



# Federal Highway Administration Every Day Counts Innovation Initiative



## Message from the Administrator



When I originally launched Every Day Counts I presented it as a broad concept to shorten project delivery and speed the deployment of proven, under-used technologies.

In the spring of 2010, we introduced the specific tools and technologies that gave life to that concept and now, one year later, I want to give you an update on where things stand.

After rolling out the initiatives we, in partnership with AASHTO, held a series of ten regional summits to introduce them to the people on the frontlines of project delivery, including folks from state and local government, contractors, consultants and others who make day-to-day project decisions.

The summits revealed a real hunger for achieving the EDC goal of better, faster, smarter project delivery. This enthusiasm helped fuel the next step in the process, which was for each state to decide on the specific initiatives it wanted to pursue and develop a plan for implementing them. The State Implementation Teams have done a terrific job and as a result all 50 states, the District of Columbia, Puerto Rico, the Virgin Islands and Federal Lands have identified EDC initiatives to move forward.

Over the past eighteen months, I have visited several projects throughout the nation where EDC strategies and technologies are being implemented. Everyone on the frontline is doing an excellent job moving these projects forward in a fast-paced manner!

Looking ahead, I have a couple of goals. The first, of course, is to continue seeing states turn their implementation plans into action, and for the public to experience the benefits. The second, more long-term goal, is to see a culture of innovation sink deeper roots in the transportation community.

Innovation is an ongoing process. And it's critical to achieving President Obama's goal of creating a transportation network that allows America to win the future by out-innovating and out-building the rest of the world.

Innovation didn't start with Every Day Counts and it won't end there. But it will play a vital role as we continue to meet the transportation needs of the American people.

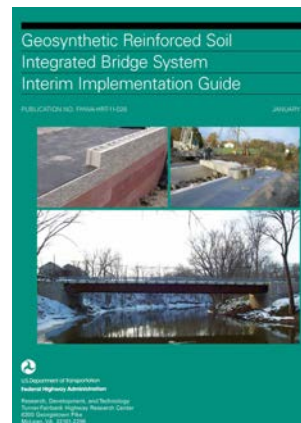
Thank you for joining us on this innovation journey into the future.

Victor Mendez  
Administrator

## EDC Initiative Updates

### Geosynthetic Reinforced Soil (GRS)

#### Hot off the Presses – GRS Interim Implementation Guide Available!



Thinking about using Geosynthetic Reinforced Soil technology in your State? FHWA has published the Geosynthetic Reinforced Soil Integrated Bridge System Interim Implementation Guide to assist.

This guide outlines the state-of-the-art and recommended practice for designing and constructing Geosynthetic Reinforced Soil (GRS) technology for the application

of the Integrated Bridge System (IBS). The procedures presented in this manual are based on 40 years of State and Federal research focused on GRS technology as applied to bridge abutments and walls.

The guidance was developed to provide engineers with the necessary background knowledge of GRS technology and its fundamental characteristics as an alternative to other construction methods. The document presents step-by-step guidance on the design of GRS-IBS. Design methodologies for both Allowable Stress Design (ASD) and Load and Resistance Factor Design (LRFD) formats are provided. Material specifications for standard GRS-IBS are also provided. Detailed construction guidance is presented along with methods for the inspection, performance monitoring, maintenance, and repair of GRS-IBS. Quality assurance and quality control procedures are also covered.

You can find the guide on our website at:

<http://fhwatext/publications/research/infrastructure/structures/11026/index.cfm>

# Shortening Project Delivery Toolkit

## Legal Sufficiency Enhancements

Decisions made early in planning and project development are often the root cause of problems identified later in the environmental review process, when National Environmental Policy Act (NEPA) and Section 4(f) documents undergo legal scrutiny. Consultation with FHWA environmental attorneys at early decision points can help decision-makers avoid problems later, saving time and reducing costs.

There are currently 14 Divisions implementing the Legal Sufficiency Enhancements Initiative. Seven projects have been identified and formally accepted for early legal involvement; two of these have received legal reviews. Division Offices have also informally identified over 50 additional projects as potential candidates for implementing legal sufficiency at an early stage. These projects will be monitored during the early development phases so that the legal team can be brought at the earliest decision points, once these have been identified.

