

# MISSOURI LTAP

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

WINTER 2023

**5** INTRODUCING THE NEW AASHTO GUIDE  
FOR SNOW AND ICE CONTROL

**8** 10 TIPS TO GET A FEDERAL  
TRANSPORTATION GRANT

**10** WILL YOU HAVE A WHITE CHRISTMAS?

Photo by: Sam O'Keefe

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MISSOURI  
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## The Fine Print

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# FROM THE *DIRECTOR*



Hello everyone!

It has been another very busy fall with many conferences and meetings. The Missouri LTAP Center recently hosted the 64th Missouri Asphalt Conference on November 28-29 at the Missouri S&T. We had nearly 200 in attendance, an increase of 50 attendees from last year. We appreciate the help of everyone who served on the planning committee, participated as moderators, and presented on over 20 various topics. The conference is held every fall in late November or early December. If you have an interest in helping plan the topics or assist in other ways, please reach out to me at pickerillh@mst.edu.

Another highlight this fall was the Missouri Association of County and City Transportation Officials (MACCTO) conference in Kansas City on October 17-18. The association always graciously gives me time during the opening to provide an update on MO LTAP and award recent Scholars Program graduates who are in attendance. This year, I presented 15 employees from Cole County and Platte County public works departments with their certificates and Carhartt coats or bibs, depending on whether they completed Level I (coat) or Level II (bibs). I also had the opportunity to present our first Level III graduate, Dan McDonald of Platte County Public Works, which made the event even more exciting. Please see the photos below of graduates. Our apologies to those not shown in the photos.

Best wishes and happy holidays!

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



First Level III graduate: Dan McDonald,  
Platte County Public Works



Recent Level I graduates from Platte County Public Works:  
Left to right: Travis Domann and Levi Hill



Level II graduates from Platte County Public Works who attended MACCTO 2023: Left to Right: Everett Wheeler, Cole Reed, Jimmy Duran Hernandez, and Mason McDonald

**MACCTO 2023**  
Conference attendees  
presented with MO LTAP  
Scholars recognition.

# In this ISSUE

WINTER 2023



## FORRRWD

*The all-public roads pillar is important because this problem is not limited to state and federal agencies. Even though state and federal roadways carry more traffic, there is a higher rate of fatal and serious injury crashes on locally owned roads.*



## INTRODUCING THE NEW AASHTO GUIDE FOR SNOW AND ICE CONTROL

*The NCHRP has approved the completion of the latest Guide for Snow and Ice Control Operations, which is now pending publication by the American Association of State Highway and Transportation Officials (AASHTO).*



## 10 TIPS TO GET A FEDERAL TRANSPORTATION GRANT

*As we close out the second of five years of historic infrastructure grant funding from the Bipartisan Infrastructure Law, there is still time for cities, towns and villages to bring an infrastructure grant home.*



## WILL YOU HAVE A WHITE CHRISTMAS?

*Meteorologists use models as a guide to help them create a forecast. They do not look at one particular run of the model and decide a major storm is coming. Instead, they focus on the trend of the model with each new model run.*



## NEXT-GENERATION TIM: TECHNOLOGY FOR SAVING LIVES

*Next-Generation Traffic Incident Management (NextGen TIM) technologies aim to increase traveler and responder safety, transforming response operations from routine to extraordinary.*

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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.





was recently able to be one of three Missouri representatives at a Peer Exchange in Columbus, Ohio on the Focus on Reducing Rural Roadway Departures, or FoRRRwD. For two days we were able to learn from and work with representatives from five other states as well as Federal Highway on improving safety on our roadways. Road, or lane, departure crashes account for half of the Nation's traffic fatalities. 30 fatalities happen per day on rural roadways. As shown in the figure, FoRRRwD is built on four pillars: all public roads, proven countermeasures, systemic approach, and safety action plans.

The all-public roads pillar is important because this problem is not limited to state and federal agencies. Even though state and federal roadways carry more traffic, there is a higher rate of fatal and serious injury crashes on locally owned roads. Safety improvements on local roads are necessary to ensure everyone makes it home safely.

