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An Open-Ended Approach to Meeting Design-Build DBE Goals

The Disadvantaged Business Enterprise (DBE) program ensures that opportunities to compete for federally assisted contracts for highway, transit, and aviation projects are made available for small businesses owned by socially and economically disadvantaged individuals. Administration of the program, as regulated by Title 49 of the Code of Federal Regulations Part 26 (49 CFR 26), was designed around designbid-build project delivery, but increasingly to address methods of delivery efficiency, agencies are using alternative project delivery contracting methods such as design-build.

The traditional method of administering the DBE program in design-bid-build procurement requires proposers to commit to named DBEs before contract award. However, this is difficult in the design-build process where the project design is incomplete before award. Commitments to named DBEs often do not materialize because DBEs that committed without sufficient project details may be unable to adhere to the quoted price or schedule. This often results in DBE terminations or documented good-faith efforts instead of actual work for the DBEs.

The Every Day Counts round seven (EDC-7) Rethinking DBE for Design-Build team is promoting tools and innovative practices, such as open-ended performance plans (OEPPs), to help State departments of transportation (DOTs) and local agencies modify their traditional DBE commitment process to align with design-build contracting methods. An OEPP allows the proposer to commit to using good faith efforts to meet the contract goal through sufficient DBE subcontracting. It lists the anticipated work opportunities with the estimated dollar value and timeframe for planned DBE participation throughout the project's life. An OEPP serves as a roadmap for a State or local agency to monitor that the identified work opportunities are secured with named DBEs throughout the life of the project.

More Flexibility

The State of Texas benefits from the flexibility OEPPs provide. "As that project is designed and developed, the selected contractor can choose DBEs on an as-needed basis when items come up for bid to complete those project segments," said Texas DOT Civil Rights Division Director Michael D. Bryant. "It allows more flexibility for not only the prime contractor but the DBE, so they're not locking themselves into pricing or scheduling years before their services will be needed."

General Counsel for The American Road & Transportation Builders Association, Rich Juliano, says the association's members want to learn more about this FHWA EDC innovation. "A design-build team is supposed to have the flexibility to develop the project as best they can in terms of cost, risk, and many other factors, so OEPPs bring the DBE commitment of the project into line with all its other aspects."

Increased Transparency

While OEPPs provide flexibility, they still require contractors to demonstrate progress toward achieving the DBE goals. Contractors must provide regular updates, reports, and documentation to track their performance and ensure transparency. The plan must demonstrate good faith efforts to achieve the goal. "Good faith effort is not necessarily at the beginning of a contract anymore," said Angela Berry-Roberson, senior vice president of Civil Rights Advisory Services at WSP. "It's throughout the project. You're monitoring the numbers, but you're also monitoring the efforts to get those numbers."

Enhanced Opportunities

The flexibility of an open-ended approach encourages contractors to actively seek new work opportunities and identify additional areas where DBEs can participate in fulfilling their commitment to the DBE goal. Expected work opportunities submitted in the prime's OEPP may change as the project is designed and



Colorado DOT used an open-ended performance plan (OEPP) on its **Central 70** design-build project, shown here.

more information about materials, quantities, and scheduling is known. Collaborating with the project sponsor, the prime contractor can continuously evaluate the project's needs and identify work packages or subcontracts that align with DBEs' capabilities. The project sponsor must approve OEPP changes, and revisions in opportunities must add up to the approved DBE goal unless there are no subcontracting opportunities left on the project.

Continuous communication among all stakeholders allows DBEs to predict what may be needed. "If a DBE cannot provide a subcontracting opportunity at the beginning of a project, there is time for that firm to grow and adapt its capabilities to the project's needs. It is possible that a DBE can bid on additional work during the latter stages of a project if their firm aligns with subcontracting opportunities," said Christine Thorkildsen, FHWA Rethinking DBE for Design-Build co-team lead. This proactive mindset expands the range of work opportunities available to DBEs beyond the project's initial scope.