## Equivalent Criteria for PEL Questionnaire – Get Counted!

FHWA acknowledges that several states have already developed processes and tools comparable to the Planning and Environmental Linkages (PEL) Questionnaire. A PEL questionnaire “equivalent” provides a standard method to identify equivalent approaches so they can be recognized and shared as effective practices. The criteria for determining an equivalent process is based on the following:

**Criteria 1:** The equivalent should be “institutionalized” (i.e., it should be a formal process or tool that is available statewide)

**Criteria 2:** The equivalent must provide information and documentation on:

1. Coordination with internal and external partners (e.g., Tribes, other agencies)
2. Coordination efforts with the public and stakeholders
3. Description of planning scope, vision statement, and project-level purpose and need
4. Alternatives analysis, including the criteria and process used for evaluation
5. Explanation of planning assumptions and consistency with long range transportation plans

**Criteria 3:** The equivalent may also provide information on:

1. Analysis of environmental impacts
2. Potential strategies for broad-scale mitigation
3. Description and/or analysis of potential cumulative effects
4. FHWA's acknowledgement that PEL principles were applied, thus supporting the use of planning information in NEPA

## Enhanced Technical Assistance



*FHWA Deputy Administrator Gregory Nadeau, FHWA Associate Administrator for Planning, Environment and Realty, Gloria Shepherd, and James H. Lecky Director - Office of Protected Resources National Marine Fisheries Service shake hands at the conclusion of work by an Enhanced Technical Assistance Team addressing issues on the EIS for the Knik Arm Bridge project in Alaska.*

An important aspect of resolving issues with ongoing Environmental Impact Statements (EISs) can be determining when the scope of a project can be reduced, when impacts from a project are not significant, or when a project is no longer viable and should be cancelled.

By providing technical assistance in support of EDC's Enhanced Technical Assistance Initiative, FHWA has recently been able to report resolutions for 21 projects in 11 states. As a result, six projects are in the process of re-scoping, and six projects have been cancelled completely. Re-scoping two of these projects allowed them to be combined into a single project, thus reducing the project delivery time and costs that would have been associated with preparing separate EIS documents.

The efforts of all of the Division Offices, working with their state DOT counterparts, demonstrates a clear effort to address FHWA's environmental and fiscal stewardship responsibilities inherent with the project development process, while directly supporting the Every Day Counts initiative to shorten project delivery.

## Flexibilities in Utility Accommodation and Relocation



*Utilities often need relocation or accommodation during construction projects in order to avoid disruption of services.*

The timely identification, verification, coordination, accommodation, and/or relocation of utilities is a key factor that State and local agencies identify as a cause for delays in the development and construction of highway projects.

Therefore, pursuing the innovative use of agreements, construction provisions, and/or reimbursable agreements to expedite the accommodation or relocation of utilities can yield many benefits.

The New Jersey Department of Transportation has been successful in the use of construction contract provisions that include using a pre-approved list of utility subcontractors to expedite the relocation of utilities on projects. These contract provisions also specify which work is to be completed by the subcontractor and which work will be performed by the prime contractor. In addition, the Missouri Department of Transportation (MoDOT) has a master reimbursable utility agreement that allows the MoDOT to manage utility relocations under one broad agreement that lists all the terms governing work between MoDOT and the utility owner.

## Flexibilities in Right of Way

The right of way (ROW) process is currently a major part of the project development process. Significant time savings can be achieved by employing flexibilities that already exist in statutes and FHWA regulations. This initiative underlines opportunities for improved coordination of ROW activities with other key project development actions in preliminary design.

The Rhode Island Department of Transportation (RIDOT) has saved both time and money by sponsoring a Federal Land Transfer Right of Entry and implementing a Public Benefit Conveyance through the Aquidneck Island Planning Commission. In exchange for acquiring a much needed ROW from the Department of Defense, the RIDOT agreed to upgrade the defense highway known as the Burma Road corridor. Benefits of these upgrades include reduced congestion on the current Route 114; scenic access along Rhode Island's most significant natural resource, Narragansett Bay, and increased safety and better options for transit, bicyclists, and pedestrians. Along with the Federal land transfer, the U.S. Navy was able to provide several environmental and roadway studies to the RIDOT, which helped streamline the NEPA planning, and design processes.