Many smaller or less populated communities don't have the crash data that feels necessary to prioritize safety options. Sometimes the crash data may be available, but it can be hard to determine trends. Crashes may seem to occur randomly, but only fixing areas after a crash has occurred won't solve the overall problem. It can also be unlikely that the next crash will occur in the same location. This issue is where the systemic approach pillar can be helpful. In a systemic approach, an agency identifies features where severe crashes have occurred and then use those features to look at their entire system for similar locations. One of the factors could be curves. The agency can then examine all curves in their system to see to see if they hold certain risk factors such as high traffic volumes, hazards close to the road, lack of shoulders, or steep roadsides. Based on the presence of these factors, each of the curves can be rated. Once rated, this assessment will help prioritize locations for improvements.

Many of the improvements available are low cost and a part of the proven countermeasures, the third pillar. Federal Highway has a list of data proven countermeasures available that are known to decrease crashes. The intent of the countermeasures first focuses on keeping vehicles in their lane and then reducing the potential for crashes, and finally minimizing the severity of a lane departure if one does occur. Like the principles in Federal Highway's Safe System approach, humans make mistakes and redundancy is critical to reducing crashes.

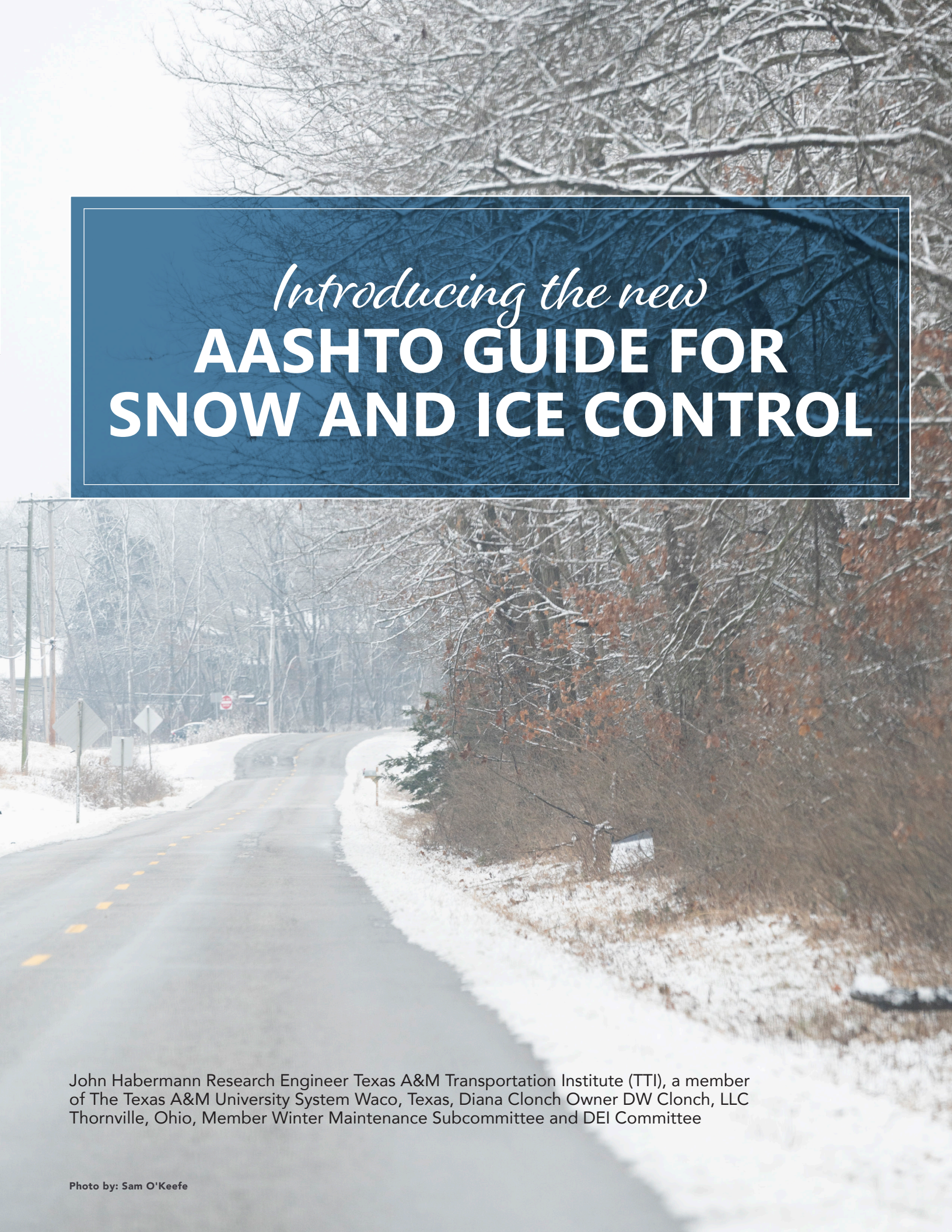
Last, but certainly not least, the safety action plan pillar incorporates the other three. Safety action plans, or local road safety plans, are important to help communicate priorities and justify the decisions made for the improvements across an agency's system. They can also be beneficial to set a trajectory for keeping safety at the forefront of decision making, especially through staff changes. More recently these plans can be helpful with funding requests, especially as a part of the Bipartisan Infrastructure Law.

