



MISSOURI LOCAL TECHNICAL ASSISTANCE PROGRAM
— LOCATED AT MISSOURI S&T —

SPRING 2022

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Photo by: Sam O'Keefe

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The Fine Print

Missouri LTAP Quarterly is published by the Missouri LTAP office located on the campus of Missouri University of Science and Technology. The opinions, findings and recommendations expressed in this newsletter are not necessarily those of Missouri S&T, MoDOT or the Federal Highway Administration.

FROM THE *DIRECTOR*

Hello everyone!

If you are like me, spring cannot arrive soon enough. Just when we were getting a hint of warmer spring weather, Mother Nature reminded us, with a dusting of snow and cold temperatures, that winter is not quite over. In the meantime, MO-LTAP is preparing for one of our busiest training quarters each year with a combination of in-person trainings, as we slowly return to normal, and online "special topics" webinars. We will celebrate Work Zone Awareness Week again this year on April 11-15 with several virtual presentations and trainings to local agencies. Things will kick off on Monday, April 11 with a live stream of MoDOT's Work Zone Awareness Week media day or another national event. MO-LTAP and Missouri's Safety Circuit Rider (SCR) will then host a session on Struck by Incidents and a Q&A session with Gidget Koestner, Missouri's SCR, LTAP instructors, and MoDOT personnel (1.5 hours). On Tuesday, April 12, Ashley Buechter, the newly appointed MoDOT Assistant Design Engineer – Local Programs Administrator, will present a summary of the annual LPA work zones review process along with areas of improvement (1 hour). The next day Dan Smith, Traffic Management & Operations Engineer at MoDOT, will discuss the basics of traffic control, typical applications, and sign placement in work zones before showing the MoDOT University course, Basics of Work Zone Traffic Control (1.5 hours). Then on Thursday, April 14, Brandon Anderson, Vice President of Safety with AGC of Missouri, will present personal protective equipment requirements for workers in work zones as an introduction to the MoDOT University course, Flagger Training (1.5 hour). Additionally, we will be holding a webinar covering funding opportunities for local agencies under the Bipartisan Infrastructure Legislation (BIL). This session hosted by Ashley Buechter, MoDOT Local Programs Administrator, will be held on two days, April 20 and 29, to accommodate the large number of participants we anticipate. Finally, we are rescheduling the Local Roads Safety Plan online workshop with the FHWA Resource Center in early May. Please watch the MO-LTAP website moltap.org for more information. If you have other ideas for webinars, please let us know. We are always looking for new information to share with the local agencies we serve.

Warm wishes,



Heath A. Pickerill, Ph.D.
Director, Missouri LTAP



In cooperation with the Department of Civil, Architectural and Environmental Engineering at Missouri S&T and Missouri LTAP.

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RURAL BRIDGES: BOTH SPENDING AND SAVING OUR WAY OUT OF THE PROBLEM

Rural roads and bridges serve as the initial link in the overall supply chain.



ADDITIONAL SAFETY COUNTERMEASURES TO INCREASE PEDESTRIAN AND BICYCLIST SAFETY

As spring approaches, more folks get outside, actively enjoying the warmer temperatures and longer daylight hours.



BUILDING A STRONGER COMMUNITY THROUGH EMPLOYEE RETENTION

Recruiting and retaining employees for SC/RC is a challenge that larger municipalities usually do not contend with. Let's face it—a career in public works is not a bad gig to have.



FREE WORKFORCE DEVELOPMENT MARKETING TOOLKIT

It is no secret that many industries across the United States are experiencing worker shortages. This problem is especially critical in highway construction.



BIPARTISAN INFRASTRUCTURE PACKAGE AUTHORIZED: WHAT'S NEXT FOR LOCAL AGENCIES?

The approved final version of the Infrastructure Investment and Jobs Act was signed by the President on November 15, 2021.



PLANNING YOUR WORK AND WORKING YOUR PLAN

Maximizing resources through performance-based work planning and strategic thinking.

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The Local Technical Assistance Program (LTAP) and Tribal Technical Assistance Program (TTAP) are composed of a network of 58 Centers — one in every state, Puerto Rico and regional Centers serving tribal governments. The LTAP/TTAP Centers enable local counties, parishes, townships, cities and towns to improve their roads and bridges by supplying them with a variety of training programs, an information clearinghouse, new and existing technology updates, personalized technical assistance and newsletters. Through these core services, Centers provide access to training and information that may not have otherwise been accessible. Centers are able to provide local road departments with workforce development services, resources to enhance safety and security; solutions to environmental, congestion, capacity and other issues; technical publications; and training videos and materials.

RURAL BRIDGES: BOTH SPENDING AND SAVING OUR WAY OUT OF THE PROBLEM

Rural roads and bridges serve as the initial link in the overall supply chain – allowing the soybeans and grain produced on Missouri farms to be eventually consumed by both domestic and international customers. Of the bridges in the state classified as deficient and, in many cases, subject to closures or restricted access, a significant percentage are located in rural areas.

Unfortunately, the region of the country in which bridge conditions are most severe – rural areas – also happen to be the region in which available funding to improve these conditions is stagnant or on the decline. The concern remains that if this starting line for farmers is not well-maintained, soybeans and grain will not effectively reach the finish line in delivering to customers.

Given the significance of this need and the limited resources to address it, a potential response by bridge owners is to simply close or restrict access to existing bridges or hope federal, state, or local government will be willing and able to supply the necessary revenue. While pursuing increased investment is appropriate and closing or placing restrictions on certain rural bridges may be prudent, increased energy and attention must be devoted to addressing the cost side of the equation and making existing tax dollars stretch further.

In the effort to promote more cost-effective approaches to replacing and repairing rural bridges without compromising safety, the Soy Transportation Coalition (STC) released the report, “The Top 20 Innovations for Rural Bridge Replacement and Repair.” The report features the following ten rural bridge replacement and ten rural bridge repair innovations.

