U.S. Department of Transportation
Federal Highway Administration

THE BEST OF EDC

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NATIONAL SUCCESS REPORTED THROUGH EVERY DAY COUNTS

The Federal Highway Administration (FHWA) asked the States to share some of their Every Day Counts (EDC) success stories—EDC initiatives that best exemplify the philosophy of Shortening Project Delivery, as well as Accelerating Technology and Innovation Deployment. Here are highlights from each.

EDC TECHNOLOGIES & INNOVATIONS

- Adaptive Signal Control Technology
- Clarifying the Scope of Preliminary Design
- Construction Manager/ General Contractor
- Design-Build
- Enhanced Technical Assistance on Delayed EISs
- Expanding the Use of Programmatic Agreements
- Flexibilities in Right-of-Way Relocation
- Flexibilities in Utility Accommodation & Relocation
- Geosynthetic Reinforced Soil
- In Lieu Fees
- Legal Sufficiency Enhancements
- Mitigation Banking
- Planning & Environmental Linkages
- Prefabricated Bridge Elements & Systems
- Safety Edge$_{SM}$
- Warm Mix Asphalt

ALABAMA

Alabama Department of Transportation is working with the city governments in Montgomery, Birmingham, and Huntsville to implement **Adaptive Signal Control Technology** (ASCT) through experimental projects. The ultimate goal of the projects is to mainstream ASCT in Alabama. Benefits that should be realized include high benefit-cost-ratios as compared to traditional roadway construction, continuous and equitable distribution of green time along intersection points, reduced congestion, and improved travel times.

ALASKA

Alaska will be using **Construction Manager/ General Contractor** (CM/GC) on the Riley Creek Bridge replacement project. This would be the first horizontal application by the Alaska Department of Transportation & Public Facilities. Deployment of the CM/GC accelerated project delivery method appears to be especially ideal in this case, due to the extreme weather conditions and the short construction seasons.

ARIZONA

Arizona is developing a permissive specification to allow the contractor to select the **Warm Mix Asphalt** paving option. Pilot projects showed a 20 percent to 30 percent reduction in fuel consumption, with no observed negative consequences to the pavement.

ARKANSAS

The Arkansas State Highway and Transportation Department agreed to include **Warm Mix Asphalt** (WMA) as an option on 100 percent of its overlay program projects as a Phase 1 of WMA implementation. The State took only 7 days to draft the special provision for the use of WMA.

CALIFORNIA

The California Department of Transportation has designed a special logo to brand the next generation of Accelerated Bridge Construction (including **Prefabricated Bridge Elements & Systems**) project plans and specifications, which will serve as a visual alert identifying the project for special handling by the various stakeholders. The special awareness logo is to alert subcontractors and suppliers to the fast tempo and commensurate attention required in construction.

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COLORADO

By furthering design early – an aspect of **Clarifying the Scope of Preliminary Design** -- on the I-70 Twin Tunnels Project, the Colorado Department of Transportation (CDOT) was able to minimize impacts to wetlands to a point where an individual permit under Section 404 (b) of the Clean Water Act could be avoided. Also, by advancing design, the CDOT will be able to make a determination regarding the roadway template and tunnel size option in the Proposed Action.

The Pecos Street Bridge replacement project over I-70 in Denver is employing both the **Construction Management/General Contractor** as well as the **Prefabricated Bridge Elements & Systems** (PBES) innovations. The PBES portion consists of the bridge girders and deck sections being built at a staging area away from traffic and then rolled into place in a single weekend.

CONNECTICUT

Connecticut tested both **Warm Mix Asphalt** (WMA) and the **Safety Edge$_{SM}$** for the first time on two road projects. The first WMA was applied on I-95 in Southern Connecticut. In May of the same year, a municipal-funded project to resurface a local divided road in Farmington became Connecticut's first Safety Edge$_{SM}$ project. Both technologies yielded positive results.

DELAWARE

In FY 2011, approximately 40 percent of the Delaware Department of Transportation's (DelDOT) construction projects used the **Warm Mix Asphalt** (WMA) technology. The State placed over 60,000 tons of WMA on its Federal contracts, and approximately 120,000 tons were placed on State contracts. The DelDOT has also developed and implemented specifications for the use of this technology. Their goal is to use WMA on all projects by 2015.

