

Continued Implementation of High Performance Thin Overlays in Texas Districts

Implementation Project 5-5598-05

District Presentation

Texas A&M Transportation Institute
Texas Department of Transportation



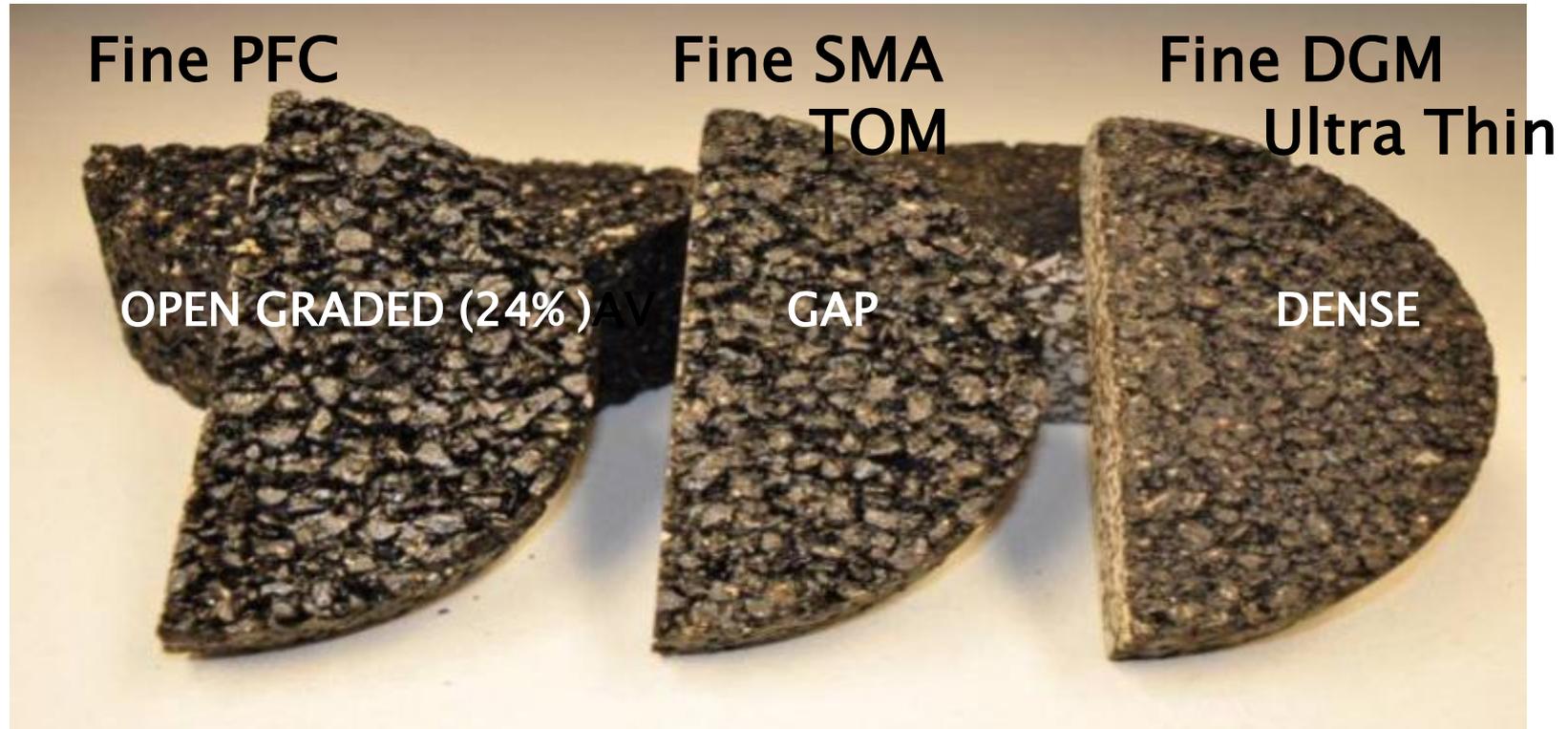
↑↓ 1-inch or less

- ▶ *Thin overlays are high-performance overlays designed to be placed at a thickness of between ½ and 1".*

