Agenda

• EDC 1 and EDC 2 overview
• Safety Edge
• High Friction Surface Treatments (HFST)
• Intersection and Interchange Geometrics
• SHRP2 Incident Management Responder Training
• Questions
A focused, stakeholder-based approach for rapid deployment of proven innovations
Shortening Project Delivery

- Planning and Environmental Linkages
- Programmatic Agreements
- Mitigation Banking
- In Lieu Fees
- Legal Sufficiency
- Scope of Preliminary Design
- Utility Accommodation
- Flexibilities in Right of Way
- Enhanced Technical Assistance
- Design Build
- Construction Manager / General
Original EDC Focus Areas

Accelerating Technology Deployment

- Safety Edge
- Warm Mix Asphalt
- Geosynthetic Reinforced Soil Integrated Bridge System
- Adaptive Signal Control
- Prefabricated Bridge Elements and Systems
We will build on the successes of EDC1 to continue creating a culture of innovation, while reaping even more benefits in EDC2.
EDC-2 Focus Areas

- Shortening Project Delivery
- Reducing Construction Time
- Innovative Contracting

- 3D Engineered Models for Construction
- Accelerated Bridge Construction
- Alternative Technical Concepts
- Construction Manager / General Contractor
- Design Build
- Intelligent Compaction
- Locally Administered Federal-Aid Projects
- Programmatic Agreements
EDC-2 Focus Areas

- Environment
- Mobility
- Safety

- Geospatial Data Collaboration
- High Friction Surface Treatments
- Implementing Quality Environmental Documentation
- Intersection and Interchange Geometrics
- SHRP2 Incident Management Responder Training
Total Fatal Crashes

- Non-Roadway Departure: 48%
- Roadway Departure: 52%
Fatal Crashes by Alignment

- Curve: 72% (28 crashes)
- Tangent: 81%
- RwDs in Curve: 19%
- Other Curve Crashes: 19%

(Chart showing distribution of fatal crashes based on alignment.)
Benefits of Safety Edge

• Temporary safety benefit during construction
• Increase production—shoulder work after overlay complete
• Providing “Due Care”
• Aid vehicle re-entry

• Increased Pavement Edge Durability
• Reduced Crashes Over Life of the Pavement
• **49** DOTs have used the **Safety Edge** on a paving project.

• Over **1,174** Safety Edge projects initiated since October 2010

• TxDOT standard detail sheet issued January 31, 2011

• Hundreds of Texas projects completed
What is a High Friction Surface Treatment?

- High Friction Surface Treatments (HFST) are resin-based pavement surfacing overlay systems:
  - exceptional skid-resistant properties
  - retains the higher friction property for a much longer time.
- Commercially available
- Generally applied in short sections to improve spot locations where friction demand is critical.
• Manually - Manual mixing of epoxy material and application with squeegee
• Automated (machine-aided) - Machine mixing and application of epoxy (limited hand/squeegee work)
Benefits

• Key message: HFST reduce crashes, injuries, and fatalities.

• Benefits include:
  – customizable to specific state and local safety needs
  – high return on investment
  – minimal impact to traffic during construction
  – negligible environmental impact
HFST Deployment Map

High Friction Usage

- **No sites**
- **At least one site**
- **Multiple sites (5+)**
- **Aggressive use**

★ = National Demo Project

National Demonstration Project – Surface Enhancement at Horizontal Curve (SEAHC)
Texas HFST deployment

• FHWA led research includes Texas locations
• Several demo locations
  – US 183 Austin
  – FM 1431 Austin
  – IH-10 to IH-45 direct connector ramp
• Research is underway by TTI with sites being installed
What are Intersection & Interchange Geometrics?

- Innovative designs that:
  - Improve the way traffic makes certain movements
  - Eliminate, relocate or modify conflict points
  - Strategically improve signalization
• Growing traffic demands
• Scarce funding
• Restricted ability to add more lanes or build grade separations
• Need for improved safety for pedestrians, bicyclists and drivers
Safety
- Fewer conflict points
- Encouraging results from early deployments

Mobility
- Reduced delay / more capacity

Promotes best-value solutions
- Lower ROW & construction costs
- Reduced impacts

Faster implementation
... and the innovations are

- Roundabouts
  
- U-Turn Intersections
  
- Displaced Left Turn Intersections

- Diverging Diamond Interchanges
• Modern designs are safer and more efficient than old circles and rotaries

• Measurable progress in last 10+ years, but still underutilized

• Proven in both low-speed urban and high-speed rural environments

• Effective for both corridor and spot improvements

Source: FHWA
U-Turn Intersections

Restricted Crossing U-turn (RCUT) (aka J-turn, Superstreet)

Median U-Turns (aka Michigan Left, Indirect Left)

ThrU Turn

Source: Wisconsin DOT

Source: FHWA-RD-09-060

Source: Utah DOT
Distinguishing Feature:
Left-turn movement (on one or more approaches) is strategically relocated
Diverging Diamond Interchange

Source: Missouri’s Experience with a Diverging Diamond Interchange – Lessons Learned

- Total crashes were down by 46% in first year of operation

- Left turn type angle crashes were reduced 72%
Texas implementation

- Two Diverging Diamond interchanges under design
- Displaced Left Turn proposed for Austin
- Several Superstreet sections completed
  - Austin TX-71
  - San Antonio US 281
Quantifying the Problem

**Responder Safety**
Annually, **dozens** of Fire/EMS, Law Enforcement, Towing and Highway responders are **struck, injured or killed**.

**Societal Costs**
Annual cost of crashes nearly **$400B**, an increase of 45-83% from 2008
Advanced TIM Workshops: 47 Completed

Legend:
- **Workshops Completed**
- **TIM Technical Assistance**

- [Image of map showing various cities across the United States marked with orange dots for workshops completed and green dots for TIM technical assistance.]
• NCTCOG Courses conducted beginning in 2003
  – 2,131 first responders and managers through 2012
  – 375 in executive level sessions 2005 through 2012
Objectives of Program:
- Improve Quick Clearance/ Reliability
- Improved responder safety
- Improved motorist safety

Approach:
- Solicited input from all disciplines
- Developed a multi-disciplinary training program
- Cross-training in TIM core competencies
• Course Design:
  – Taught by experienced trainers from all disciplines
  – Entire course or **selected modules**
  – Four hour version will be available

• Course Delivery Mechanisms:
  – For existing entities conducting training
  – delivery provided at local level
For More Information

- Every Day Counts Website
  http://www.fhwa.dot.gov/everydaycounts

- State Contacts
  www.fhwa.dot.gov/everydaycounts/contact
Thank you!