Therefore, if any of the above relates to your agency, please feel free to reach out. Do you know your crash data and where your trends are? Do you need help analyzing what you know to better prioritize your projects? Are you interested in some low-cost improvements that can make a big impact? Let's work together to reduce these kinds of crashes on rural roads and make sure we all arrive home every day.

Lauren Gehner, PE (*Missouri Safety Circuit Rider*)  
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**Sources:** [safety.fhwa.dot.gov/FoRRRwD](https://safety.fhwa.dot.gov/FoRRRwD)



The background of the entire page is a photograph of a winter scene. A road with yellow dashed lines curves through a landscape covered in snow. Bare trees with some brown leaves are visible on the right side of the road. In the distance, a car is visible on the road, and some utility poles are on the left. The sky is overcast.

# *Introducing the new* **AASHTO GUIDE FOR SNOW AND ICE CONTROL**

John Habermann Research Engineer Texas A&M Transportation Institute (TTI), a member of The Texas A&M University System Waco, Texas, Diana Clonch Owner DW Clonch, LLC Thornville, Ohio, Member Winter Maintenance Subcommittee and DEI Committee



## OVERVIEW

**The National Cooperative Highway Research Program, NCHRP, has approved the completion of the latest Guide for Snow and Ice Control Operations, which is now pending publication by the American Association of State Highway and Transportation Officials (AASHTO). This updated guide will replace the original manual published over 20 years ago. The AASHTO Guide for Snow and Ice Control was published in 1999. This guide became one of AASHTO's "bestselling" publications in its lifetime.**

However, over the past two decades since publication, as state and local transportation agencies, with the assistance of researchers and experts, improved and expanded winter operation practices, parts of the 1999 guide eventually became outdated.

In 2008, the Update of the AASHTO Guide for Snow and Ice Control (Weather Solutions Group, 2008) was released. The updates provided in the guide focused on equipment, materials, and weather information. The chapter on equipment updated and addressed the improvements to snow removal equipment and the latest technologies. The chapter on materials provided new details regarding the chemicals and mixtures used at the time to prevent ice bonding to the pavement, now commonly known as anti-icing. The chapter also contained new information regarding melting and removing snow and ice. The chapter on weather information discussed advancements in weather forecasting and the value of road weather information systems (RWIS).

In 2019, the National Cooperative Highway Research Program (NCHRP) initiated Project 06-18, Guide for Snow and Ice Control Operations. The objective of NCHRP 06-18 was to develop a guide that will serve as the primary source for guidance on all snow and ice control operations. The guide is intended for adoption and publication by AASHTO. It will supersede the 1999 AASHTO Guide for Snow and Ice Control and other guidance on snow and ice control operations.

The NCHRP 06-18 description noted: "substantial changes in the state of practice of snow and ice control have occurred since the publication of [the 1999 AASHTO Guide for Snow and Ice Control] as a result of advancements in plowing equipment, materials handling and storage, communications, technology, strategies, and other aspects of snow and ice control and management. Also, during this period, substantial research on the different aspects of snow and ice control operations has been performed. Because of these changes as well as

the environmental implications, budgetary and workforce constraints, and the relevant research findings, there is a need to produce a guide that recognizes these issues and provides updated information and guidance on all aspects of snow and ice control operations. Such a guide will help highway agencies and other organizations address relevant issues and perform snow and ice control operations more effectively." (NCHRP, 2019)

## ADVANCEMENTS IN SNOW AND ICE CONTROL

Substantial advancements in the knowledge and best practices related to highway, road, and bridge winter maintenance and operations have occurred since the 1999 and 2008 guides. These advancements, included in the NCHRP 06-18: Guide for Snow and Ice Control, include: • A snow and ice control policy that includes level of service (LOS), environmental considerations, and avalanches.

