



Every Day Counts

A smarter way to do business

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Tennessee Department of Transportation

SASHTO – Summer 2014
New Orleans, La





About Every Day Counts



- Launched in 2010, EDC is designed to identify and encourage the rapid deployment of existing, proven technologies to:
 - Ensure that roads and bridges are built faster, smarter and better
 - Enhance the safety of our roadways
 - Improve environmental sustainability
 - Support the free movement of commerce



➤ Original EDC 1 Focus Areas



Shortening Project Delivery

EDC 1	Status
Planning and Environmental Linkages	Implemented
Programmatic Agreements	Implemented
Mitigation Banking	Not selected
In Lieu Fees	Not selected
Scope of Preliminary Design	Implemented
Legal Sufficiency	Not selected
Utility Accommodation	Implemented
Flexibilities in Right of Way	Not selected
Enhanced Technical Assistance	Not selected
Design Build	Implemented
Construction Manager /General	EDC2- in Progress

➤ Original EDC 1 Focus Areas

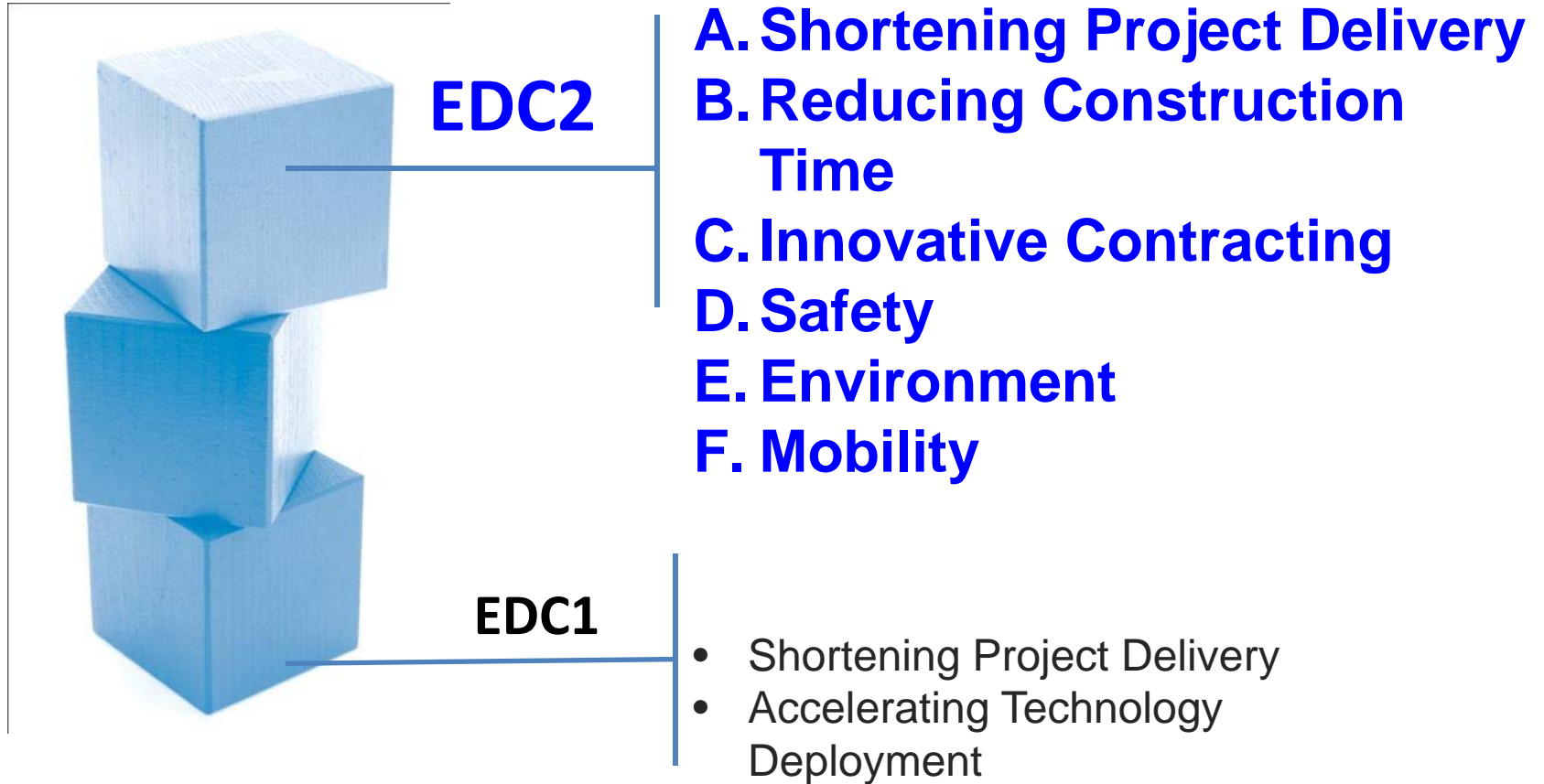


Accelerating Technology Deployment

EDC 1	Status
Safety Edge	Implemented
Warm Mix Asphalt	Implemented
Geosynthetic Reinforced Soil Integrated Bridge System	Implemented
Adaptive Signal Control	In Progress
Prefabricated Bridge Elements and Systems	EDC2 – In Progress