Bridge Replacement Innovations

- Railroad Flat Car Bridges
- Geosynthetic Reinforced Soil – Integrated Bridge System (GRS-IBS)
- Vibratory H-Piling Drivers
- Buried Soil Structures
- All Steel Piers
- Galvanized H-Piling
- Press Brake Tub Girders
- Galvanized Steel Beams
- Prestressed Precast Double Tees
- Precast Inverted Tee Slab Span Bridges

By Mike Steenhoek, Executive Director,
Soy Transportation Coalition

Bridge Repair Innovations

- Piling Encasements
- Concrete Pier Piling Repairs
- Driving Piling through Decks
- Epoxy Deck Injections
- Deck Overlays with Type O Concrete and Plasticizers
- Deck Patching
- Thin Polymer Concrete Overlays
- Penetrating Concrete Sealers
- Spot Cleaning Painting Steel Beams
- Concrete Overlay on Adjacent Box Beams

Established in 2007, the Soy Transportation Coalition is comprised of the Missouri Soybean Merchandising Council, twelve other state soybean boards, the American Soybean Association, and the United Soybean Board. The goal of the organization is to position the soybean industry to benefit from a transportation system that delivers cost effective, reliable, and competitive service.

Many of the innovative concepts featured in the report can result in a 50% or greater cost savings for rural Missouri counties. This can easily result in replacing a bridge for \$100,000 to \$150,000 compared to the prevailing method of \$250,000 to \$500,000. Farmers understand with their

own operations that simply spending our way out of a problem will rarely be successful. It is also necessary to save our way out of a problem. This approach that works so well on the farm also applies to maintaining and improving our infrastructure.

In order to select the featured innovative concepts, the STC assembled a group of 13 bridge engineers and experts (listed below) from the 13 states that comprise the organization. Three engineers served as principal analysts for the project with the remaining ten engineers or experts serving as advisory committee members. Derin Campbell, P.E. (former County Engineer, Boone County, Missouri; Project Manager – Allstate Consultants, LLC) served as the representative from Missouri for the project.

The innovative concepts for bridge replacement and repair featured in the project are not an exhaustive and comprehensive catalog. Numerous other innovative concepts exist and are worthy of being explored. The goal of the principal analysts and advisory committee members was to highlight a relatable number of innovative concepts that 1.) *Will provide initial or lifecycle cost savings*, 2.) *Have been validated by a credible engineering entity or organization*, and 3.) *Are accessible*

*Railroad Flatcar Bridge – Buchanan County, Iowa;
Photo credit: Brian Keierleber*



*Railroad Flatcar Bridge – Buchanan County, Iowa;
Photo credit: Mike Steenhoek*

Railroad Flat Car Bridges

Railroad flatcars can be an attractive option for bridge superstructures – particularly for lower volume roads. Railroad flatcar bridges are quick and easy to install; can be placed on existing abutments; are available in a variety of lengths; require minimal maintenance; and are very economical. The availability of retired railroad flat cars can fluctuate and should be considered. Railroad flatcars utilized for bridges should be designed to accommodate 80 or more tons per car. Railroad flatcar bridges do not require more frequent inspection.

Cost Savings: 50% – 60%

Research source(s): Iowa State University Bridge Engineering Center;
<https://bec.iastate.edu/research/completed/field-testing-of-railroad-flatcar-bridges-tr-498/>

COST PER BRIDGE:
\$120,000
vs. \$275,000 – \$350,000 (prevailing method)

APPLICABLE:
Low volume roads
throughout rural America

STRUCTURAL INTEGRITY:
Can support loads far in
excess of legal loads

CONSTRUCTION TIME:
15% – 25% faster

TIME TO CONSTRUCT:
6 weeks
vs. 7 – 8 weeks (prevailing method)



Vibratory H-Piling Drivers

Vibratory pile driving is an alternative pile installation method in which a vibrator hammer grabs a pile and inserts it into the ground by vertical vibration. The vibrator hammer is attached to a hydraulic excavator. The prevailing method of utilizing a crane to drive piling is not necessary. In contrast to the traditional method of impact pile driving, vibratory pile driving produces less noise and damage to the pile. Perhaps most consequentially, vibratory pile driving can result in significantly faster penetration. Vibratory pile driving has been successfully used in most types of soils, including sands and clays. Worker safety is enhanced by no longer needing to climb the leads as required in traditional pile driving. Adapting a drop hammer to the hydraulic excavator alleviates any concerns with achieving complete load bearing.

Cost Savings: 90%

Research source(s): Hindawi Journals;
<https://www.hindawi.com/journals/sv/2017/7236956/#abstract>

COST PER BRIDGE:
(to drive 10 piling, e.g.) **\$2,000**
vs. \$25,000 – \$40,000 (prevailing method)

APPLICABLE:
Most types of soils,
including sands and clays

STRUCTURAL INTEGRITY:
Equal to prevailing method

CONSTRUCTION TIME:
50% faster

TIME TO CONSTRUCT:
(to drive 10 piling, e.g.) **4 – 6 hours**
vs. two days (prevailing method)



in a large section of rural America. The featured bridge replacement and repair concepts reflect the broad consensus of the principal analysts and advisory committee members. Readers should not assume the bridge replacement and repair concepts featured in the above list are in complete alignment with the lists of each individual principal analyst or advisory committee member.

A document highlighting the innovative bridge replacement and repair concepts, expected cost and time savings, and links to validating research can be accessed at soytransportation.org.