Products of Research Project 0-5598

- ▶ Guidelines and specifications on how a district can design and construct long-life overlays using the concept of balanced mix design.
 - ▶ Training materials describing the best ways to select, design, and construct these high performance thin overlays.
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Types of New Thin Overlays



- 30% Cost savings over traditional mixes – lifts of 1" or less
- Pass Rutting (HWTT) and Cracking (OT) performance tests
- Min 6% PG 76–22 SAC A Rock, 100% passing 3/8" NO RAP or RAS
- **Structurally sound pavements ONLY**

Existing Specs

SPECIAL SPECIFICATION

3228

Fine Surface Mixes (Volumetric Design Method)

1. **Description.** Construct a fine graded surface mix composed of a compacted mixture of aggregate and asphalt binder mixed hot in a mixing plant and placed at a lift thickness of 1 inch or less. Fine surface mixtures are defined as either

Type I fine permeable friction course (F-PFC),

Type II fine- stone matrix asphalt (F-SMA), or

Type III fine-dense graded mix (F-DGM).

2004 Specifications

Austin, Paris, & San Angelo Districts

SPECIAL SPECIFICATION

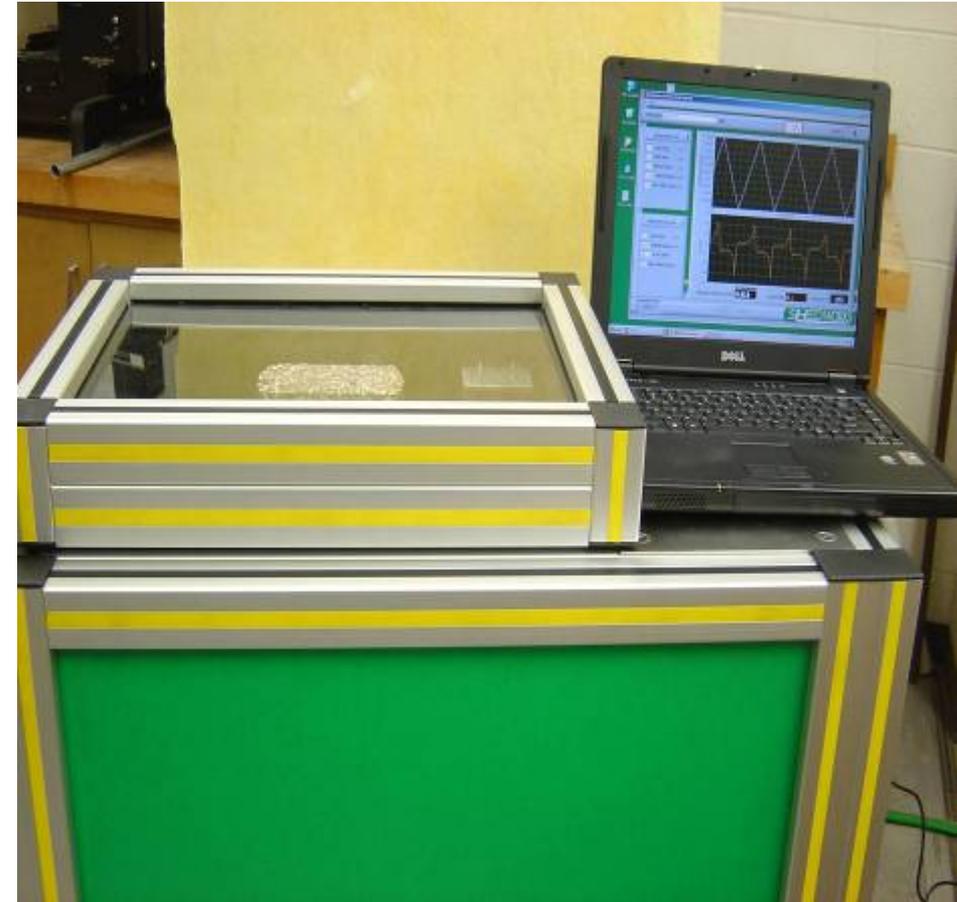
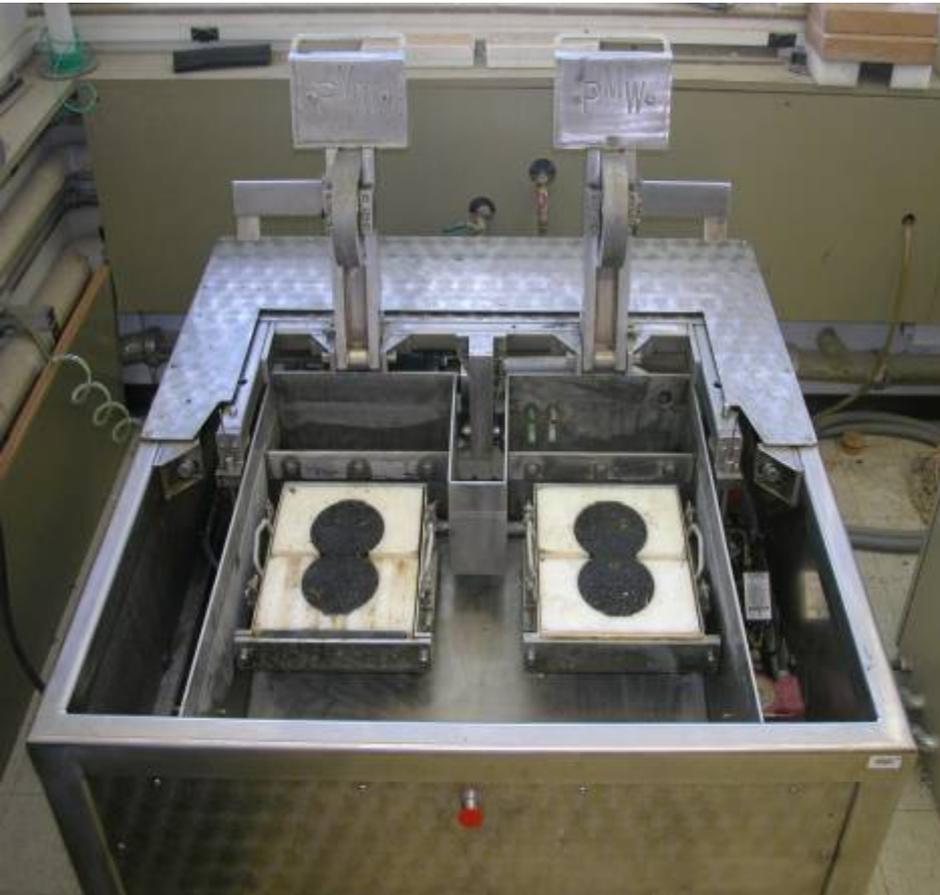
3239