DISTRICT OF COLUMBIA

The District of Columbia deployed **Prefabricated Bridge Elements & Systems** on the 11th Street Bridge project to save time and money — completing the river piers without the use of cofferdams and standard H-piling support elements. Additionally, the piles allowed the river pier foundations to be constructed without having to excavate highly contaminated material from the river bottom. This resulted in schedule and cost savings and reduced impact to the environment.

FLORIDA

The Florida Department of Transportation has developed **Safety Edge$_{SM}$** implementation language and details that will be added to the Florida "Greenbook." Successful implementation of the Safety Edge$_{SM}$ in Marion County projects has been a key factor for the implementation of this technology in other counties. Also, the Federal Highway Administration used one of the Marion County projects as a Safety Edge$_{SM}$ demonstration project where county, city, and State officials were invited.

GEORGIA

Since December 2011, the Georgia Department of Transportation has let 84 projects, covering 1,435 miles of roadway, using the **Safety Edge$_{SM}$**. A standard specification, construction details, and a location selection guideline have been developed for Safety Edge$_{SM}$ deployment in Georgia.

HAWAII

A Hawaii contractor proposed the use of the **Geosynthetic Reinforced Soil** (GRS) integrated bridge system through the Value Engineering Change Proposal Process. Lessons learned from Hawaii's first successful GRS installation will promote the technology and encourage more trial applications — reducing both foundation costs and construction time, when compared with conventional abutment construction. A final research report will document the in-service performance, and develop design guidance and standard details as well as recommended specifications for future GRS bridges in Hawaii.

IDAHO

The **Flexibilities in Right-of-Way Relocation** initiative is providing a benefit in both time and cost savings to the Idaho Department of Transportation. Recent use of the Waiver Valuation flexibility has resulted in a cost avoidance between $20,000-$30,000. Incentive Payments for Acquisition have saved time by facilitating rapid acceptance of offers within the first 45 days after formal offer. This frees up staff resources and moves the entire project forward at a more efficient rate.

ILLINOIS

The Illinois Department of Transportation will eliminate the at-grade crossings of the two Norfolk Southern main tracks with 130th Street and Torrence Avenue. The railroad truss will be built off to the side and moved into place over a weekend using self-propelled modular transporters. This utilization of **Prefabricated Bridge Elements & Systems** technology will significantly reduce the construction impacts to the traveling public and the impact on freight operations.

INDIANA

The Indiana Department of Transportation (INDOT) employed the **Flexibilities in Utility Accommodation & Relocation** initiative by utilizing consultant oversight and limited staking to facilitate utility relocation during construction. The new alignment route project involves 15 separate utilities that are a mix of commercial, local government, and university facilities. The use of a consultant agreement to facilitate and manage the utility relocations during construction has allowed the INDOT to proceed to the award of a construction contract prior to the relocation of utilities — saving approximately 1 year in construction time. The consultants were able to provide early identification of conflicts in addition to coordination and management of the relocations.

IOWA

The Iowa Department of Transportation is using **Geosynthetic Reinforced Soil** (GRS) for the abutments on low-volume bridges. The main benefits Iowa has observed from using the GRS abutments are that this type of construction eliminates the need for a crane to be on site for an extended period of time when constructing a new bridge; local crews can build the abutment with commonly available equipment; and no H-pile is needed for the abutment.

KANSAS

The City of Topeka, Kansas, installed **Adaptive Signal Control Technology** on the 21st Street Corridor -- between Fairlawn Road and Wanamaker Road. As shown in a video entitled "Seven Traffic Signals in Two Minutes," drivers on improved corridor have experienced a savings of 123,000 gallons of gasoline and 191,000 pounds of CO_2 each year. The first year the system was in place, the number of crashes and rear end crashes were also reduced by 30 percent.

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GRS: Easy as 1-2-3!

1. ***Lay A Row of Facing Blocks***
2. ***Add Layer of Compacted Soil to Height of Blocks***
3. ***Add Layer of Geosynthetic Fabric (Reinforcement). Repeat until desired height is achieved.***

KENTUCKY

In 2012, the Kentucky Transportation Cabinet plans to install over 125 miles of the **Safety Edge$_{SM}$** on 27 different projects. A reduction in the total number of crashes, as well as roadway departure crashes is evident on the 20 miles of roadway where the Safety Edge$_{SM}$ was deployed in 2011.