Principal Analysts:

- Indiana: Pat Conner, P.E. (Lead Engineer, Asset Management, Local Technical Assistance Program at Purdue University)
- Iowa: Brian Keierleber, P.E. (County Engineer, Buchanan County, Iowa; President of the National Association of County Engineers – 2017-2018)

- North Dakota: Kelly Bengtson, P.E. (Bridge and Pavement Engineer – Upper Great Plains Transportation Institute at North Dakota State University)

Advisory Committee Members:

- Illinois: Duane Ratermann, P.E. (County Engineer, Knox County, Illinois; President of the National Association of County Engineers – 2015-2016; President of the Illinois Association of County Engineers – 2019-2020)
- Kansas: Calvin Reed, P.E. (Director of Engineering and Design – Kansas Department of Transportation)
- Kentucky: Duane Campbell, P.E. (County Engineer, Boyle County, Kentucky; President of the Kentucky Association of County Engineers and Road Supervisors)
- Michigan: Dave Juntunen, P.E. (former Bridge Engineer – Michigan Department of Transportation; Bridge Management Practice Lead – The Kercher Group)
- Minnesota: Dave Conkel, P.E. (State Aid Bridge Engineer – Minnesota Department of Transportation)
- Missouri: Derin Campbell, P.E. (former County Engineer, Boone County, Missouri; Project Manager – Allstate Consultants, LLC)
- Nebraska: Josh Steelman, P.E. (Associate Professor, Civil Engineering – University of Nebraska)
- Ohio: Warren Schlatter, P.E. (County Engineer, Defiance County, Ohio)
- South Dakota: Andrew Peterson (Field Services Manager – Local Technical Assistance Program at South Dakota State University)
- Tennessee: Matt Cate, P.E. (Director, Tennessee Transportation Assistance Program – University of Tennessee)

“Many of these innovative concepts have been implemented in certain areas of the country. However, one of the things I’ve learned is that just because a good idea is being practiced in one area, it does not mean it will be practiced in another area,” says Brian Keierleber, Engineer for Buchanan County, Iowa, and former President of the National Association of County Engineers. “I am excited that this project has the potential to increase awareness throughout rural America of many of these innovative approaches to replace and repair rural bridges. We need to be open to opportunities to get more bang for the taxpayer dollar.”

Out of the 24,538 bridges in the state of Missouri, 2,190



Vibratory H-pile driving – Howard County, Iowa;
Photo credit: Nick Rissman

Buried Soil Structures

Buried soil structures are arch, three-sided, or box-shaped structures with unsupported spans greater than 20 ft. that rely on soils for support. Buried soil structures are economical to construct and quick to install, result in significantly reduced maintenance, and offer enhanced durability. Buried soil structures can result in increased load capacity compared to conventional bridges due to load sharing with the soil embedment. While periodic inspection may be necessary, buried soil structures do not include bridge decks or approaches, which can be expensive to clean, maintain, or replace. On the underside of the bridge, routine maintenance involves removing debris or vegetation – similar to other bridges.

Cost Savings: 50% – 60%

COST PER BRIDGE:
\$75,000 – \$95,000
vs. \$150,000 – \$200,000 (prevailing method)

APPLICABLE:
Throughout rural America

STRUCTURAL INTEGRITY:
Equal to prevailing method

CONSTRUCTION TIME:
20% – 25% faster

TIME TO CONSTRUCT:
6 – 8 weeks
vs. 8 – 10 weeks (prevailing method)

Research source(s): Transportation Research Board;
<http://onlinepubs.trb.org/onlinepubs/webinars/160623.pdf>; National Council of
Structural Engineers Associations; <https://www.structuremag.org/?p=12752>



(8.9%) are rated as “structurally deficient” – the 5th highest number in the country. Many of these deficient bridges are located in rural parts of the state where resources are the most limited.

A structurally deficient bridge does not mean that the bridge is unsafe or in danger of collapse. The designation refers to those bridges that have one or more components that require repair. The Federal Highway Administration bridge ratings are on a scale of 0 to 9 with 9 being “excellent” and zero being “failed.” A bridge is rated in good condition if the deck (riding surface), superstructure (supports immediately below the deck), and the substructure (foundation and supporting piling and posts) are rated in a condition of 7 to 9. If any of the three main bridge elements are rated 5 or 6, a bridge is rated as fair condition. A structurally deficient (or poor) designation is assigned to a bridge with a deck, superstructure, or substructure rated in a condition of 4 or less.

BRIDGE CONDITION RANKINGS FOR LEADING MIDWEST AG-PRODUCING STATES: # OF STRUCTURALLY DEFICIENT BRIDGES

State	# of Bridges	# of Structurally Deficient Bridges	State Ranking (out of 50)
Iowa	23,982	4,571	1
Illinois	26,848	2,374	3
Missouri	24,538	2,190	5
Mississippi	16,878	1,386	11
Ohio	27,072	1,377	12
Kansas	24,948	1,321	13
Nebraska	15,348	1,302	14
Michigan	11,271	1,219	15
Indiana	19,327	1,111	16
South Dakota	5,880	1,038	17
Kentucky	14,422	1,033	18
Wisconsin	14,271	979	19
Tennessee	20,235	881	20
Arkansas	12,946	663	23
Minnesota	13,471	661	24
North Dakota	4,312	444	30



Buried soil structure – Houston County, Minnesota;
Photo credit: CONTECH Engineered Solutions, LLC

Buried soil structure – Appanoose County, Iowa;
Photo credit: CONTECH Engineered Solutions, LLC

Source: American Road and Transportation Builders Association



MISSOURI'S SAFETY CIRCUIT RIDER PROGRAM

ADDITIONAL SAFETY COUNTERMEASURES TO INCREASE PEDESTRIAN AND BICYCLIST SAFETY

As spring approaches, more folks get outside, actively enjoying the warmer temperatures and longer daylight hours.

For many public agencies, that means more pedestrians and cyclists using the local transportation systems. In 2021, the Federal Highway Administration added three additional proven safety countermeasures specifically geared toward pedestrian and bicyclist safety: bicycle lanes, crosswalk visibility enhancements, and rectangular rapid flashing beacons. Bicycle lanes have been used for many years by municipalities to provide a safe, designated area for bicyclist to share the road with motorists. Crosswalk visibility enhancements and rectangular rapid flashing beacons might be less common to agencies, so they warrant a more thorough explanation.