- Performance measurement criteria, implementation, and reporting.
- Recruitment, development, and advancement of personnel, both with permanent staff, temporary staff, and contractors.
- Summary of the different varieties of equipment, plows, spreaders, brooms, and liquid applicators used for snow and ice removal and melting.
- Practices for acquiring, handling, storing, and applying commonly used and not-so-commonly used materials for winter maintenance.
- Technology options that could make an agency's winter operations more efficient and transparent to elected officials and the public.
- Explanation of the different types of RWIS, monitoring of the systems, and data options.
- Safety training of personnel, handling of materials, equipment visibility, and good housekeeping.

*In addition, the new guide includes appendices that provide additional information and resources, including:*

- A glossary of terms.
- Sample snow and ice control plans.
- Sample public information releases and messages.
- Sample contracts for services.
- Sample specifications for equipment
- Sample specifications for materials.
- Other available resources.

## THE NEW GUIDE

The new Guide for Snow and Ice Control Operations was developed as the primary way to organize and present current information on snow and ice control. The guide is based on common snow and ice control strategies and principles describing advances in technologies and procedures that can improve outcomes while reducing



costs. The guide is not intended to specify any single standard, procedure, regulation, or strategy; rather, it is intended to provide guidance on a wide range of topics and potential strategies that agencies can adopt. The guide discusses state-of-the-art equipment, technologies, and processes. In addition, portions of the guide assess potential future impacts on snow and ice control advances just now being developed. Agencies can implement practices most relevant to their needs and consistent with their policies and guidelines. The guide is primarily intended to be used by state transportation agencies but will have relevance to the operations of local and tribal governments. The guide can be used to:

- Develop the framework for a comprehensive snow and ice control policy.
- Create a framework for a performance measurement and level-of-service matrix.
- Understand the intricacies of recruiting, developing, and advancing an agency's personnel.
- Aid in the understanding and procuring of equipment used in winter maintenance.
- Provide simple explanations for the complex part of understanding winter maintenance materials.
- Show how technology can be used to improve winter maintenance activities.
- Enhance the safety practices of an agency's winter maintenance program.
- Learn common terms and definitions used by the winter maintenance community.

## GUIDE SUMMARY

Under NCHRP 06-18, the 1999 AASHTO Snow and Ice Control Guide has been updated. Existing chapters were updated, and new chapters were added. Nine chapters in the new snow and ice control guide cover operations, strategies, performance measures, levels of service, personnel, equipment, materials, technologies, road weather information systems, and safety. The appendices provide various resources to support a state, local, or tribal agency with developing a snow and ice control plan, ordering materials, assembling specifications for new equipment, and creating messaging for media releases. The guide is designed to be a continuous resource to help an agency mature its winter operations.

*The guide is organized into nine chapters:*

- Chapter 1: Introduction
- Chapter 2: Snow and Ice Control Operations and Strategies
- Chapter 3: Performance Measurement and Levels of Service
- Chapter 4: Personnel
- Chapter 5: Snow and Ice Control Equipment
- Chapter 6: Materials Handling, Storage, and Application

- Chapter 7: Technologies
- Chapter 8: Road Weather Information
- Chapter 9: Safety

*And includes seven appendices:*

- Appendix A—Glossary of Terms
- Appendix B—Sample Snow and Ice Control Plans
- Appendix C—Sample Public Information Releases and Messages
- Appendix D—Sample Contracts for Services
- Appendix E—Sample Specifications for Equipment
- Appendix F—Sample Specifications for Materials
- Appendix G—Available Resources

The appendices provide additional details and examples to deliver a toolbox of resources that explain the different topics discussed throughout the guide. There are template plans, specifications, contracts, public information messages, and other resources in the appendices that can make advancing an agency's winter operations smoother and less arduous.