## Use of In-Lieu-Fees and Mitigation Banking



Stilt sandpipers at home in the Maxwell Wetland Mitigation Bank

This initiative proposes the expanded use of in-lieu fees and mitigation banking currently allowed under existing statute, FHWA regulations, state law, and court decisions to save time and expedite project delivery. Many state projects do not fall within the service area of an existing Mitigation Bank or In-Lieu-Fee program; this initiative encourages the establishment of banks and/or programs in these areas.

Discussion during the regional EDC summits revealed concerns regarding costs, site selection, long-term maintenance,

changing conditions associated with establishment of banks, and the risk associated with banking investments for credit. By applying best practices and developing a clearer understanding by Federal agencies, many of these concerns could be resolved. Local agency knowledge and efforts will be key to the successful application of this initiative, which is crucial in assisting DOTs in working together for the environment.

## Expanding the Use of Programmatic Agreements

The goal of this initiative is to identify and assist in the expansion of new and existing programmatic agreements to a regional or national level. Five States are exploring options related to regional/multi-State programmatic approaches. While there are many challenges to accomplishing regional agreements, the investments and the payoff can be great.

Models for working together at the multi-State level support large scale programmatic approaches, including Endangered Species Act (ESA) compliance for the Indiana Bat and Oregon's Bridge Programmatic Agreement. The west coast States contributed to understanding the effects of pile-driving in the marine environment in cooperation with the National Marine Fisheries Service. Other sectors have successfully negotiated multi-State corridor programmatic approaches – the NiSource Gas pipeline project has received a program review by U.S. Fish and Wildlife Service (USFWS). The FHWA has invested in supporting the USFWS Information Planning and Conservation (IPaC) database, which represents best available science and conservation practices to support ESA consultations.

The Environmental Protection Agency has been compiling national and regional scale data layers via their NEPA assist tool to support NEPA scoping. The U.S. Army Corps of Engineers, via their Regional In-lieu-fee and Banking Information Tracking System (RIBITS) database, is compiling planning, project, and permitting data.

The capacity of Federal agencies to support programmatic approaches is growing. Working through State or Regional peer exchanges and technical assistance, the FHWA can help States explore how their needs and resources can align to expand the use of regional/multi-State programmatic approaches.

## Clarifying Scope of Preliminary Design

U.S. DEPARTMENT OF TRANSPORTATION	
Federal Highway Administration	
Order	6640.1A
Subject	Date
FHWA Policy on Permissible Project Related Activities During the NEPA Process	October 1, 2010
Classification Code	Order
6640.1A	6640.1A
<p>1. What is the purpose of this Directive? This Directive clarifies the Federal Highway Administration's (FHWA) policy regarding the permissible project-related activities that may be advanced prior to the conclusion of the National Environmental Policy Act (NEPA) process.</p>	
<p>2. Is this a new Directive? Yes. This is a new Directive.</p>	
<p>3. What authorities govern this Directive?</p> <p>a. Title 23, Code of Federal Regulations (CFR), Section 771.113(a) (23 CFR 771.113(a)) provides the following: "The lead agency in cooperation with the applicant of not the lead agency, will perform the work necessary to complete a finding of no significant impact (FONSI) or a record of decision (ROD) and comply with other related provisions of the law and regulations to the maximum extent possible within the 90-day deadline." This work includes environmental planning, related engineering studies, agency coordination, and public</p>	

This initiative will identify the amount of design work allowable under current law prior to NEPA completion, regardless of contracting mechanism, and develop guidance to allow this work to be done consistently. In October of 2010, FHWA issued Order 6640.1A Policy on Permissible Project Related Activities during the NEPA process. This document highlights the existing flexibilities in stat-

utes and regulations related to advancing project specific design activities. These flexibilities are available regardless of project delivery mechanism, prior to NEPA approval.

## Accelerating Technology and Innovation Deployment

### Florida's 1-2-3 Approach to Implementing GRS



*Geosynthetic reinforced soil bridge abutment under construction*

The Florida Department of Transportation (FDOT) decided to move forward immediately to develop a formal process for routine consideration of GRS using a 3-step approach.

**One**, the FDOT released a Structures Design Bulletin specifically addressing the expanded use of GRS for all single span bridge design projects with a "Notice to Proceed" after June 1, 2011. The specifications were developed using published FHWA documents (the *GRS Integrated Bridge System [IBS] Interim Implementation Guide* and *GRS Integrated Bridge System Synthesis Report*) and existing FDOT materials specifications.