Reduced Risk

The OEPP can provide better levels of certainty and mitigate risk for States, design-build teams, and DBEs. Contractors can explore creative

solutions and partnerships they may not have initially envisioned. "If there's a way of mitigating the risk in terms of complying with DBE requirements and developing those opportunities, we think that's a win for everybody," said Juliano.

By embracing flexibility and maintaining transparency and open communication, contractors can create an equitable environment for DBE participation and foster their long-term success.

MORE INFORMATION

- ➤ Visit the EDC-7 Rethinking DBE for Design-Build webpage.
- Subscribe to the Rethinking DBE for Design-Build e-bulletin.
- See how Texas DOT incorporated OEPP into its **Prime Contractors' DBE Guide**.
- Contact Christine Thorkildsen or Martha Kenley in the FHWA Office of Civil Rights for more information.



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EDC Legacy: Capturing the Value Created by Transportation

For more than a decade, FHWA's **Every Day Counts** (EDC) program has promoted proven but underused innovations that enhance roadway safety, improve project delivery, and reduce traffic congestion. Across the country, agencies attest to the value of adopting these new technologies and practices, along with a cultural change in how they deploy innovation. As the transportation community takes part in EDC round seven, Innovator is featuring articles reflecting on accomplishments from previous rounds.

When public agencies invest in transportation assets that improve access and increase opportunity in the community, adjacent and nearby property owners often benefit through greater land value and other economic impacts. Many value capture techniques are available that enable agencies to share in a portion of the increased land value created by public investment to build, maintain, or reinvest in the transportation system.

The fifth round of EDC (EDC-5) helped transportation agencies across the country deploy value capture as an equitable means to bridge funding gaps and accelerate the implementation of needed projects.



The city of Bozeman, MT, implemented <u>impact fees</u> to fund additional infrastructure to address rapid growth.

Common Value Capture Techniques

- impact fees
- joint development
- · land value tax
- negotiated exactions
- sales tax districts
- special assessments
- tax increment finance
- transportation utility fees

Information about these techniques and more are available on FHWA's value capture website.

"When transportation creates value for private landowners, a public investment can end up benefiting a small section of society, so it's equitable to recover part of that value and use it to support the public good," said Stefan Natzke, head of FHWA's National Systems and Economic Development team and co-lead of the EDC-5 value capture team. "Value capture offers an opportunity to expand economic development, improve transportation facilities, and enhance safety using the 'beneficiary pays' principle versus general tax dollars."

Building a Value Capture Toolkit

Value capture is an umbrella term for several different tools, from various types of taxes and fees to advertising rights. Since many agencies surveyed at the start of EDC-5 were not familiar with all available value capture methods, the EDC implementation team began their outreach effort by building a knowledge base to assist practitioners in understanding and using some of the more common ones.

"Not all value capture methods can be used by State agencies," said Thay Bishop, senior program advisor for FHWA's Center for

Innovative Finance Support and co-leader of the EDC-5 team, "but some States (21) signed on to EDC to help promote value capture to their local governments because it offers benefits that would not ordinarily be available to them." These benefits include enabling local agencies to meet the required funding match on Federal-aid projects and to later fund operations and maintenance, which is traditionally not an eligible expenditure under Federal-aid.



The Washington State DOT, King County, and city of Seattle used <u>value capture</u> <u>techniques</u> to replace the Alaskan Way Viaduct, pictured here before demolition, with a bored tunnel beneath downtown Seattle.

While not all value capture tools are appropriate for every setting, there is a menu of options available for rural communities and small towns that traditionally struggle to find some of these revenues. Outreach during EDC-5 helped agencies discover new tools and, importantly, offered examples and success stories they could present to their leadership as good evidence that pursuing value capture would be successful.

In addition, many of the new programs under the 2021 Infrastructure Investment and Jobs Act (IIJA) include eligibility for local agencies, allowing them to compete directly for funding. EDC-5 outreach broadened the awareness of value capture tools just as the IIJA expanded Federal-aid funding eligibility—improving local agencies' ability to use value capture to provide the required non-Federal matching funds.

"The new projects that will be funded by the IIJA are going to need operations and maintenance moving forward, too," said Natzke. "Even if an agency can build an asset now, they still have to maintain it down the road. Value capture will give these folks an opportunity to make sure that whatever they build with the Federal-aid can continue to operate safely in the future."