## SUMMARY OF ADVANCEMENTS

In a review of the various areas of advancement in winter operations over the past two decades, key findings as noted and addressed within the content of the new guide include:

**The guide intends to be a resource for agencies to mature their winter maintenance operations. Agencies are constantly evolving because of policy priorities of elected officials, population or economic growth, or expansion of geographic boundaries. Based on the changing nature of communities, winter operations should change as well.**

## IMPLEMENTATION GUIDANCE

Lastly, in addition to providing helpful winter operational recommendations, ideas, and explanations in the guide, researchers also developed and included an implementation maturity map. The purpose of the implementation maturity map is to help keep the information provided in the guide from overwhelming the user. It is intended to provide a starting point for agencies, as well as direction toward success in achieving winter operations goals.

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[apwa.partica.online/reporter/october-2023/features/introducing-the-new-aashto-guide-for-snow-and-ice-control](https://apwa.partica.online/reporter/october-2023/features/introducing-the-new-aashto-guide-for-snow-and-ice-control)



# PUBLIC WORKS CONNECTION

## 10 TIPS TO GET A FEDERAL TRANSPORTATION GRANT

Co-Authored with: Ndemazea Fonkem, Federal Advocacy Intern at the National League of Cities

**AS WE CLOSE OUT THE SECOND OF FIVE YEARS OF HISTORIC INFRASTRUCTURE GRANT FUNDING FROM THE BIPARTISAN INFRASTRUCTURE LAW, THERE IS STILL TIME FOR CITIES, TOWNS AND VILLAGES TO BRING AN INFRASTRUCTURE GRANT HOME.**

The U.S. Department of Transportation (USDOT) is offering several rounds of grants available to governments of all sizes as well as technical assistance.

Whether your city is just getting started with your first grant or your community wants to build the best application possible, below are ten key tips to make sure your application is competitive.

### THE NOFO IS YOUR ROADMAP

Everything that you need to know to win a federal transportation grant is explained in the federal Notice of Funding Opportunity (NOFO) and the links within it. The federal government wants the grant process to be fair so once the grant is announced the NOFO is your primary resource in addition to webinars provided by USDOT. Each application is scored on the merit of your answers to the questions in the NOFO, so reading and responding to it closely is key.

### ELIGIBILITY IS ESSENTIAL TO WIN

Sweepstakes use the phrase “you must be eligible to win.” This is also true of federal grants. Sometimes potential applicants get so excited about grants that they don’t confirm their project meets all the eligibility requirements in the NOFO or is a good candidate for federal funds.

For example, the Bridge Improvement Program is only for bridges rated by engineers to be in poor condition or in fair condition but at risk of falling into poor condition. Several applicants for the program sadly applied only to realize that their bridge was in better condition than the NOFO allowed making their projects ineligible.

### PUT YOUR COMMUNITY FIRST

Don’t forget to explain your community and put the story of residents at the center of your application. The reviewer at USDOT has likely never been to your community, so how you describe the project in the context of your community and who it would help is essential to a successful application.

**A good test of an application is to share it with someone who is not familiar with the project or your community and see what they take away and what questions they are left with.**



## DO YOU HAVE A PROJECT OR AN IDEA?

Transportation projects go through many phases to arrive at construction – ideation, planning, community outreach, preliminary engineering, environmental review, funding and construction. Many transportation grants allow applicants to apply for planning grants to take an idea and make it a project, and then come back for a second grant for construction.

## CONSIDER PARTNERSHIP IF YOUR COMMUNITY (OR BUDGET) IS SMALLER

Not every community is able to come up with the resources or staff capacity to apply for a federal grant, but that doesn't mean you're out of the grant game. Many Bipartisan Infrastructure Law grant programs allow a local government to partner with other eligible entities to bundle your project into a larger grant application.

For example, a village could partner with their county, metropolitan planning organization (MPO), state or tribal nation to work on a grant. Your community will still need to contribute, but collaboration can leverage your resources and allow for greater success.

## PREPARE YOUR BUDGET FOR REIMBURSEMENT

When your project wins, the grant recipient will begin to put together a legal and binding grant agreement with USDOT. Until it is signed by all parties, nothing for the project can be purchased.

Once the signed grant agreement is in place, the city will be able to start purchasing what's needed for the project. When those are costs are submitted to USDOT, the recipient will be reimbursed. Essentially, your grant pays you back. Your budget will need to account for that.