Thin Overlay Mixture (TOM)

1. **Description.** Construct a thin friction course overlay surface mix composed of a compacted mixture of aggregate and asphalt binder mixed hot in a mixing plant and placed at a lift thickness of 3/4 to 1-1/4 inch.
2. **Materials.** Furnish uncontaminated materials of uniform quality that meet the requirements of the plans and specifications.



Designing Thin Overlays



Hamburg Wheel Tracking Device

Overlay Tester



Thin (<1") Fine Surface Mixes

- Type 1 Fine PFC**
Safety/drainage/noise
- Type 2 Fine SMA**
Rut/crack resistance/skid
- Type 3 Fine DGM**
Rut/crack/urban areas

All with quality aggregates and PG 76-22 binders

Candidates for Fine PFC

- ▶ Good pavement support
- ▶ Sealed pavement
- ▶ Safety concerns
- ▶ Noise concerns
- ▶ Bleeding chip seals



Candidates for Fine SMA or TOM

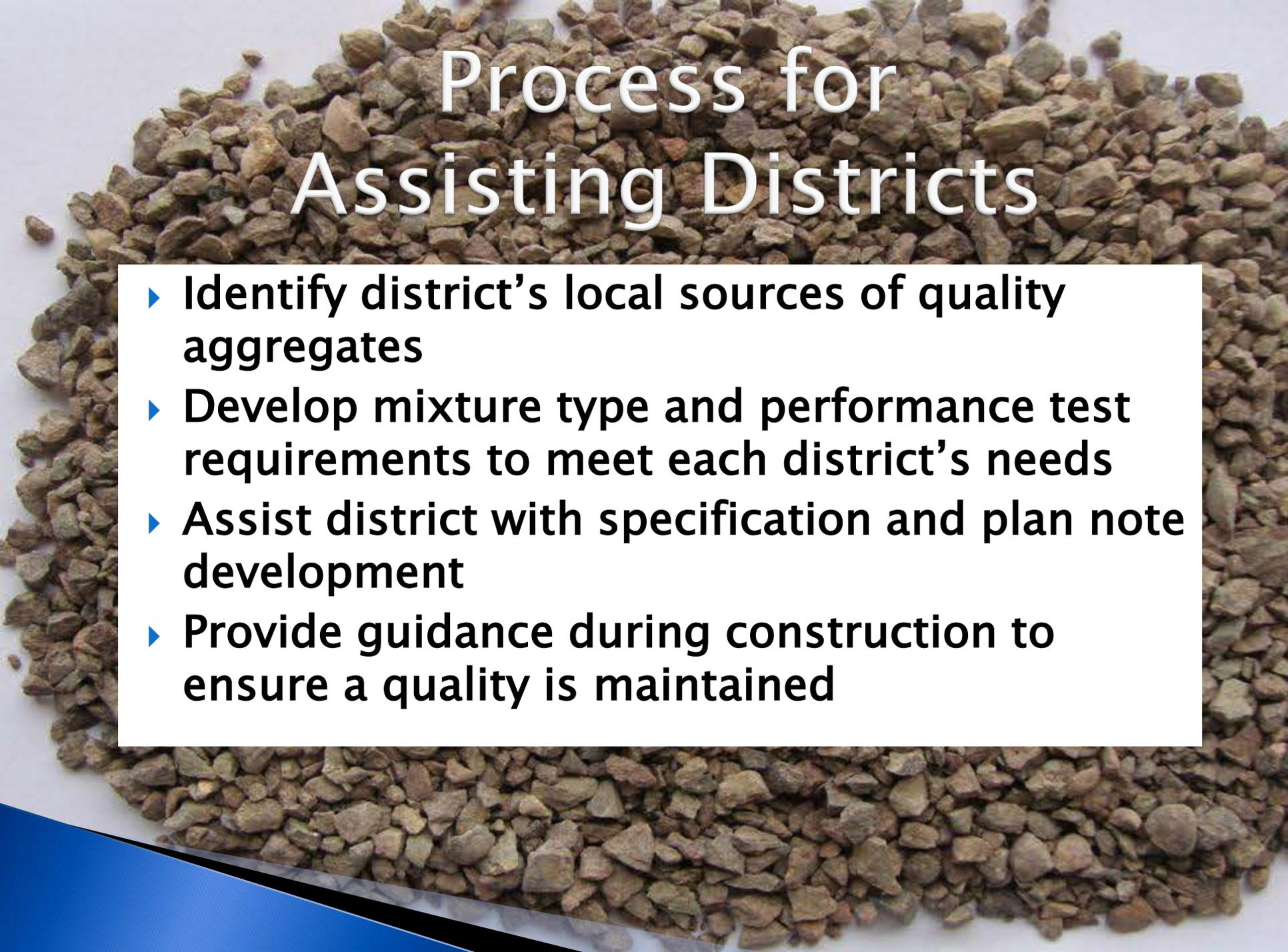
- ▶ Good pavement support
- ▶ Tough Durable Mix
- ▶ All type of traffic levels
- ▶ Stop and Go traffic



Candidates for Ultra Thin

- ▶ When road is not a good candidate for chip seal
- ▶ Lowest cost application
- ▶ Improve skid resistance
- ▶ Crack resistant level up layer