LOUISIANA

Deploying the **Planning & Environmental Linkages** initiative in the State, Louisiana developed a *National Best Practice Planning & Environmental Linkages Checklist*. This innovative Checklist has been used on all newly initiated projects in Louisiana. The work and documentation done during the planning stage will also be used during the NEPA phase. This practice will save both time and money.

MAINE

Since 2010, the Maine Department of Transportation (MDOT) has advanced nine **Design-Build** (D-B) projects. The MDOT established criteria, which will be used to identify projects that will utilize D-B. With the procedures in place, and substantial experience with its use, the D-B method has become an established accelerated project delivery practice for the MDOT.

MARYLAND

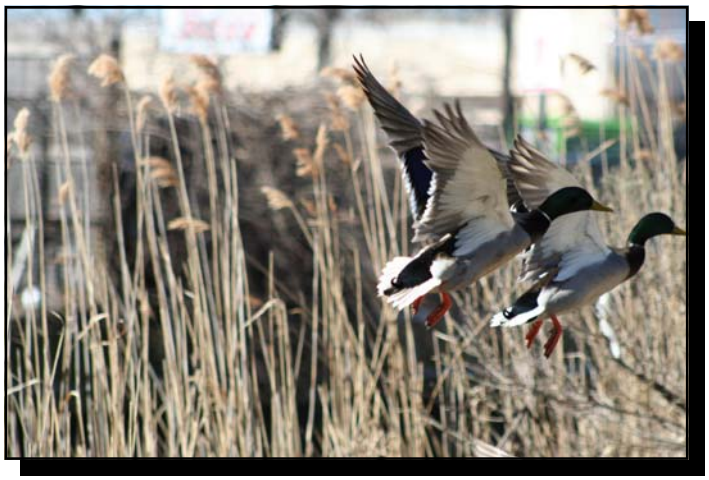
Exercising **Flexibilities in Right-of-Way** to shorten project delivery, Maryland raised the limit for appraisal waivers for properties that value less than $25,000. The State Code of Regulations was modified to allow for an appraisal waiver for those properties valued below $25,000, and the State's Right-of-Way manual was updated to reflect the use of the appraisal waiver.

MASSACHUSETTS

The early utility coordination associated with the schedule-driven, incentive-based reimbursement provisions of the new interchange project on Route 2 in Massachusetts resulted in the elimination of two temporary moves — for a savings of approximately $1.2 million in direct costs and one entire construction season of time. These built-in efficiencies, coming from the implementation of the **Flexibilities in Utility Accommodation & Relocation** initiative may have also contributed to the project ultimately being awarded for 19 percent below the Engineer's Estimate.

MICHIGAN

The **Construction Manager/ General Contractor** (CM/GC) project delivery method was used by Michigan Department of Transportation (MDOT) to develop and deliver a highly technical and complex slope-stability project. The instability was due to ground water seepage and channel migration of the river, which threatened and ultimately closed Michigan Route 222. The pressure was very high to get it right, and the excellent partnership between the MDOT, the Federal Highway Administration, the State's design consultant, and the CM/GC contractor allowed this project to be delivered quickly, safely, and cost-effectively.



MINNESOTA

The Minnesota Department of Transportation used **Design-Build** (D-B) contracting for reconstruction of the Trunk Highway 13/101 interchange. The existing at-grade intersection needed to be rebuilt to a grade-separated interchange because of excessive traffic congestion. The use of the D-B contracting method saved at least 1 year in design time and allowed construction to begin much sooner. Through the D-B process, a number of innovative solutions were developed by the firms proposing to solve the congestion and merge issues associated with this location.

MISSISSIPPI

The Mississippi Department of Transportation's (MDOT) use of **Mitigation Banking** (MB) has streamlined the compensatory mitigation permitting process for wetland and stream impacts on all applicable transportation projects. The MDOT has ownership of wetland and stream credits in 18 mitigation properties — perpetually conserving some 20,000 acres of land. The MB program is dynamic, aimed at having credits in each of the watersheds of the State readily available and adequate for future mitigation needs.

MISSOURI

The Missouri Department of Transportation constructed nearly 160 miles of **Safety Edge$_{SM}$** improvements on high-risk rural roadways in 2011, with approximately 700 centerline miles planned for 2012. The end result is a safer roadway for the traveling public and a more durable edge, which should reduce ongoing maintenance costs.