## BE CLEAR ABOUT LOCAL MATCH SOURCES

As you craft your grant application, it is important to be explicit on the sources of your "non-federal" or local matches. These matches are not reimbursable with federal funds and indicate the local investment in delivering the product. Each NOFO has a different requirement for the percentage of funds required for the non-federal match, including funding opportunities with flexible or reduced matches for communities.

Project partners such as state departments of transportation, universities, nonprofit partners or philanthropic organizations can all be investors in your project and help produce a "hard" monetary match to add to the budget. "Soft" matches, or non-cash matches, are non-monetary contributions of space, time, labor, services or expertise are equally important parts of the

application that highlight the personal investment of partners in the community. The valuation of soft matches can show dedication to the project alongside hard matches. Make sure your budget numbers add up clearly so they don't create any unnecessary questions.

## TIME OUT YOUR FEDERAL ENVIRONMENTAL CLEARANCE

One of the biggest questions in the grant review is how long it will take until your project is ready to build. Within each NOFO there are two unique deadlines: the obligation deadline and the expenditure deadline.

The obligation deadline is the final date by which a grant award recipient must have an executed grant agreement with USDOT. Because federal environmental approvals differ from typical state processes, first-time applicants talk with their city engineer or a firm to make sure their project timing expectations are on target.

The expenditure deadline is the last date on which all grant funding must be expended, meaning that anything past this date is not reimbursable with grant funds, even if more was allocated in the grant.

The strongest grant applications are for projects that can comfortably be completed by both deadlines. When writing your application, keep these deadlines in mind and be honest about your capacity, factoring in delays and administrative slowdowns to ensure adherence.

## LETTERS OF SUPPORT ARE A BONUS, BUT NOT REQUIRED

Some cities ask their Congressional delegation and community groups to show support for project applications by submitting letters of support. While these can be helpful, they are not technically part of the merit review process.

## ASK QUESTIONS AND ASK FOR FEEDBACK

NOFOs are the guide to grants, but the USDOT always provides an opportunity for applicants to submit additional questions which they respond to as "Frequently Asked Questions" (FAQ). If you read the NOFO and still have questions, you reference the FAQ from past funding rounds or submit your questions to USDOT. You can also use the USDOT Grants Navigator to find resources.

If your application is unsuccessful, USDOT offers every applicant the opportunity to debrief with staff so you can improve your application for future rounds.

[www.nlc.org/article/2023/10/30/10-tips-to-get-a-federal-transportation-grant/](https://www.nlc.org/article/2023/10/30/10-tips-to-get-a-federal-transportation-grant/)



# WILL YOU HAVE *a White Christmas*



Photo by: Sam O'Keefe





ways?

I want you to place yourself outside for a moment. Above you is a party balloon several hundred feet in the sky, just floating there. That balloon and the air inside it have a temperature, a moisture content, and a certain air pressure pushing on all sides. You look up at that balloon and wonder what will happen to it since it is not moving.

That balloon's movement up or down, east or west, can be calculated before it even begins to move by mathematical equations. We can create a computer program to predict that balloon's future movements. Pretty cool, huh? Well, that is the science of meteorology!

Now, I want you to imagine that the entire sky is full of balloons! Balloons surround you. They fill the sky thousands of feet in the air. Here is where it gets really tricky! That computer program we used to predict the movement of that single balloon is now placed in a supercomputer, and it can predict the movement of all the balloons. And not just their movements but how they interact with each other in the atmosphere or with the oceans and mountains. That is a rather simplistic view of what a weather model is, but there is still more to tell.



**A weather computer model is thousands of lines of computer code that brings in current atmospheric conditions and outputs the future of the atmosphere at a given location. The model tells us air temperature, moisture, cloud cover, wind speed and direction, and much more.**

Two main types of models are available to meteorologists to create a forecast. There are global models which predict the weather for the entire globe. They are produced by some of the world's fastest supercomputers and are created only by the largest government weather services, such as the National Weather Service. The global models produce a forecast for up to 14 days; however, the accuracy of the forecast decreases rapidly the closer we get to day 14.

The second type of weather model is called a regional model. They only cover a portion of the earth. The regional models are produced at a higher resolution and are typically more accurate than the global models. They can account for mountain ranges, coastal areas, large bodies of water, and other topography that might influence the weather.