Moving Forward

The EDC program provided a national forum for communicating the benefits of value capture to transportation and elected officials, and EDC-5 webinars, workshops, training, and technical assistance allowed the implementation team to connect with more agencies and reach them faster.

Bishop and Natzke noted that the rapid spread of value capture would not have happened without the EDC model. "EDC gave us the platform to promote the innovation," said Bishop.

Bishop said that since 2019, at least 194 agencies have reported implementing value capture techniques to FHWA, and she has documented many of their **strategies** and **applications** on the value capture **website**. The website now includes more than 20 different types of resources for different levels of users, including a toolkit with a value capture quick start guide and implementation manual.

"We see a great deal of value in these resources going forward," said Natzke, "especially in supporting newly eligible recipients of IIJA funds and for increasing equity in the funding of transportation improvements."

MORE INFORMATION

- Contact Thay Bishop of FHWA's Center for Innovative Finance Support or Stefan Natzke of FHWA's Office of Environment and Planning.
- Visit FHWA's value capture website.
- Register for the latest value capture webinar series, which focuses on the intersection of Federal innovative finance and innovative project delivery tools.



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Missouri Accelerates Market **Readiness for Work Zone Innovations**

Integrating new innovations into widespread use can take many years due to the gap that exists between research and practice when a technology has been proven but is not fully ready for the marketplace. The Federal Highway Administration's (FHWA's) Accelerating Market Readiness (AMR) program targets this gap and advances innovation by funding pilot demonstrations and evaluations. The program seeks to move innovations into the marketplace that are significant improvements over similar, currently available innovations or practices.

In 2021, FHWA awarded its first round of AMR projects based on proposals received in response to a Broad Agency Announcement for the program. These seven awards totaled more than \$2.6 million in funding for transportation innovators from State departments of transportation (DOTs), academic institutions, and the private sector.

The Missouri DOT (MoDOT) received two awards: one for an immersive virtual reality training program for work zone inspectors called iTrain and one for a pilot program for a semi-autonomous leader-follower truck-mounted attenuator.

Jeff Zaharewicz, Director of FHWA's Accelerating Innovation program team, explained how MoDOT was able to secure two awards in this initial round. "The Broad Agency Announcement for the program called for topics that enhanced safety, improved performance of infrastructure, or could shorten project delivery," Zaharewicz said. "Both of MoDOT's proposals clearly articulated the State's goal for safety, why they wanted to do it, and the specific benefits the innovations would provide if they were to be selected for the program."

Now, 2 years later, these programs are bearing fruit through visible results.

iTrain

At the time of award, MoDOT and the University of Missouri had already collaborated on developing and testing virtual reality (VR) training modules, but MoDOT was able to use the AMR funding to expand and complete the scenarios to include advanced work zone training. In January 2023, MoDOT personnel attended the first two flagger training events to incorporate the new VR training modules. After completing these modules, participants indicated the courses were more engaging than traditional trainings.

> The team also presented a new semi-automatic method for constructing VR environments at a VR conference in March. MoDOT is now looking at incorporating VR modules into additional training prtograms.

> Jennifer Harper, MoDOT Research Director for Construction and Materials. says that AMR played an important role in the successful implementation of iTrain. "At the time of the award, we had conducted a proof of concept, but the initial funding didn't account for deployment costs or expanding the VR program



opportunities for MoDOT staff.

to include work zone training," she said. "Without AMR, we couldn't have funded the equipment for testing these trainings on a wider basis."

Leader-Follower TMA

Truck-mounted attenuators (TMAs) are a key piece of work zone safety equipment that not only give drivers notice of work ahead, but also absorb impacts if drivers do not heed the other indicators and crash into them. Traditional TMAs can protect most workers from these types of crashes but still require a driver who could be subjected to impacts. Between 2018 and 2023. MoDOT recorded 239 crashes with TMAs and 20 resulting injuries to MoDOT workers. To address this safety challenge, MoDOT became interested in piloting a leader-follower TMA system, a semi-autonomous version of this technology that can remove the driver from the TMA and be directed by the leader vehicle through connected vehicle technology.