**Two**, the team developed new construction specifications (Section 549) with specific material requirements for geo-textile, aggregate base, and concrete masonry blocks. These specific materials were selected because they have proven to be economical and durable in Florida based on previous use by the FDOT in the State. In addition, they meet the recommendations set forth in the *FHWA GRS-IBS Integrated Implementation Guide*.

**Three**, the FDOT is working with the FHWA to identify potential projects for GRS deployment. The criteria used for project selection are largely based on the recommendations of the FHWA *GRS-IBS Interim Implementation Guide*: 1. Single span bridges that are not at risk of movement due to sliding, uplift, etc., and 2. Sites where excessive scour or settlements are not anticipated. The FDOT is considering projects that will let before 2013 and are early in the project design phase where a change in the foundation type will not significantly delay the project letting.

Other ongoing activities include the development of GRS preferred details for inclusion in project plans that should be ready by September this year and the development of GRS standard drawings to help local governments utilize GRS in replacing off-system bridges.

### Safety Edge<sup>SM</sup>



*Similar devices mount to the paver's screed*

Two new manufacturers have entered the market with devices to construct the Safety Edge<sup>SM</sup> on asphalt pavements. Currently, Advant-Edge Paving Equipment LLC, Transtech Systems, Inc., and Troxler Electronic Laboratories, Inc., have devices that are attached to the paver's screed near the end gate. The Carlson Paving Products device is part of the paver's end gate. Each of the devices extrude the asphalt into the Safety Edge<sup>SM</sup> shape during the paving process. These manufacturers have been working on device enhancements to improve the target angle. Advant-Edge Paving Equipment LLC and Carlson Paving products can now set the angle at less than 30 degrees, which is expected to assist in achieving the desired 30-35 degree angle after compacting the asphalt.



*Similar devices mount on the paver's end gate*

### Prefabricated Bridge Elements and Systems



*Artist's rendering of placement of prefabricated superstructure elements on the MassDOT Fast 14 project*

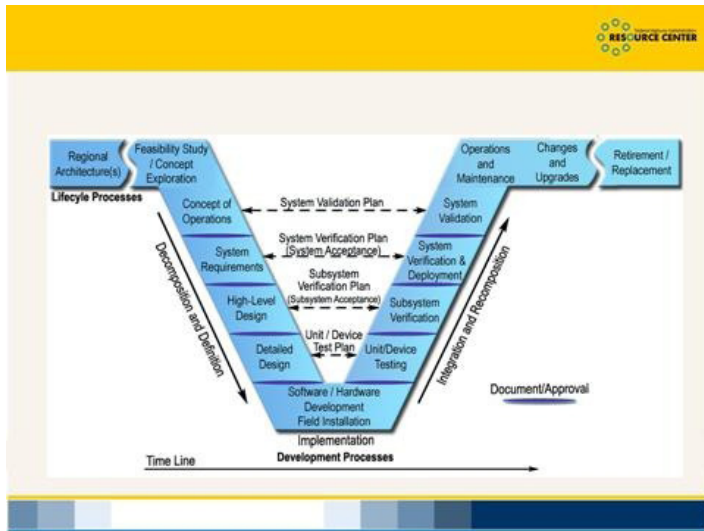
The Massachusetts Department of Transportation (MassDOT) is making Every Day Count on its 93 Fast 14 Project. This project will make use of several EDC Initiatives, including prefabricated bridge elements and systems (PBES), to replace the superstructures on 14 bridges along I-93 in the City of Medford. Typically, a project of this magnitude would take at least 5 years to complete. Using PBES will allow all 14 superstructures to be replaced in a single construction season, dramatically reducing project time.



Typical traffic crossover utilized as part of the MassDOT Fast 14 project

The MassDOT has planned this work for successive weekends in June, July, and August of 2011. The work affected just one local street each weekend. An extensive communications plan was also developed to provide continuity of emergency services as well as information to the public on ways to avoid delays and reach their destinations.

## Adaptive Signal Control Technology



Typical systems engineering process diagram

Adaptive signal control technologies (ASCT) can use real-time traffic information to determine exactly which lights should be red and which should be green. ASCT is an effective, low cost solution that reduces travel time, travel delays, number of stops, and fuel consumption.