What does it mean to have a higher resolution? Picture a forecast area of the earth covered with a grid. At each grid point, the model provides a forecast. For the global models, the space between grid points is between nine and 11 kilometers (roughly six miles). For the regional models, the distance is much shorter at three kilometers (1.8 miles), and some are as close as one kilometer. This means the regional models can measure finer details of the earth's terrain and thus produce a forecast that varies more over a shorter distance, which lends to increased accuracy. So, when people ask me my opinion on the popular debate of which model is better, the American or European? (The debate is over the two global models.) I say neither because global models are best used for planning five to seven days out; neither is ideal as we get closer to the day of the storm.

Meteorologists use models as a guide to help them create a forecast. They do not look at one particular run of the model and decide a major storm is coming. Instead, they focus on the trend of the model with each new model run. The trend of the model, many times, is the most useful piece of information because it is the model learning more and more about a storm as it approaches, and thus, it is getting closer to the real answer.

Now, sometimes, the models are completely lost. They were given bad data at the beginning of the run, the weather system is coming from somewhere with limited actual data, or the situation is just one the models cannot resolve. No matter which way it is, it is the responsibility of a meteorologist to see what a model can never see... "That scenario just can't happen!" Looking at the information, a meteorologist can tell when the models are "out to lunch." Social media loves times like this because the models produce outcomes perfect for "likes" and "shares." "Sixty-one inches for Chicago, Illinois," can really scare the heck out of the internet. True meteorologists will need several more runs of the model before they are convinced.

**In the last 30 years, weather models have completely changed the weather information landscape. Today, free forecasts are just an app click away. But buyer beware! Most weather forecasts produced by apps are just model data; it is highly unlikely any human even looked at the data.**

Not to mention, these forecasts are produced from just one model. So, when the models have the issues I described above, you will see those bad forecasts in your app.

However, we see some major advancements today that we did not see just 20 or 30 years ago. These models, operated by the National Weather Service and private



**National  
Center  
for  
Rural  
Road  
Safety**

### **YOUR TRUSTED "SAFETY SIDEKICK" TO MAKE RURAL ROAD TRAVEL SAFER!**

The National Center for Rural Road Safety opened in December 2014. Funded by the Federal Highway Administration, this Center of Excellence is focused on enhancing safety on rural roads by supporting local, state and tribal road owners and their stakeholders. Resources include education, training, tools and technical assistance.

*To learn more about the National Center for Rural Road Safety,  
visit their website [ruralsafetycenter.org](http://ruralsafetycenter.org)*

weather companies, have made major advancements in the accuracy of weather prediction. Now, we have quality forecasts seven days out, whereas before, we would be right less than half the time at day seven. Also, in my own anecdotal opinion, it appears that models still over-forecast winter weather at times, but we seem not to have as many surprise winter storms as we did in the past.

Over the last 10 years, I have seen an increase in the number of weather model questions asked of me at winter maintenance conferences, such as the APWA Snow Conference. I want to warn you no matter what your love or interest in weather; these models are not the silver bullet. As we discussed earlier, there are plenty of times these models are unable to accurately get a grip on the atmosphere. Knowing when this is happening takes many years of viewing the models, plus a complex understanding of the atmosphere.

Weather models also struggle with some of winter maintenance's favorite weather events, such as Alberta clippers, Arctic dry at the surface, and storms with

complex precipitation types. Meteorologists commonly have to use models alongside other real-time tools to accurately produce a forecast, and sometimes, these models can be so far off they are useless.

If you are a weather enthusiast and would like to try your hand at understanding the model output, there is nothing wrong with this; however, if you want something to base your decision upon, then you really should turn your attention to a quality weather forecast service. If you think back to our party balloon floating above you, what would someone have said 100 or 200 years ago if we had said that we could predict that balloon's movement? It is important to look back once in a while to see how far we have come in a science that makes small steps every few years. We are mastering the atmosphere with computers and math equations. What will these models be able to do in 20 to 30 more years? Possibly tell us in October that you will have a major winter storm on Christmas... who knows!

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[apwa.partica.online/reporter/october-2023/features/will-you-have-a-white-christmas](https://apwa.partica.online/reporter/october-2023/features/will-you-have-a-white-christmas)



Photo by: Sam O'Keefe



## NEXT-GENERATION TIM: TECHNOLOGY FOR SAVING LIVES

**N**ext-Generation Traffic Incident Management (NextGen TIM) technologies aim to increase traveler and responder safety, transforming response operations from routine to extraordinary.