MONTANA

The **Planning & Environmental Linkages** initiative has been fully integrated into the Montana Department of Transportation's (MDT) corridor planning process. The corridor planning process has been standardized through the use of a *Corridor Planning Study Checklist* and formally documented and recognized through a Memorandum of Understanding between the MDT, the Federal Highway Administration, and several State and Federal planning and resource agencies.

NEBRASKA

The Nebraska Department of Roads (NDR) **Expanded the Use of Programmatic Agreements** and developed one for a biological evaluation process (Bio-Matrix). When the programmatic conditions are met at the project level, the NDR no longer needs to coordinate with or obtain concurrence from the Federal Highway Administration, the U.S. Fish and Wildlife Service, and the Nebraska Game and parks commission. This agreement results in a minimum savings of 5 weeks in the project schedule for an estimated 80 percent of the projects in the Nebraska transportation program.

NEVADA

The **Prefabricated Bridge Elements & Systems** initiative was combined with other accelerated bridge construction techniques to replace two I-15 bridges. This Nevada Department of Transportation (NDOT) project improved an I-15 interchange in Mesquite, NV. The deployment of these innovative techniques reduced bridge construction time by 6 months, compared with typical construction schedules, and decreased the total project cost by about 19 percent.

In addition, the Nevada State Legislature approved the NDOT's use of the **Construction Manager/ General Contractor** (CM/GC) contracting for 2 years. The NDOT will use CM/GC on its first diverging diamond interchange project, the I-580/ US 395 – Moana Lane Diverging Diamond Interchange Project.

NEW HAMPSHIRE

The New Hampshire Department of Transportation (NHDOT) has developed a greater comfort level with the **Design-Build** (D-B) project delivery method. In response to the damage caused by Hurricane Irene, the NHDOT is developing other projects using the D-B contracting technique. The State continues to look for opportunities to use this accelerated project delivery tool and have recently been approached by a neighboring State to discuss the NHDOT's process, as it has gotten rave reviews from private industry.
In 2011, the NHDOT also placed approximately 243,000 tons of **Warm Mix Asphalt** equaling 41 percent of all pavement placed by the State.

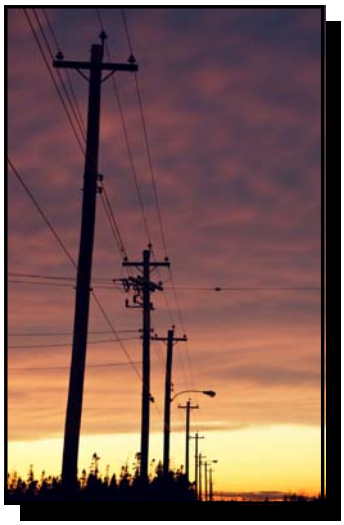
NEW JERSEY

The New Jersey Department of Transportation (NJDOT) used **Prefabricated Bridge Elements & Systems** to replace a State Route 202 bridge over the Passaic River in 7 days.

The NJDOT will also be using **Warm Mixed Asphalt** on three projects.

NEW MEXICO

The New Mexico Department of Transportation is developing a new **Utility Cooperative Agreement** to improve the reimbursement procedure that will result in an improved utility coordination and reimbursement process on projects where an entity (typically a local government agency) requires the relocation of utilities as part of the project. By requiring the entity to agree to the reimbursement responsibility early, it will alleviate an added burden to the State, which includes a significant amount of administrative time to seek reimbursement from an entity post construction and even beyond.



NEW YORK

In January 2012, The New York State Legislature passed the *Infrastructure Investment Act,* which enabled the New York State Department of Transportation (NYSDOT) to employ the **Design-Build** (D-B) process for 3 years. The NYSDOT has used D-B on the Tappan Zee Hudson River Crossing (TZHRC) Project, to advance it to the construction stage more quickly than the traditional design-bid-build project delivery method.

NORTH CAROLINA

The North Carolina Department of Transportation initiated the "Integration Project," a process improvement initiative that has the goal of better linking the long-range planning process with the project development process. By focusing on **linkages between the comprehensive planning process and the project development process**, this project will identify ways and develop tools that will allow planning and NEPA practitioners to use information and data gathered during the planning process to aid and streamline the project development process. Focus areas include the "Problem Statement to Purpose and Need" linkage, the "Alternatives and Scenario Analysis" linkage, the "Community Impact Assessments" linkage, and the "Indirect and Cumulative Effects" linkage.