CROSSWALK VISIBILITY ENHANCEMENTS

The crosswalk visibility enhancements include features such as pavement markings, geometric design elements, improved lighting, and advanced warning signage. These improvements help overcome issues impeding visibility near crosswalks due to obstructions like parked cars as well as horizontal or vertical curves in the roadway. The enhancements are meant to help both drivers and pedestrians know where to cross. These countermeasures significantly reduce pedestrian crashes and injury.

safety.fhwa.dot.gov/provencountermeasures/crosswalk-visibility.cfm

safety.fhwa.dot.gov/ped_bike/step/docs/techSheet_VizEnhancement2018.pdf



RAPID RECTANGULAR RAPID FLASHING BEACON (RRFB)

The RRFB is another low-cost countermeasure that drastically increases safety at pedestrian crossings. FHWA notes a safety benefit of up to 47% reduced crashes and 98% motorist yielding rates. These beacons are typically pedestrian activated warning signs located at uncontrolled, marked crosswalks. They increase approaching drivers' awareness of those crosswalks not located at an intersection. The beacons are particularly valuable on multilane facilities.

safety.fhwa.dot.gov/provencountermeasures/rrfb.cfm

safety.fhwa.dot.gov/ped_bike/step/docs/techSheet_RRFB_2018.pdf

If your agency would like technical assistance in evaluating the safety of your transportation system, as Missouri's Safety Circuit Rider, I am here to assist! Keep in mind that the recently passed Bipartisan Infrastructure Bill (BIL) will likely provide more funding opportunities to meet your agency's transportation needs.

Safe Travels,
Gidget Koestner, P.E., Safety Circuit Rider
(573)246-0720
GidgetK@candidengineering.com



BUILDING A STRONGER COMMUNITY THROUGH EMPLOYEE RETENTION

Lori Daiber, Client Relations & Director of Marketing, Civil Design Inc., St. Louis, Missouri; member, APWA Small Cities/Rural Communities Committee

Recruiting and retaining employees for SC/RC is a challenge that larger municipalities usually do not contend with. Let's face it—a career in public works is not a bad gig to have.

One of the most challenging aspects is funding capabilities. SC/RCs usually lack the resources of larger communities with infrastructure, tap-on fees, electric and sewer revenue used to support salaries or benefits. In most cases, employees will take a job to gain experience in an SC/RC, only to later move to surrounding communities for better wages and benefits.

One way to gain great employees is to partner with a local high school and create an intern program with juniors and seniors. Not everyone wants to pursue the higher education path—offer a summer program that teaches interns from the ground up. If the SC/RC fosters a positive work culture and creates a great place to work, high school interns can later be hired as full-time, experienced employees that are ready to hit the ground running.

There are other ways to increase retainment outside of financial incentives. Retention is a foundation to building a strong and capable team, and once the team is in place there are many opportunities for an SC/RC to soar to higher levels of success. When employees are treated well and are working in an environment that helps them thrive,

productivity increases and a local government can meet their community goals.

Make sure your SC/RC is clear about their vision and goals for the community. Include your employees in on these visions and goals and make them a part of attaining them.

Most likely, they are living and raising a family in the community and want their children to have future opportunities as well. Relay the message that you can be a standout employee while being a good spouse or parent through work-life balance.

Focusing on fostering and improving the culture of your municipal administration is an impactful way to invest in your team, because happy employees will reach for higher levels of success in their employment. When employees are dissatisfied with their work, they may get stuck in the rut of “punching the clock” and just passing time to get through the day. Happy employees, however, are more willing to go the extra mile and find ways to improve their performance, which in turn, benefits their community.

Work on making a community that impacts your employees and residents and you will gain the benefits of a Stronger Community.

apwa.partica.online/reporter/december-2021/inside-apwa/building-a-stronger-community-through-employee-retention



FREE WORKFORCE DEVELOPMENT MARKETING TOOLKIT

Photo by: Sam O'Keefe

It is no secret that many industries across the United States are experiencing worker shortages. This problem is especially critical in highway construction.

According to a 2021 survey by the Associated General Contractors of America, 90 percent of construction firms said they have open positions and 89 percent said they are having a hard time filling them. Seventy-two percent of respondents said the reason they were having a hard time filling positions is because potential employees "are not qualified to work in the industry."

The Federal Highway Administration (FHWA) formed the Strategic Workforce Development implementation team as part of Every Day Counts round six (EDC-6) to help remedy this massive problem. The group's mantra and central theme is "Identify, Train, Place." Attract applicants, get

them the training they need, and place them in long-term construction careers.

"We as a Nation have to fill the pipeline with qualified workers," said Karen Bobo, Director of the FHWA Center for Transportation Workforce Development and co-lead of the EDC-6 strategic workforce development team. "That means not only attracting applicants but being intentional about improving their skills and getting them right into jobs."

Marketing the Industry

Identifying and attracting workers means marketing the highway construction industry to them. Many construction firms and local agencies cannot afford the time or money to create outreach campaigns, so FHWA created a toolkit of communication assets that are free to download, customize, and use in their communities.

The toolkit includes posters, flyers, postcard mailers, exhibit banners, and talking points for public meetings and presentations. The toolkit provides a complete, consistent package of materials firms and agencies can use, even if they do not have professional marketing experience. Many of the items can be customized with local contact information.

"We at FHWA can work with the highway construction industry and serve as a hub of information and materials," said Joe Conway, Director of the FHWA Center for Local Aid Support and the other co-lead of the EDC-6 strategic workforce development team. "We created this marketing package for them to download and use for free as one way to help them address their highway construction workforce crisis."

Stories from the Field

The toolkit also has case studies from around the country detailing how others are working to solve their workforce shortages. States and cities have formed what FHWA calls Highway Construction Workforce Partnerships (HCWPs) to bring interested parties together to find solutions. Many HCWPs are finding that potential workers have the will to pursue highway construction but lack the practical means of doing so.

In Rhode Island, case managers meet with individuals at the time they express interest in joining a workforce training program. They discuss employment barriers as well as career goals to determine what resources will help ensure success for each applicant. According to Andrew Cortes of Rhode Island's HCWP, their working group establishes a budget around helping people make the transition into the workforce.

"We do a lot to remove barriers so individuals can go to work," said Cortes. "We'll help reinstate driver's licenses, provide health and nutritional benefits, or offer language support services."

Cortes also emphasized the importance of continued support once individuals graduate from the training programs. "We'll hold alumni gatherings and have 200 people show up to connect with each other."