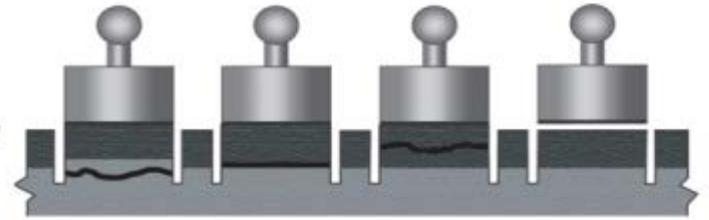




Process for Assisting Districts

- ▶ Identify district's local sources of quality aggregates
- ▶ Develop mixture type and performance test requirements to meet each district's needs
- ▶ Assist district with specification and plan note development
- ▶ Provide guidance during construction to ensure a quality is maintained

Bonding



Compaction



Acceptance



Work Plan

- ▶ Task 1. Training Program and Site Selection
 - ▶ Task 2. Test Section Construction Planning
 - ▶ Task 3. Construction Specifications
 - ▶ Task 4. Construction and Monitoring of Test Sections
 - ▶ Task 5. Expanded Workshop Training Modules
 - ▶ Task 6. Present Training Workshops
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Task 1. Training Program and Site Selection

- ▶ Background presentations to Houston, Odessa, and Paris
- ▶ Select sites in each of the 3 districts.
Potential candidates include:

Houston	Odessa	Paris
FM 1093 Westheimer US 59 Beltway 6 to Lp 610 US 59 Beltway 8 to Lp 610	Lp 250 around Midland Lp 335 around Odessa FM 1882 Ector Co	US 82 Super-2 Widening SH 19, Lp 286 to FM 2036 Lp 286, FM 905 to Kiamichi RR

Task 2. Test Section Construction Planning

- ▶ Inspect each candidate section to determine its suitability. Conduct field testing if needed.
 - ▶ Contact local material suppliers and contractors to determine availability of suitable aggregates.
 - ▶ Develop possible mix design alternatives for district consideration based on performance test requirements.
 - ▶ Assist district in plan preparation.
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Task 3. Construction Specifications

- ▶ Each district will require the development of their own set of specifications and plan notes to be used on the upcoming projects.
- ▶ TTI will fine tune the specifications developed under 0-5598.

Task 4. Construction and Monitoring of Test Sections

- ▶ Construct a minimum of two sections in each district so the district can evaluate the potential of these new mixes for their needs.
- ▶ TTI will provide assistance with water flow measurements and assist contractor in setting roller patterns.
- ▶ Test trial batch and production samples.
- ▶ Perform quality assurance tests.
- ▶ Document construction details.
- ▶ Monitor performance.
- ▶ Use information to update training materials and specifications.

Task 5. Expanded Workshop Training Modules

- ▶ Prepare updated presentation materials for training workshops.
 - Module 1. Introduction
 - Module 2. Site Selection
 - Module 3. Aggregate Selection
 - Module 4. Mix Design
 - Module 5. Construction and Performance Monitoring
 - Module 6. Case Study

Task 6. Present Training Workshops

- ▶ TTI will present the training materials on location to the Houston, Odessa, and Paris District staff.

Project Management Discussions

I. Project Goals and Objectives

- ▶ Discuss and agree on why the project is important to the Customer (primary goals).
- ▶ Discuss the priority of the project against other priorities (potential resource conflicts).

II. High Level Plan, Deliverables, Structure and Responsibilities

- ▶ Determine reporting relationships and major responsibilities.
- ▶ Review major deliverables and target dates. Explain who is responsible, who is kept informed and who provides support.

III. Critical Success Factors and Project Acceptance Criteria

- ▶ Explain how deliverables will be measured (for example, on-time, accurate, and complete).

IV. Risks and Issues Management

- ▶ Identify potential risks.
- ▶ Determine a process for managing issues and risks.
- ▶ Specify escalation processes.

V. Communication Strategy

- ▶ Determine how communications inside/outside project will be handled.
- ▶ Discuss escalation of problems to the project manager.
- ▶ Clarify how confidential information will be identified and handled.

VI. Change Management

- ▶ Review the process for managing changes to scope. Discuss roles and responsibilities including OPR Director ownership for authorizing changes and securing funding and resources to support approved changes.