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NORTH DAKOTA

Under the **Planning & Environmental Linkages** (PEL) initiative, the North Dakota Department of Transportation (NDDOT) and the division office staff have reached agreement on the use of planning level documents, with appropriate additional analyses, for the environmental documents on projects meeting the definition of categorical exclusions. The draft programmatic agreement is under final consideration by NDDOT leadership. The streamlined process for the environmental analysis will enable more projects to be completed during the limited construction season.

OHIO

Nearly all of the Ohio Department of Transportation (ODOT) paving projects on undivided roadways will include the **Safety Edge$_{SM}$**.

In 2011, the ODOT also developed its first Best-Value Design-Build (D-B) project — the $290 million Cleveland Innerbelt bridge, which was $100 million below the State estimate. The ODOT's second Best-Value D-B project, the Columbus Crossroads interchange reconstruction, was awarded for $200 million — $40 million below the State's estimate.

OKLAHOMA

The Oklahoma Department of Transportation (ODOT) is **Expanding the Use of Programmatic Agreements** (PA) for the American Burying Beetle (ABB) Programmatic Biological Opinion. The PA has expedited projects by as much as 1 year and removes schedule uncertainty based on possible presence of ABBs, a critical endangered species, in impact areas.

Oklahoma officials are developing standard details for the abutment diaphragm on a **Geosynthetic Reinforced Soil** abutment with steel beam superstructure.

OREGON

The Oregon Department of Transportation moved from a position of being wary of the effectiveness of the **Safety Edge$_{SM}$**, to showing guarded interest in it, to actively encouraging its deployment on roadways with shoulders less than 6 feet.

Oregon officials also developed a 2011 Section 106 **Programmatic Agreement** (PA) and the Programmatic Biological Opinion as opportunities for expanded and clarified uses.

PENNSYLVANIA

The **Geosynthetic Reinforced Soil** (GRS) technology was applied to a local bridge in rural Pennsylvania. Expedient and inexpensive construction was paramount for this critical school bus route over a native trout spawning stream. The abutments were constructed in 6 days using GRS, and the total construction cost was one-third the cost of using traditional construction methods.

PUERTO RICO

During the first few months of 2012, over 60,000 tons of **Warm Mix Asphalt** (WMA) have been placed in Puerto Rico on three different projects. Lowering production temperature by 50°F, resulted in about a 30 percent reduction in fuel cost, production cost savings, and required less compaction effort.

A contractor suggested using the **Safety Edge$_{SM}$** on a cracking and reseating rehabilitation project that included a 7 inch overlay.

RHODE ISLAND

The Rhode Island Department of Transportation (RIDOT) is delivering a contract for the **Design-Build** (D-B) of three **Geosynthetic Reinforced Soil** (GRS) integrated bridge system structures in the State-owned Arcadia Management Area. The cost of the project is estimated to be $1.1 million and have a 75-year design life. Each bridge has a maximum 5-day closure period allowed.

SOUTH CAROLINA

The State Department of Transportation (DOT) in South Carolina developed a **Programmatic Agreement** to streamline the Section 106 review process for historic properties affected by transportation projects.

The State DOT has also developed language in their specifications that allows **Warm Mix Asphalt** as an alternative to Hot Mix Asphalt.

SOUTH DAKOTA

The South Dakota Department of Transportation (SDDOT) is developing a wetland **Mitigation Banking** process to address the difficulty of mitigating wetlands in rural farming areas and communities due to high grain and land prices and excessive wet weather. Using wetland banks will expedite project delivery and reduce the wetland monitoring locations.

TENNESSEE

In calendar year 2011, the Tennessee Department of Transportation (TDOT) placed over 46,000 tons of **Warm Mix Asphalt** (WMA) within nine projects. For calendar year 2012, the TDOT anticipates exceeding the 2011 total number of WMA projects, and it expects to have at least one large project that will surpass the 2011 WMA total tonnage.

TEXAS

The Texas Department of Transportation (TxDOT) has implemented **Flexibilities in Utility Accommodation and Relocation**. The TxDOT recognized the need to update the Neches River Bridge near Beaumont, TX, to meet 21st century demands. By implementing the Flexibilities in Utility initiative the TXDOT used a collaborative utility agreement that resulted in measurable successes. The utilities were relocated 12 months ahead of schedule with a project cost savings of $5 million.