The Dallas HCWP is a collaboration between the Texas Department of Transportation and other partners to develop a new program called ConnectU2Jobs that will remove youthful offenders arrested for felony crimes out of the criminal justice system and prepare and train them

for careers in the heavy highway construction industry. The program is based on an "earn-while-you-learn" concept that allows participants to earn income while receiving classroom-based training and on-the-job training.

In Los Angeles, prospective highway construction workers first learn about the levels of support offered to help them succeed. This gives the HCWP an opportunity to home in on specific needs for each cohort, so they can find community partners willing to provide the resources that will eliminate barriers to program completion.

"Participation in our program not only affects individuals, but also their families," said Robert Chavez, a member of the Los Angeles HCWP. "We can provide housing, rental assistance, or childcare to help people meet their training requirements."

For the Denver HCWP, making sure program participants know what support services are available is key to taking them to their first day on the job and beyond. Alena Jimenez, Navigator and Business Services Coordinator for the Center for Workforce Initiatives, said stabilizing an individual at the beginning of the program is important to retaining them on the job.

"Once a person's home life is stable enough for them to get to the job, we can work on career development," said Jimenez. "We start with a basic list of stabilizing resources. As we get to know an individual, we're able to cover other needs they have."

No Silver Bullets

Bobo and Conway know it will take time and many collaborators to solve the highway construction workforce shortage. They will keep celebrating and promoting successes from across the country.

"There is no 'one thing' people can do to solve the highway construction workforce shortage," Bobo said. "It will take an integrated, holistic approach to identify, train, and place the next generation of skilled builders. We are honored to play our part."

fhwa.dot.gov/innovation/innovator/issue88/page_02.html

BIPARTISAN INFRASTRUCTURE PACKAGE AUTHORIZED:

What's next for local agencies?

Shane L. Silsby, Senior Vice President, Michael Baker International, Santa Ana, California,
and member, APWA Government Affairs Committee

The approved final version of the Infrastructure Investment and Jobs Act was signed by the President on November 15, 2021 and is now known as the Bipartisan Infrastructure Law (BIL), now public law 117-58. The BIL will make available more than \$1 trillion in funding for infrastructure programs across the transportation, energy, and water sectors, through a combination of grants, loans, and tax incentives.

Of the total spending plan, \$550 billion is new federal funding not previously authorized and the BIL also reauthorizes the existing highway, public transportation, and rail programs for five years.

The BIL investments are authorized over five years and organized within the following high-level categories.

NOTE: There are more detailed breakdowns within each of these categories and the full text can be viewed at congress.gov while searching either HR 3684 or Public Law 117-58.

WHERE WILL THE MONEY GO NEXT?

Due to the way in which the BIL was executed, there were no significant changes made to the way federal funds will be administered. In short, the federal agencies with legacy oversight of the funding categories will be directly expending the funding or allocating the funding based upon previously utilized mechanisms. Funding via legacy programs is expected to roll out in early 2022, with the remaining funding proposed to be distributed as final details are completed for new programs.

HOW WILL FUNDS BE ALLOCATED?

As noted, no major adjustments were introduced via the BIL to assist local agencies with direct federal funding. Thus, the primary allocation methods will be formulaic distribution to the states, grants, and loans. Each of the funding categories points to the mechanism by which the funding is expected to be dispersed. However, new programs (including pilot programs) will mostly be administered through grants and loans.

Funding allocated to legacy programs, like transportation funding via the United States Department

of Transportation (USDOT) and Federal Highway Administration (FHWA), will be dispersed primarily through population-based formulaic methodologies that first send the funds to the States to then be further distributed to subordinate locally focused agencies like Metropolitan Planning Organizations (MPOs). For specific allocations of USDOT funds, the agency has published information at transportation.gov/newsroom providing estimated breakdowns of what the BIL will provide by state. One major factor in the distribution of funds is the President's appointment of Mitch Landrieu, now holding the title of Infrastructure Coordinator, to oversee the spending from the BIL. As a former mayor of New Orleans, Louisiana, Mr. Landrieu brings a direct understanding of how local agencies are impacted by underperforming infrastructure, especially during disasters, to his new role.

HOW MUCH FUNDING WILL MY LOCAL AGENCY RECEIVE?

In short, the answer depends upon the Targeted Program, the State, and the MPO.

1. The Targeted Program will determine whether a formulaic allocation methodology will be used or whether agencies will need to submit for discretionary grants or apply for loans.
2. The State allocations are primarily based upon population. Thus, larger states will receive a greater proportional share.
3. In general, the sub-allocations to regional MPOs, and the operational practices of these MPOs, create the final layer of impact to the funding levels for local agencies and municipalities.

Every MPO operates a bit differently and every geography creates nuances that can influence the way in which the funding sub-allocations from the states are distributed. For example, a known major regional infrastructure deficiency or improvement may result in an initial allocation of local funds directly to that project addressing the regional issue. Those dollars may be pre-assigned prior to any other allocations to local agencies within the MPO boundary. Additionally, allocations within the MPO are generally done via population, with the potential for significant population re-distribution when compared with the 2009 stimulus. Finally, local politics may influence the funding allocation process which could, for example, set minimum



thresholds for dollars assigned to smaller cities which in turn reduces the funding available to be distributed to the remaining larger cities.

FUNDING PROJECTION METHODOLOGY

The information in the previous section points to some specific resources for obtaining estimates via the USDOT for state "transportation" allocations, but how can one predict amounts for other programs, MPO sub-allocations, or estimated amounts for grants and loans? The American Recovery and Reinvestment Act of 2009 (ARRA) may provide a rough data point from which to project future funding allocations for local agencies. ARRA provided roughly \$800 billion in total stimulus funding to jump-start the U.S. economy, which was sputtering from the Great Recession. The ARRA focus, funding categories and timelines were different than the BIL; however, one can take a closer look at a primary infrastructure category—transportation—to make projections. In February 2016, the U.S. Deputy Secretary of Transportation reported that ARRA provided over \$48 billion in job-creating investments in transportation infrastructure (further broken down as 13,000 projects through FHWA improving 42,000 roadway miles and more than 2,700 bridges).