More than 6 million reportable crashes occur each year in the United States, resulting in 2 million injuries and more than 30,000 fatalities. Additionally, there are over 32 million disabled vehicles and countless incidents of roadway debris. Each of these events places responders and motorists at risk of secondary crashes. A planned and coordinated approach to handling these incidents is the essence of TIM. FHWA's national TIM responder training program has successfully trained more than 600,000 responders to clear incidents collaboratively, safely, and quickly. In practice, TIM on all types of roadways has been shown to save lives, time, and money.

### TECHNOLOGY FOR MORE EFFECTIVE TIM

Today's technology has the potential to leverage TIM responder training and enable incident responders to become more effective and efficient in their response duties. Clearing roadway incidents more quickly reduces exposure for incident responders and restores traffic for commerce, productivity, and quality of life for roadway users.

Technology such as smart emergency vehicle lighting can better inform roadway users about incidents, helping them avoid those locations or navigate around them more safely. Similarly, digital alerts can help responders at the scene of incidents be more aware and protected from the dangers of working near moving traffic. Use of unmanned aerial systems (UAS) is reducing the amount of time responders spend mapping crash scenes. New debris removal tools will enhance the safe removal of dangerous roadway objects.

### BENEFITS

- **Increased Safety.** NextGen TIM feeds a larger TIM role in the Safe Systems approach, and more specifically post-crash care, by creating a safe working environment for vital first responders and preventing secondary crashes through robust TIM practices.
- **Improved Operations.** Integrating new and emerging technology, tools, and training can mitigate incident impacts from detection to roadway clearance.
- **Better Situational Awareness.** Technology delivers timely and critical information to on-scene responders, remote support functions like transportation management centers, and roadway users who are approaching traffic incidents.

### STATE OF PRACTICE

*Examples of NextGen TIM technologies in use by State and local agencies:*

- The Indiana Department of Transportation has reduced "hard braking" near roadway queues by deploying queue warning trucks equipped with truck-mounted attenuators, arrow boards, and digital alert systems to warn approaching motorists of dangers ahead.
- The Washington State Patrol has reduced the time needed to measure, map, and photograph serious crash scenes by 70 percent with the use of UAS.
- The Pennsylvania Turnpike has installed specialized push bumpers on the front of service patrol and maintenance vehicles to effectively move roadway debris without the need for operators to leave their vehicle.

[fhwa.dot.gov/innovation/everydaycounts/edc\\_7/nextgen\\_tim.cfm](https://fhwa.dot.gov/innovation/everydaycounts/edc_7/nextgen_tim.cfm)



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**\$45/person**

All classes 4 hours unless noted otherwise

For non-government or for-profit organizations, call 1.866.MORoads for rates

### **Attendance Policy**

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.

### **Need training but don't have the budget to pay for travel expenses?**

We can train your employees on location for a minimum of 20 people. You can invite other interested agencies in your area if necessary to meet the minimum. Call and discuss your training needs with our staff.

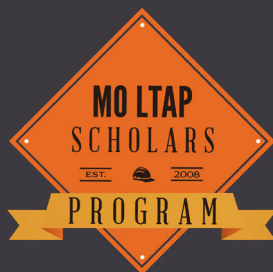
### **CONTACT US TO FIND OUT MORE!**

**T: 866.MO ROADS  
(667-6237)**

**E: [moltap@mst.edu](mailto:moltap@mst.edu)**

### **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](http://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](http://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/](http://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](http://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](http://nhi.fhwa.dot.gov/home.aspx)**



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## UPCOMING EVENTS

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Photo by: Sam O'Keefe

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"Read about the Program"

### REALTY FOR SALE

The Missouri Department of Transportation is responsible for managing realty assets owned by the Missouri Highways and Transportation Commission. Realty assets are periodically reviewed to determine if they are essential to current operations, or are expected to be in the near future. When realty assets are no longer essential to operations, they may be made available for sale to the public.

**VISIT:**  
[www6.modot.mo.gov/  
PropertyForSale](http://www6.modot.mo.gov/PropertyForSale)



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of Transportation  
**Federal Highway  
Administration**