The capstone of the EDC ASCT program is providing agencies with a systematic process to guide ASCT implementation decisions. The EDC initiative created an immediate need for guidance and sustained technical assistance to help agencies and the FHWA division offices effectively navigate through a process that balances an agency's needs and priorities against its available resources. Within the transportation community, this process is known as Systems Engineering (SE).

Spearheaded by Rick Denney, members of the FHWA Resource Center Operations Technical Services Team developed a 1-day workshop to present SE concepts and requirements in the context of traffic signal operations and maintenance to guide ASCT implementation. The workshop has been delivered in five States, and delivery has been requested in six more in the coming months. A primer on the application of SE to ASCT is currently scheduled for completion in June and will become the basis for the workshop and a 2-day NHI course that will be available in early 2012.

A partnership has been forged between the EDC ASCT Implementation Team, vendors, consultants, and agencies that have implemented ASCT to showcase the SE approach and promote the awareness and the availability of specific ASCT products. These ASCT Showcases involving the FHWA and partners, including Rhythm Engineering, Iteris, Siemens, Delcan, Transcore, URS, PennDOT, NDOR, IDOT, City of Ann Arbor, MSHA, Baltimore Regional Traffic Signal Forum, and others have been extremely successful. Contact the FHWA division office in your state if you would like more information on participating in or scheduling ASCT workshops or showcases.

## Warm Mix Asphalt



Warm mix asphalt typically requires lower temperatures which are friendlier to construction workers and to the environment

Warm Mix Asphalt (WMA) is the generic term for a variety of technologies that allow asphalt to be produced and then placed on the road at lower temperatures than the conventional hot-mix method.

With 33 States departments of transportation (DOTs) having already adopted specifications for using WMA on their projects, and 11 more State DOTs with specifications in the works, the FHWA is well on its way to achieving the national performance goal of 40 State DOTs having adopted specifications by December 2011. From a market use standpoint, the amount of WMA used in the United States doubled from 2009 to 2010 (<5% to over 10%). The FHWA expects this rapid trend to continue with EDC's and Industry's support of this innovative technology.



A design build workshop was held in the northeast attracting participants from several New England and northeastern states

## Accelerated Project Delivery Methods

### Design Build

Design Build (DB) is a method of project delivery in which the design and construction phases are combined into one contract, eliminating the separate bid phase and allowing certain aspects of design and construction to take place at the same time.

A DB contract can be awarded as either low-bid or best-value, which is an important advantage. While low bid is used for most traditional contracts, best-value selection permits the consideration of additional factors, such as experience, qualifications, innovation, technical approach, quality control methods, and project management processes. These factors can often reduce costs as well as increase quality. The Florida Department of Transportation successfully leveraged cost-effective and time-effective solutions for their Plantation Oaks Blvd project through the



Please visit our EDC Website for additional information on this and other EDC Initiatives:  
<http://www.fhwa.dot.gov/everydaycounts>



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

implementation of this project delivery method. Although all the firms promised similar results, the chosen contractor proposed the best ideas to minimize impacts to the traveling public and to meet all environmental commitments.

### Construction Manager/General Contractor (CM/GC)

The CM/GC contracting method has been in use in the vertical construction industry (i.e., buildings) but has rarely been used on heavy civil or transportation construction projects. Although there is some resistance in the contracting community, and many States specifically prohibit the use of CM/GC, a "buzz" is beginning to stir. Several States are in the process of changing laws or policies to allow the CM/GC method on their construction projects. Already four State DOTs have Special Experimental Project No. 14 (SEP-14) approval from FHWA to use CM/GC.

In 1998, Federal statute was changed to allow for the use of Design-Build (DB) on transportation construction projects; however, it does not specifically allow for CM/GC project delivery. Today, the FHWA is allowing the evaluation of CM/GC project delivery on a trial basis under SEP-14. This approval is necessary for any non-traditional construction contracting techniques that deviate from the competitive bidding provisions in Title 23 U.S.C. 112.

A request for SEP-14 approval for using the CM/GC method must be accompanied by a workplan that includes the following information:

- Purpose and scope
- Evaluation process/procedures
- Project Schedule
- Performance measuring and reporting process