The BIL allocates \$110 billion for roads, bridges, and major projects. The sub-allocations for bridges and major projects are \$40 billion and \$16 billion respectively, leaving \$54 billion for roads.

In summary and understanding that each of the federal stimulus acts have different timelines, one could infer a roughly 96% increase in standard transportation infrastructure funding from 2009 (\$48 billion) versus 2021 (\$94 billion) that is set for general allocation. Looking at the total funding allocations of each initiative shows an increase of 50% from ARRA in 2009 (\$800 billion) versus BIL in 2021 (\$1.2 trillion). These financial comparisons can offer a pathway to predicting new funding levels; however, different industry or trade associations may have more detailed information regarding specific processes and projections for specialized categories.

HOW CAN LOCAL AGENCIES PREPARE?

In addition to funding predictions, local agencies can also undertake specific activities to prepare for the receipt of, or competition for, federal funds resulting from the BIL.

Asset Management – It is critical for local agencies to know where to focus efforts to maximize the benefit of available federal funding. Starting now on implementation of a base asset management initiative (especially for roadway and bridge condition indexes) can jump-start an agency's preparedness to inform the type and scale of treatments required to adequately maintain the effectiveness and safety of the local infrastructure. If an asset management system is in place, then the local agency can surge efforts to update the system's information with current inspection reports and condition assessments.

Clearances – Although most projects will be implemented by a local agency, the distributed funds are deemed "federal" and clearance processes are required as part of the National Environmental Policy Act (NEPA), including the most time-intensive categories of environmental, right-of-way and utilities. Many states also have timeintensive environmental clearance processes that can, in some cases, run on a parallel timeframe to the NEPA process. Receiving the requisite clearance approvals is the first formal step to accessing federal dollars and progressing to construction.

Grant/Loan Program Identification – Several of the categories, and more prominently sub-categories, outlined in the BIL are structured to provide funding through discretionary grant or loan programs. There are new funding programs that did not exist as part of the ARRA initiative in 2009 and local agencies will benefit from digging into the details of BIL text to understand potential funding level authorizations and the anticipated requirements tied to the discretionary approvals.

Significant competition is expected and the applications, especially for new programs, are likely to necessitate the creation and collection of extensive documents. Targeting the right grant or loan program, while identifying projects of greatest alignment with the program goals, can give local agencies a head start and offer early engagement for elected officials and the communities benefitting from the proposed infrastructure improvements.

One example is the \$65 billion in the BIL assigned to high-speed broadband internet, of which \$48 billion will go to the U.S. Commerce Department's National Telecommunications and Information Administration (NTIA) to fund broadband infrastructure grant programs.

NTIA will use more than \$42 billion for grants to states and U.S. territories (each state will receive a minimum of \$100 million and each territory gets a minimum of \$20 million). Funds will go for high-speed broadband deployment to households and businesses that lack such services; however, this is a new program with final funding distribution and project implementation details to be further defined.

Contract Mechanisms for Project Execution – Local agencies that have design and construction standing or on-call contracts in place will be at an advantage when the time comes to implement key phases of a targeted project or program. Since BIL dollars are categorized as “federal,” some existing contracts for services may need to be re-procured or amended to ensure compliance with the specific requirements of the distributing federal agencies. Administrative activities tied to receiving approvals, delivering required services, and requesting reimbursements for projects tied to federal dollars is generally understood. Thus, local agencies can take appropriate advanced actions now, or link with state and federal agencies tasked with distribution, to ensure compliance and readiness once final details are known related to funding levels and timing.

SOME MORE POSITIVE NEWS – STREAMLINING

One Infrastructure Investment and Jobs Act policy provision that should help with the implementation of the BIL is codification of “one federal decision” on environmental reviews and permitting. In general, these provisions set targets of completing federal project

reviews within two years and assign a lead agency to oversee the processes, both of which will be especially beneficial for major projects. For more straightforward or maintenancetype projects, local agencies can hope that any slight mindset change toward streamlining the federal approval process may result in easing other administrative steps along the way. Allocation of federal funds directly to local agencies has yet to be achieved; however, any updated process elements that allow for communities to receive upgraded infrastructure in a more expeditious manner should not be overlooked.

“ADDING” IT ALL UP

Final financial figures for sub-allocations from the BIL to local agencies have yet to be fully detailed, and application information for specific federal grant programs will roll out in the coming years as the BIL is fully implemented. As previously presented, the amount of funding that will be directly utilized by federal agencies and then the set-aside for discretionary grants also contributes to reduced clarity. Add this to the circumstances wherein MPOs generally create the final layer of distribution at the local level and making predictions with precision becomes difficult. However, this GAC Insight column has outlined the known processes for allocation and has provided a high-level methodology from which local agencies could make future funding projections. Additionally, suggestions were provided to help prepare local agencies while the BIL process elements and allocation actions are clarified.

Finally, it is extremely important, and will be most beneficial for public works professionals, to provide input and feedback when federal agencies send out requests for comments related to implementing the new law. APWA's Government Affairs team regularly highlights these opportunities through the various APWA communications channels. For ongoing updates on the Bipartisan Infrastructure Law and other legislative actions on Capitol Hill, sign up for APWA's Washington Report at apwa.net or contact one of the Government Affairs Committee members or the Director of Government and Public Affairs, Andrea Eales, at aeales@apwa.net.

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apwa.partica.online/reporter/january-2022/columns/bipartisan-infrastructure-package-authorized-whats-next-for-local-agencies

Planning Your Work and Working Your Plan

Maximizing resources through performance-based work planning and strategic thinking

Henry Mintzberg (2004) stated that “Management is, above all, a practice where art, science, and craft meet.” This practice is necessary for public works leaders to apply performance-based work planning and strategic thinking for their organizations. This is one of the key aspects of the discipline of management that is critical for the success of public works professionals for their related organizations.

Planning is the first of five core functions that will be highlighted in the Mastering Management series, and this is the first of two articles focused on planning. The five management disciplines include planning, organizing, scheduling/ delegating, controlling/improving, and staffing.