"Before the AMR award, we were at a stalling point," said Harper. "MoDOT had the pilot project, but didn't have a way to branch out, get others involved, and expand testing. The AMR award helped fund a second set of equipment and has helped MoDOT determine how to implement this technology statewide."

MoDOT is still testing the leader-follower TMA with a driver for safety but plans on testing without one in the near future. Next on the horizon for the leader-follower TMA program is testing during striping season, where the agency will be able to develop criteria for when and under which scenarios to use this system going forward.

Another important aspect of this project that AMR funded was third-party assessment of the units.

"Third-party assessment is a unique eligible activity for AMR funding," said Zaharewicz. "This provides the opportunity for the awardee to obtain an objective evaluation on whether the awardee's technology or innovation is performing to their expectations. This type of assessment might be more challenging for agencies on their own. This sort of assessment will allow these project results to be shared in a more widespread manner."

The projects awarded during AMR's first round are helping bridge the worlds of research and practice by providing resources to assess these emerging



MoDOT staff members train in virtual reality using state-of-the-art equipment.

innovations and document their performance in a real-world setting. As the first group of AMR projects continues to show results, FHWA is excited to share this information as it is received.

FHWA was pleased with the initial response to the program through the first BAA and is looking forward to continuing the program in the near future.

"We learned that the market for AMR resources is strong and comes from all sectors-transportation agencies, academic institutions, and the private sector," added Zaharewicz. "It will be exciting to see how the program can continue to support innovations on their journey to market."

MORE INFORMATION

- Contact Jeff Zaharewicz for details on FHWA's Accelerating Market Readiness program.
- @ Contact Jennifer Harper for information on MoDOT's Research Projects.



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Innovation and Impact

States Report EDC-6 Deployment Successes

The Federal Highway Administration's **Every Day Counts** (EDC) program uses a State-based model that identifies and rapidly deploys proven, yet underutilized innovations that make the transportation system adaptable, sustainable, equitable, and safer for all. Since 2011, FHWA has worked with various State departments of transportation (DOTs), local governments, Tribes, and other stakeholders to advance a new set of innovations every 2 years. The **EDC-6 final report** summarizes the progress States made to reach their goals across the seven innovations featured in this round and highlights several success stories.

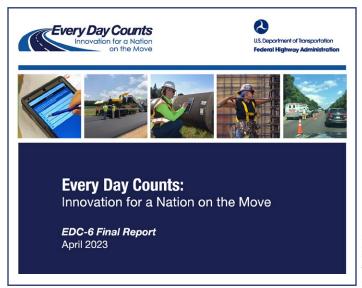
Fifty-one States attained demonstration, assessment, or institutionalized implementation for virtual public involvement (VPI). VPI strategies enhance agencies' efforts to engage the public by supplementing traditional processes such as face-to-face meetings with digital technology. The Michigan DOT, one of the States that has institutionalized VPI, developed a practical guide to VPI tools. The guide describes the basics of implementing VPI tools and their benefits, barriers to consider when using them, and how to make VPI efforts more inclusive.

Forty-three States reached demonstration, assessment, or institutionalized implementation for crowdsourcing for advancing operations, which offers strategies for integrating crowdsourced data from multiple streams to help overcome the limits of traditional traffic monitoring systems. The Indiana DOT (INDOT) merged data from third-party vehicle probe data providers with agency field devices. This allowed INDOT to effectively process vehicle speed data, estimate travel times between major cities, and pass that information along to traveler information systems. INDOT estimates that crowdsourcing data helped save about 116,000 hours of arterial travel time on one busy corridor alone when it used the data to retime traffic signals along that route.