Building on Our Achievements



➤ EDC 2 Focus Areas



- A. Shortening Project Delivery
- B. Reducing Construction Time
- C. Innovative Contracting

- ➔ 1. Local Administered Federal-aid Projects
- 2. 3D Engineered Models for Construction (NS)
- ➔ 3. Accelerated Bridge Construction
- 4. Alternative Technical Concepts (NS)
- ➔ 5. Construction Manager / General Contractor
- 6. Design Build (NS)
- ➔ 7. Intelligent Compaction



NS = Not Selected
➔ = EDC-2 Initiative Selected

➤ EDC 2 Focus Areas



- D. Environment
- E. Mobility
- F. Safety

8. Geospatial Data Collaboration **(NS)**

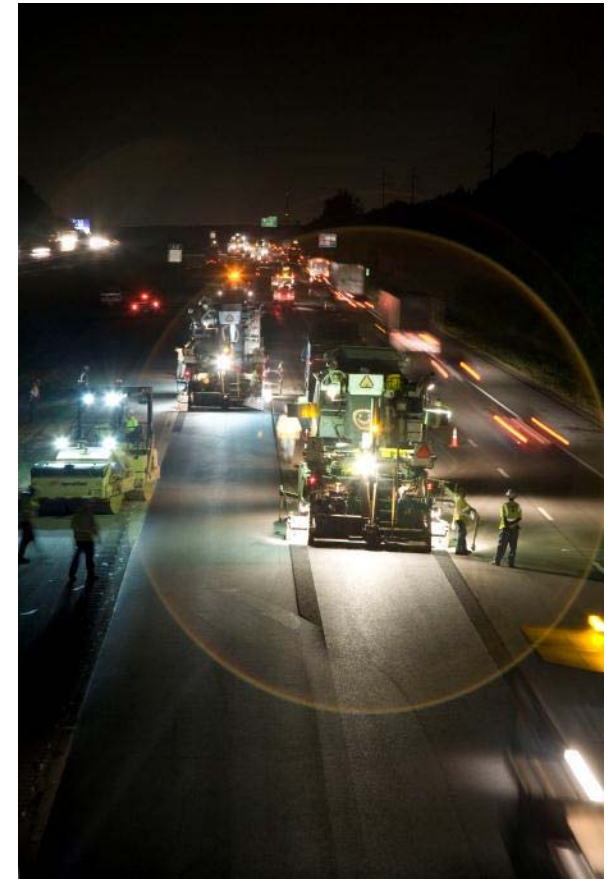
➔ 9. High Friction Surface Treatments

➔ 10. Implementing Quality Environmental Documentation

11. Intersection and Interchange

Geometrics **(NS)**

➔ 12. SHRP2 Incident Management
Responder Training



NS = Not Selected

➔ = **Selected**

Status of EDC 2 Initiatives in TN



1. Locally Administered Federal Aid Projects

- A new LPA process has been developed and the Local Government Programs Manual was updated
- New process will be optional as a pilot program
- Local agency will have complete a certification process in order to be eligible
- Process will proceed from environmental through construction with no interaction from TDOT



Status of EDC 2 Initiatives in TN



3) ACCELERATED BRIDGE CONSTRUCTION

SR 254 (Old Hickory Boulevard) over Otter Creek

- ADT (2013) = 28,250
- Weekend Closure
- \$2,000 per hour liquidated damages for each hour not opened by 5:00 am Monday morning





Status of EDC 2 Initiatives in TN



3) ACCELERATED BRIDGE CONSTRUCTION

(Prefabricated Bridge Elements)

- Have completed three bridges using full depth deck replacement panels.
- Working on contract plans for five more full bridge deck replacements with full depth concrete panels or other ABC methods.