UTAH

Utah Department of Transportation has developed a specification that allows (but doesn't require) contractors to use **Warm Mix Asphalt** on projects so long as they that meet all design requirements of Hot Mix Asphalt. The four primary asphalt plants in the State of Utah have embraced this allowance to the extent that WMA is their primary output and HMA is the exception.

VERMONT

Vermont is using an **In-lieu-fee** for wetland replacement for the first time on the Bristol Bridge Replacement Project. Payment of the fee will mean that the Vermont Agency of Transportation does not need to develop a separate project to design, permit, construct, monitor, and preserve in perpetuity of a mitigation wetland.

VIRGINIA

The Virginia Department of Transportation (VDOT) has implemented a dedicated and ongoing **Design-Build** (D-B) program aimed at deploying the D-B contracting method as part of the development of transportation projects across the Commonwealth. This innovative program has established a set of policies and processes that are followed for each project. The VDOT has 17 completed (and 27 active) D-B projects.

WASHINGTON

The Washington State Department of Transportation has **Expanded the Use of Programmatic Agreements** (PA) and developed one to clarify the role of the U.S. Forest Service (USFS) archaeologists and spell out which of the exemptions in the Statewide Section 106 PA with the Department of Archaeology and Historic Preservation can be applied on projects with a USFS nexus. This new agreement allows the FHWA to act as the lead Federal agency for Section 106 compliance on projects within national forests, replacing the current situation, which has both the FHWA and the USFS conducting separate Section 106 compliance activities.

WEST VIRGINIA

The West Virginia Department of Transportation (WVDOT) incorporated the **Safety Edge$_{SM}$** into eight projects using two different specifications: one being performance based and the other dictating the type of shoe to be used in projects. Industry was in favor of using the technology and requested permission to add it to additional projects that didn't have Safety Edge$_{SM}$ in them.

The WVDOT has placed approximately 225,000 tons of **Warm Mix Asphalt** (WMA) in 2011, representing about 14 percent of the total for WMA and Hot Mix Asphalt combined.

WISCONSIN

Wisconsin will be constructing its first bridge using **Geosynthetic Reinforced Soil** technology.

The Wisconsin Department of Transportation specification committee adopted a new specification for **Warm Mix Asphalt** (WMA). The permissive specification allows contractors to use WMA on all hot mix asphalt paving projects in Wisconsin.

WYOMING

Wyoming will be letting three projects using **Warm Mix Asphalt**.

The use of **Prefabricated Bridge Elements & Systems** on two new bridges for wildlife overpasses in Wyoming will allow the highway to remain open during construction with only brief closures to set the individual elements.

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Federal Lands Highway Division

A part of the Federal Highway Administration, the Federal Lands Highway Division provides planning, design and construction management services for federal agencies.

Eastern Federal Lands Highway Division

The **Prefabricated Bridge Element & Systems** innovation was utilized by the FHWA Eastern Federal Lands Highway Division in partnership with the Virginia Department of Transportation in the construction of a three-span, steel-truss pedestrian bridge adjacent to Trap Road over State Route 267, in Fairfax County, VA. Each of the truss spans were prefabricated in three sections and upon delivery to the project staging area each truss was fully assembled, including a prefabricated fiber reinforced polymer deck panels. The pedestrian bridge was erected in one night.

Central Federal Lands Highway Division

The Strawberry Creek Bridge, located within the Great Basin National Park in Baker, NV, was originally designed as a 16-foot-wide timber bridge supported on vertical abutment walls with spread footings placed 12 feet below ground elevation. To reduce cost and closure time, the FHWA Central Federal Lands Highway Division redesigned the bridge as a **Geosynthetic Reinforced Soil** integrated bridge system structure. It included prefabricated timber deck, steel girders, and precast concrete footings. The new design reduced overall cost of the bridge by 30 percent and cut closure time in half, from 3 weeks to 10 days.

Western Federal Lands Highway Division

The FHWA Western Federal Lands Highway Division (WFLHD) has implemented the **Safety Edge**℠ on Walden Point Road Paving Project. This project is located in the Metlakatla Indian Community on Annette Island in Southeast Alaska. The project length was 22.7 km.

For more information on the *Every Day Counts* Initiatives, visit: *www.fhwa.dot.gov/everydaycounts*