Traffic incident management (TIM) tools and processes enable earlier incident detection, quicker on-scene clearance, and improved

traveler information to reduce the dangers created by incidents, such as secondary crashes. and mitigate congestion. Next-generation TIM focused on improving TIM on all roadways by integrating proven technology, data, and training strategies. Thirty-eight States reached demonstration, assessment, or institutionalized implementation for this innovation. The Florida DOT (FDOT) migrated its TIM dashboard to a new global information system (GIS) platform that enhanced search capabilities and elevated the visualization of data in charts and maps. FDOT reported that the TIM data and dashboards have been a significant factor in funding increases for its statewide TIM efforts, including the Road Rangers and Rapid Scene Incident Clearance programs.

Read additional success stories in the EDC-6 final report from e-Ticketing and digital as-builts, strategic workforce devlopment, targeted overlay pavement solutions, and UHPC for bridge preservation and repair.



Sredit: FHWA

MORE INFORMATION

Contact Julie Zirlin for information on the Every Day Counts Program.



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STIC Showcase Features HOME **Homegrown Innovations**



As part of the Every Day Counts round seven (EDC-7) virtual summit held in February, the National STIC Network Showcase provided a platform for State Transportation Innovation Councils (STICs) to share more than 100 homegrown innovations developed and implemented in their States with a wider audience to expand their potential use and impact. Following are examples of two of these homegrown innovations: a Missouri program to increase the Federal share on projects that incorporate new innovations and an Ohio program that upcycles bridge components.

Increased Federal Share

The Missouri Department of Transportation (MoDOT) expanded its use of new and different innovative practices, enabling it to apply increased Federal share flexibilities to more projects and save millions. Section 120(c)(3) of title 23, United States Code, provides an option for up to an additional 5 percent of funding when using innovative delivery methods. MoDOT used the increased Federal share on five design-build projects from 2016 to 2020, saving an average of \$5.5 million per year. However, for fiscal year 2021, the agency expanded its application program to include a wider variety of innovative methods, materials, and techniques, increasing the Federal share on 46 of its projects for a total savings of \$16.8 million.

MoDOT reported that increasing the applications for this Federal incentive also drove the use of more innovations, including ultra-high performance concrete and project bundling. The agency expects these innovative delivery methods, construction materials, and techniques to provide additional future savings by reducing maintenance costs.



the increased Federal share for innovative project delivery.



Watch a video with details on Ohio's Bridge Upcycling Program.

Bridge Upcycling

The County Engineers Association of Ohio and the Ohio Department of Transportation (ODOT) partnered to upcycle bridge beams removed from ODOT projects and use them on county projects. Reusing steel beams left over from projects where bridges were demolished or rehabilitated helps stretch financial resources and reduces potentially unsafe bridge rating conditions. Two Ohio counties, Defiance and Muskingum, have successfully used upcycled steel beams on several projects. A presentation on Ohio's bridge upcycling program, along with presentations on other State and local homegrown innovations, can be watched on-demand from the EDC-7 virtual summit website.

MORE INFORMATION

- **★** Visit the National STIC Network Showcase webpage to read more about these and other Homegrown Innovations.
- **Register** for access to the EDC-7 virtual summit on-demand content.



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States Innovate!

West Virginia Raises the Bar with New GRS-IBS Bridge Project

The West Virginia Department of Transportation's Division of Highways is using the geosynthetic reinforced soil-integrated bridge system (GRS-IBS) on a 190-foot span, which, according to the agency, makes it the longest spanned bridge of this type of abutment construction known to date. GRS-IBS is an innovative method that reduces bridge construction time and cost. GRS-IBS projects can be built in weeks instead of months due to the ease of construction and the use of readily available materials and equipment. The reduced construction schedule also translates into less exposure around work zones, improving safety.

North Carolina Improves Decades-Old Pavement with TOPS

The North Carolina Department of Transportation (NCDOT) used targeted overlay pavement

solutions (TOPS) to rehabilitate segments of pavement constructed as early as 1960 along Interstate 85. One of the challenges was how to address existing asphalt patches on the roadway. The solution included leaving the asphalt patches in place, except where there was severe and apparent distress, and using a concrete over concrete unbonded (COC-U) overlay. The resulting benefit to using COC-U is that it can often address more problems in the pavement with less concern for distresses, such as cracking of the existing pavement reflecting through to the new overlay. Read more about NCDOT's use of COC-U in the FHWA's TOPS news bulletin.