➤ Status of EDC 2 Initiatives in TN





Status of EDC 2 Initiatives in TN

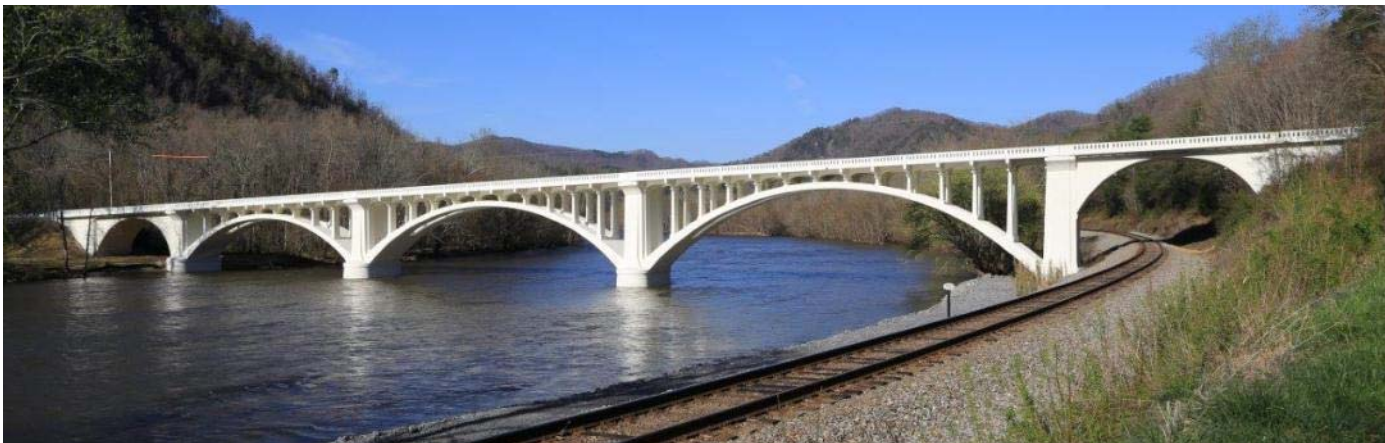


Prefabricated Bridge Elements





Status of EDC 2 Initiatives in TN



Status of EDC 2 Initiatives in TN



5. Construction Manager General Contractor (CMGC)

- May 13, 2013 TN enacted legislation for TDOT to implement Contracts for a CMGC Pilot Program made up of three challenging or complex projects
- Peer Exchange - Sept 18-19, 2013 with Utah, Arizona, & Colorado
 - Representatives from the Arizona, Colorado, and Utah State Departments of Transportation presented their experience in developing and implementing this innovative delivery method to an audience of seventy-five individuals representing the Tennessee consulting and construction industry, as well as TDOT staff.
- Request for Proposal that will be issued for a CM/GC Project on I-40 in Downtown Nashville in Davidson County, TN. The project consists of design and rehabilitation of 4 structurally deficient bridges using Accelerated Bridge Construction.

➤ Status of EDC 2 Initiatives in TN



7. Intelligent Compaction

- Intelligent Compaction Special Provision has been completed
- TDOT received \$1,445,600 Highways for Life grant for four projects. 4 projects (one in each Region) have been awarded
- On Oct 23, 2013 a HFL showcase on intelligent compaction was held in Brentwood, TN.
- April 25, 2014 a one day workshop was held on the Veda Software for TDOT and industry.
- TDOT has three additional IC projects in 2014.





What is Intelligent Compaction?



- “IC machines are vibratory rollers that include accelerometers mounted on the axle of drums, a global positioning system, infra-red temperature sensors (for asphalt), and on-board computers that can display color-coded maps in real-time to track roller passes, asphalt surface temperatures, and stiffness of compacted materials.”

- *Intelligentcompaction.com*



What is Intelligent Compaction?



OPERATOR DISPLAY





What is Intelligent Compaction?



GPS BASE STATION*



What is Intelligent Compaction?



GPS RECEIVER*





What is Intelligent Compaction?



TEMPERATURE SENSORS



CNM201 – Hamilton Co





UT Research Project



- In late 2013, TDOT funded a research project with the University of Tennessee to evaluate Intelligent Compaction as a tool for innovation in Tennessee's flexible pavements.
- All IC Data was collected from the four 2013 projects and is currently being analyzed.
- Following analysis, cores will be collected from all four projects, lab tested, and core test data will be compared to data from IC equipment.



What is Intelligent Compaction?



Intelligent Compaction News on YouTube Video

http://www.youtube.com/watch?v=0oYX0o2gbyw&feature=youtube_gdata_player

➤ Status of EDC 2 Initiatives in TN



- **High Friction Surface Treatment**

- High Friction Surface Treatment Program Developed to address a systemic approach of implementing lane-departure countermeasures to identified horizontal curves.
- TDOT to apply HFST on 36 locations on the October letting and an additional 69 will be let 1st qtr. 2015



FIGURE 2: *HFST at horizontal curve*



FIGURE 1: *Open-grade surface course on the left and HFST on the right.*

➤ Status of EDC 2 Initiatives in TN



- **Implementing Quality Environmental Documentation**
 - FHWA and TDOT participated in the April 10, 2013 EDC2 Virtual Summit for Implementing Quality Environmental Documentation.
 - FHWA and TDOT completed revision to Categorical Exclusion documentation templates.
 - TDOT completed a process review of their PCE Documentation Process and as a result they are updating their standard interagency letter templates to improve consistency and quality of coordination.
 - TDOT has also been developing an integrated electronic clearinghouse (called the Statewide Environmental Management System or SEMS) to post, store, and manage project environmental data and interagency coordination.
 - TDOT revised their internal QA/QC procedures to ensure three separate lines of quality assurance in documentation preparation.



➔ Status of EDC 2 Initiatives in TN



SHRP2 National Traffic Incident Management Responder Training

- Estimate of 150 TIM trainers certified in 8 TtT sessions. Estimate of 1400 responders trained in 50 sessions.
- TDOT is also working with TDOS to build a TIM Training Site at the THP Academy the ground breaking ceremony was held on May 7, 2014.





Questions?



U.S. Department of Transportation
**Federal Highway
Administration**