- Data collated from multiple sources over time
- Alphanumeric information, documents, maps, images, URLs

- Relational database structure:

- Use non-proprietary software and coding practices
- Avoid third party add-ons
- Streamline ongoing maintenance costs

# Online Information Platform

- Support the following functions
  - Search Filters
  - Display Tables
  - Sortable Columns
  - Reporting
  - Data Upload and Export
  - Online Help and Tool Tips
- The Information Source's governing structure will influence its design

# Data Management Questions

- Do the data already exist?
- How will the data be obtained or collected?
- What is the schedule and budget for data collection?
- How will the data be checked and certified?
- Can the data be made publically available?
- How will the data be stored, accessed, and protected?

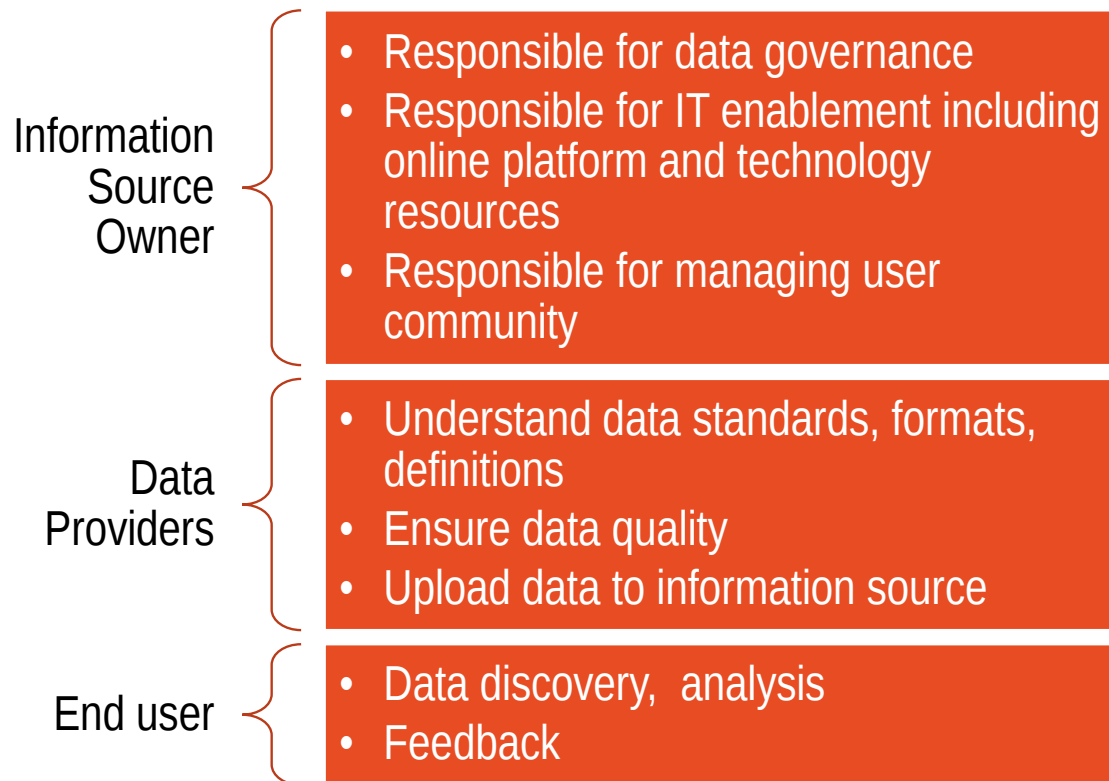


# Data Management Plan Options

- Distributed Responsibility
- Total Ownership
- Hybrid Approach



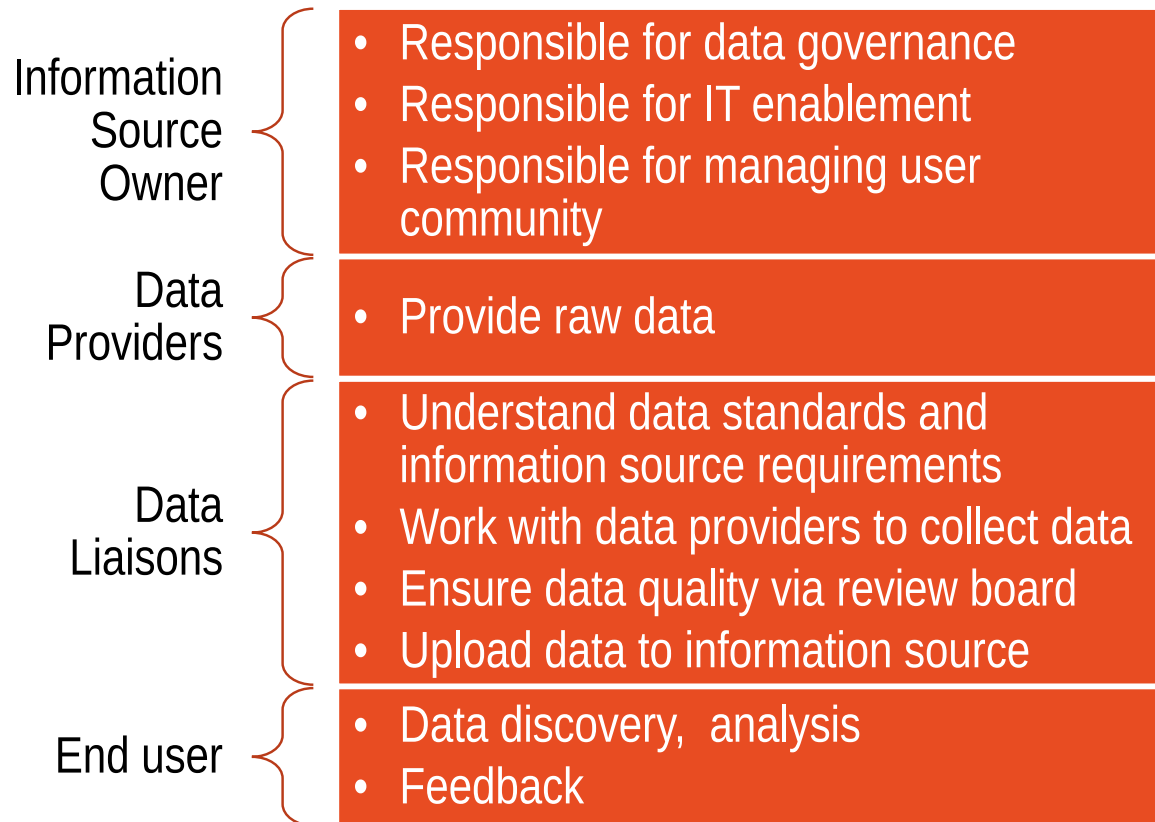
# Distributed Responsibility



# Total Ownership



# Hybrid





# Recommendations and Next Steps



# Recommendations

- The information source would be most useful in informing higher-level public policy decisions
- Focus on compiling Tier 1 information
- Conduct a pilot as a proof of concept
  - Confirm what information is available and the level of effort to collect it

# Contact Information

Website:

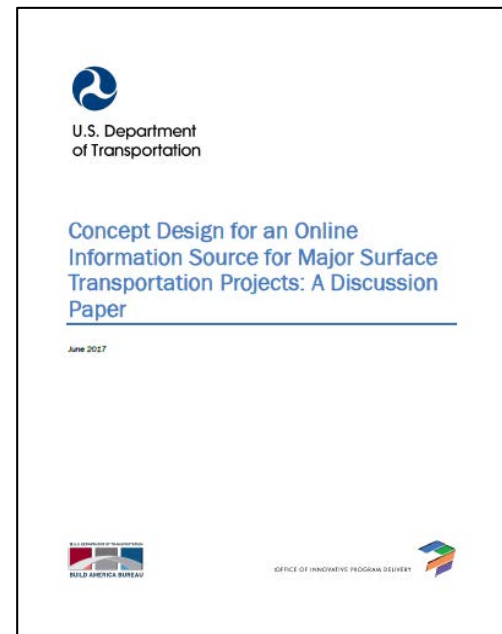
<https://www.fhwa.dot.gov/ipd/p3/>

FHWA

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# Questions