South Dakota Accelerates Deployment of e-Ticketing

The South Dakota Department of Transportation (SDDOT) piloted e-Ticketing on several projects in 2020 and 2021 that showed wireless fleet management systems and electronic ticket





West Virginia used the geosynthetic reinforced soil-integrated bridge system (GRS-IBS) on a 190-foot span.



capture software can work together to generate and transmit weight tickets. These tools were also able to track trucks during transport and record the point of hot-mix asphalt placement on the project. Specifics of this e-Ticketing provision are included in SDDOT' **Supplemental Specification**. With the new e-Ticketing specification, contractors have an option of providing printed tickets or e-Tickets at no additional cost to the contract. For the projects in 2022 where e-Ticketing was an option, contractors chose to use e-Ticketing instead of printed tickets. Read more about SDDOT's success with e-Ticketing in FHWA's Innovation in Project Delivery news bulletin.

Iowa Aims to Use UAS to Boost Traffic Incident Management

The Iowa Department of Transportation (DOT) is testing the use of unmanned aerial systems (UAS) to help get traffic incidents cleared more quickly. The agency reported in a news release that its Traffic Management Center staff already use live video feeds from stationary cameras to assess incidents and relay information to

responders, and employing UAS will help get a camera out to areas that do not have the stationary cameras. The drone being testing also has the capability to stream live video and take high-resolution still photographs that can be captured and saved for review to improve traffic incident management principles.

Utah Continues Accelerating Bridge Construction

The Utah Department of Transportation (UDOT) is using slide-in bridge construction, an accelerated bridge construction technique, for its I-80 & I-215 Renewed project. Crews demolished an existing bridge over Interstate 80 in Salt Lake City in April and slid in the new bridge, which was constructed next to the old one, into place the next day, reducing delays and traffic restrictions for drivers. The contractor slid the new bridge approximately 110 feet, which UDOT stated in an agency news release is one of the longest bridge slides performed to date in the State. UDOT is a pioneer in slide-in bridge construction, and UDOT staff participated as part of the innovation deployment team during Every Day Counts round two (EDC-2). One of the resources UDOT helped produce during EDC-2 is the Slide-In Bridge **Construction Implementation Guide.**



The Utah DOT completed one of its longest bridge slides to date while replacing a bridge over Interstate 80 in Salt Lake City.

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Credit: Utah Department of Transportation

INNOVATOR

INNOVATOR, published by the FHWA's Office of Innovation and Workforce Solutions, advances the implementation of innovative technologies and accelerated project delivery methods in highway transportation.

Pete Buttigieg

Secretary, U.S. DOT

Shailen Bhatt

Administrator, FHWA

Innovative Technologies and Collaboration Team:

Jeffrey Zaharewicz

Director

Sara Lowry

STIC Program Coordinator

Fawn Thompson

AID Demo Program Coordinator

Julie Zirlin

EDC Program Coordinator

Letha Cozart Managing Editor

James Cline, Jr. Designer

Pat Holcombe Designer

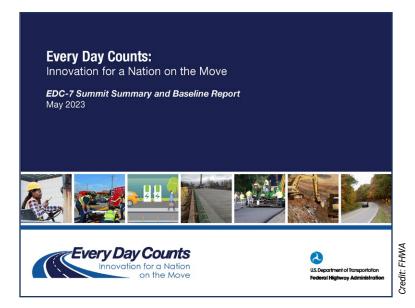
Rodney Walker Designer



U.S. Department of Transportation

Federal Highway Administration

EDC-7 Baseline Report Sets Goals for Seven Innovations



Read the recently released Summit Summary and Baseline Report to learn about the Every Day Counts innovations FHWA is promoting in the program's seventh round (EDC-7). The report includes the deployment status of the innovations at the beginning of 2023 and the goals transportation stakeholders set to broaden their adoption by the end of 2024. The report also features highlights from the EDC-7 Virtual Summit held in February 2023, including reflections from transportation leaders given during the summit's opening sessions on the three focus areas of EDC-7—improving safety for all users, building sustainable infrastructure, and growing an inclusive workforce.

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