The core discipline of planning is the responsibility of an organization’s managers to focus, develop, and communicate a future course of action for the organization. These management professionals are also responsible for establishing targets and objectives, as well as defining the steps required to achieve these goals. Hence, the public works manager must devote time and effort to this vital cornerstone of a well-managed organization.

Guiding Principles

Several key elements should influence a manager's process of strategic planning and course charting for their organization. An initial feature includes developing or reviewing the organization's guiding principles, such as the organization's mission, vision, and core values. The

mission and vision statements should provide organizational direction, short- and long-range focus, and inspiration to staff for accomplishing shared goals. An agency's values identify and express the cultural beliefs of the organization, both internally and externally.

The development of these principles should involve the systematic and holistic review of the existing organization, from mandates and directives to structure, resources, activities, and employee capabilities. Using facilitated employee teams can encourage buy-in from each level of the organization and institutionalization of these concepts. Finally, each decision by every employee should be made through the lens of these guiding principles and answer these questions:

Does my decision or course of action foster our core values? Does my decision align with our mission? Does my action further our path towards reaching our vision?

Vision. The vision statement focuses on the future that provides the direction for the organization, three, five, or ten years out. It should inspire and create shared excitement in the potential to perform the work. Yet, the scope of the vision is also dependent on, influenced by, and supports the complexity of the manager's desired outcomes.

Mission. The mission statement should answer three questions: What does the organization do? For whom? And why? The mission is foundational to the now. It creates focus and provides a path towards the achievement of the vision. Thus, the vision statement should be developed before the mission statement to ensure that the mission supports the vision.

Values. Values describe the agency's organizational culture and define its behavior. They guide in the conduct of

business and how service is provided. Values must resonate with internal and external stakeholders, including employees, residents, contractors, executive leadership, and elected officials. Ultimately, they define the organization's culture and beliefs, forming the fabric of the manager's agency.

These crucial principles should be influenced by and support the more central organization's guiding tenets (i.e., the division backs the public works agency that supports the governing entity). For example, a Street and Pavement Division nested within a Public Works Department will have a vision, mission, and values unique yet complementary to those of the Public Works Department. Similarly, the Department's vision, mission, and values should support the city's or county's adopted principles. Finally, each component should serve as a decision-making tool in daily interactions that guide behavior and exemplify the public works professional.

Components of the Plan

A plan is dynamic—it is guided by the desired service levels, available resources, workload, and efforts of an agency. It has many components that are needed to plan and schedule work proactively. These include:

- **Activity List** – A description of all activities performed and tracked by the agency or respective departments (e.g., roadway sweeping, sewer line cleaning, pump station repair, sign inspection).
- **Assets or infrastructure responsibilities** – location, amount, and condition of the organization's assets such as streets, stormwater, and signs infrastructure.
- **Available Labor and Equipment** – Labor and equipment resources required and potentially open to maintain and operate the agency's responsibilities. The amount and availability of engineers, equipment operators, and other staff and related amounts and types of trucks, heavy equipment, and support apparatus.
- **Labor and Equipment Rates** – Hourly labor, overhead, and equipment rates help determine the cost of an activity and how much of each resource is cost effective for the agency to allocate to the activity.
- **Activity Guidelines or Operating Procedures** – Procedures describe the resources needed for each activity, how they are performed, when/frequency, productivity, and service level.
- **Work Plans** – These previous components are then linked to determine work based on work, assets, resources, and mission. This allows for work to be proactively planned and assets maintained and operated effectively and efficiently by agency resources.

Know Your Responsibilities and Actions

When creating a performance-based work plan, a manager must know the functions and assets of their organization. For

example, a traffic engineering group cannot establish a plan or a preventive maintenance (PM) program without knowing the type and amount of their street miles, signalized intersections, signs, and other assets. Second, the manager needs to understand the necessary measures to fulfill the mission and vision, such as traffic signals work activities for preventive maintenance, response, and enhancement. These amounts of assets and work categories are needed for a workable plan.

Establish Levels of Service and Expectations

External stakeholder expectations, mandates, and directives, as well as anticipated productivity, all influence a manager's establishment of service levels for the activities and services their organization will provide. These service levels are planned to maintain the public infrastructure and meet all customer needs utilizing the available resources. Planning and performing preventive maintenance to extend the useful life of assets is preferable to limit the need for corrective maintenance (performed after a deficiency occurs) or emergency maintenance.

A typical example is the level of service to maintain a road at a predetermined pavement maintenance level to ensure roadway travelers' safety and prevent the need for emergency repairs. The Pavement Condition Index (PCI), developed by the U.S. Army Corps of Engineers for their PAVER system, rates pavement condition on a 0-100 scale, with a score of 100 indicating no distress to the roadway (Johnson, 2000). While this type of rating may be very challenging for an agency to achieve regularly, the agency can set the PCI rating they believe to be sufficient based on their resources to meet it.

Identify and Estimate Resources (Labor, Equipment, and Materials)

Another element of a manager's planning discipline, directly related to budgeting and fiscal accountability, is identifying and estimating the needed resources to meet or exceed the organization's annual performance work plan and budget. The plan must include the type, amount, and availability of resources to meet the organization's desired service levels.

The manager must first identify all available labor resources and their capacity and capability to perform activities. This will need to be balanced according to the prioritization of activities and set levels of service. Each activity will require a certain number of workers, depending on the physical work needs, time to complete the work, and required skill sets. This, in turn, will help to determine the number of crew days allocated for these activities.

Equipment and materials needed for an activity will go hand in hand with the determination of labor resources. Each activity requires specialized equipment and materials, which must be specially ordered or set aside for the activity. Occasionally, these resources also require specialized knowledge or licenses. The manager will need to estimate the type and amount of equipment and materials to complete the quantity of work and when and how they will be stocked. Sometimes vehicles are interchangeable, but specific vehicles

are needed to either perform the work or carry the equipment and crews to the work location. Other considerations, such as COVID-19 safety protocols and travel precautions, will be vital to making these resource determinations.

Budgeting and Fiscal Accountability

Budgeting and fiscal accountability are other vital areas influencing a manager's strategic planning and course-plotting process. This requires matching the financial resources needed to accomplish the organization's goals and objectives. This requires assessing the financial limitations of work and related planned resources, which balances work designed with the budget. This helps ensure that planned work can be accomplished within financial constraints, promoting, and demonstrating resource stewardship and accountability to the organization's internal and external stakeholders.

Working the Plan

Once the plan is developed, it must be systematically utilized. The plan is similar to a report card for a student. If a student decides on what grade they want to achieve, it requires diligence throughout the year to ensure that the plan is met. One cannot wait until the end of the year to determine if one is on course with the plan. The plan is used throughout the year to decide what actions are needed to ensure adherence to desired goals. The plan is also the sum of its parts—it can only be fulfilled if all components are accounted for, and will change as its components change.

For example, in road maintenance, after establishing a crack filling plan for the year, the supervisor and managers must deliberately use and monitor the plan to ensure adherence throughout the year and use it as a framework. The subsequent management article will address how planning can be explicitly accomplished in public works and the various planning functions required.

Scheduling work is another management function that will also be discussed in subsequent articles, yet the function is key to executing the performance-based work plan. First, it is critical to understand when certain activities must be completed and how frequently. Then, after allocating the appropriate resources, the work can be divided up throughout the year for proactive or preventive maintenance. The plan will be adjusted as response and emergency issues arise. It is essential to balance the organization's annual labor and other resources projections with the agency's budget while adapting as required to provide unforeseen services to stakeholders.

Adjusting the Plan

It takes application experience to understand how plans can be effectively utilized yet be flexible in dealing with those unknown factors of weather, staffing, politics, and emergency events such as fire, floods, earthquakes, hurricanes, etc. Critical for success is understanding when and how to adjust the annual plan and build in time for unanticipated events. At the end of the fiscal year, an agency should compare the plan efforts with the actual accomplishment. This comparison can help determine whether the agency is on track to meet its goals and whether the estimates need to be revised for the following year. A significant benefit comes from analyzing the trends year-over-year that help to guide organizational resources, providing services and managing assets.

Work the Plan for Success

In conclusion, planning as a strategic reasoning process should be viewed as a portion of the whole. Planning, like completing a construction project, takes a significant team effort. The plans must be continuously reviewed, along with the sub-components like existing resources and processes. Making the plan work requires tracking work accomplishment, comparing the planned versus actual accomplishment, and improving decision-making and performance via using your performance-based work plan as a framework to manage. Hence for a plan to work, it must be accepted and utilized systematically as a framework for all decisions.

The final key to this responsibility is a commitment by public works leaders, managers, and employees to execution towards continuous improvement. Peter Drucker (2021) summarized this in a quote:

“Unless commitment is made, there are only promises and hope, but no plans.”

The other five core management functions will be continually highlighted in this year's Mastering Management series.

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The Missouri LTAP staff would like to remind all agencies registering for classes that it is important to sign-up before the registration deadline to allow us time to plan for course materials, refreshments, etc. It is equally important that you let us know at least 48 hours before the class if some of your employees will not be attending. Please note that you will be charged for any no-shows; therefore, it is very important that you let us know at least 48 hours before. This policy was approved by our Missouri LTAP Advisory Board and ensures that we have an accurate count for class attendance. Thank you and we look forward to meeting your training needs.

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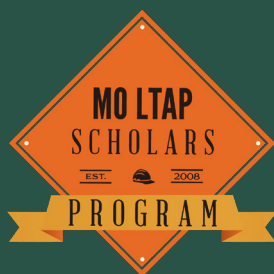
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MO-LTAP SCHOLARS PROGRAM

A Training & Recognition Program



About The Program

The primary purpose of the MO-LTAP Scholars Program is to recognize skilled transportation and public works personnel in local agencies throughout Missouri. The program is intended to enhance the skills of all those involved in the maintenance, delivery, and management of local transportation and infrastructure. Training is aimed at increasing each participant's technical, maintenance, administrative, and supervisory skills depending on the program level. Electives can be selected to meet the individual's area of responsibility. Special emphasis will be given to safety in the workplace as well as in the field and in the development of a local transportation system. The program will allow participants to attain three levels of achievements: Level I, Level II, and Level III Super Scholar. Participants must complete the requirements for Level I before completing Level II.

Getting Started

Registration is available on the Missouri LTAP website (www.moltap.org). There is no registration fee for the program, but there is a fee for each class, which varies for each level. Classes are offered on an ongoing basis at various locations throughout the state. Contact Missouri LTAP for classes in your area or view the online training calendar.

Recognition

Certificates will be awarded by the Missouri LTAP Director to those individuals who successfully complete the requirements of the program during award ceremonies held at various conferences throughout the state and/or at a ceremony held at the graduate's place of employment.

LTAP TRAINING RESOURCES

FHWA Essentials for Local Public Agencies

Federal-aid Essentials for Local Public Agencies is a transportation resource designed to help local agency professionals navigate the Federal-aid Highway Program. Federal-aid Essentials is structured for busy agency staff who want further understanding of Federal-aid policies, procedures, and practices.

fhwa.dot.gov/federal-aidessentials/indexofvideos.cfm

Missouri Local Public Agency Program

The Federal Highway Administration (FHWA) and MoDOT offers a free 4-hour training class designed to meet the recently implemented requirements for a Full Time Sponsor Employee to serve the role as the Person In Responsible Charge in order to receive Federal-aid funding for Locally Administered Projects. Local public agencies and consultants will be required to have taken this basic training course.

design.modot.mo.gov/lpatraining/

APWA – Professional Development

APWA offers online, face-to-face, and on-demand programs, with educational content that fits within your time and travel constraints. The Donald C. Stone Center provides professional development opportunities for the next generation of public works leadership.

apwa.net/learn

NHI – Training Resources

National Highway Institute, NHI, is the training and education arm of the Federal Highway Administration (FHWA) with its rich history of innovation and expertise in delivering transportation training.

nhi.fhwa.dot.gov/home.aspx

Photo by: Sam O'Keefe Photography

UPCOMING EVENTS

National Work Zone Awareness Week
April 11-15, 2022

Missouri Concrete Conference
April 26-27, 2022
Havener Center | Rolla, MO

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