Counting right: The impact of the 2020 census on community development

Data influence development in a big way. Road maintenance, construction, public transportation: communities large and small rely on accurate data to plan and fund these projects, and the US census is a major source of such data. With the 2020 census coming up in April, communities of all sizes will have to decide how to prepare.

The City of Circle Pines, Minnesota, has seen firsthand the importance of getting an accurate count. During the 2010 Census, the city counted 4,918 people—just shy of the 5,000 they needed to qualify for better State Aid roadway funding. This was eventually fixed, says City Administrator Patrick Antonen; special state legislation gave the city an exemption that treats Circle Pines as a city of over 5,000 and grants them corresponding annual transportation funds. If not for the special exemption, the city

Pocket guide helps you choose PPE

Minnesota LTAP has created a pocket guide that helps you choose personal protective equipment (PPE) for 17 maintenance tasks. The handy guide is made of 3.5- x 6-inch cards bound with a key ring. The new guide is adapted from materials created in a previous project sponsored by the Minnesota Local Road Research Board. In that project, Minnesota LTAP created a set of materials to raise awareness of workplace hazards and encourage the proper use of PPE.

The materials are customized for Minnesota and targeted to local transportation agencies. All are available for free download at mnltap.umn.edu/PPE. The website also includes links to source materials, state and federal policies, and other materials.

Read the Exchange online for links to publications and other resources.
Potholes, cracks, bumps, and icy roads…all complaints that used to inundate the Arapahoe County, Colorado, Road and Bridge Department. “In winter months, we get as many as 30 calls a day from residents,” says paving supervisor Keith Runyan. “It was difficult to track.” Staying organized and on top of workloads and put together daily, weekly, and even monthly work plans when you can look at it in a visual way rather than just in a spreadsheet”

The powerful tracking system lets users identify work with status-indicating icons and details about the work. “We can even attach photos,” Runyan says. “I used ASTM D6433 (a standard for assessing pavement defects) and created icons to match up with the type of pavement defect. For example, small alligators represent alligator cracks. This made it easier. I didn’t want to look at a dot on the map and wonder ‘What is this?’”

Crews can now monitor upcoming and completed pothole and major patch work on desktop computers and mobile devices. The app provides real-time map data viewing and collection anywhere in the county, while in the office or in the field. Multiple people can edit the system at the same time and data are exportable, so the information can be viewed in a map or a spreadsheet format. The app gives supervisors the ability to go out in the field, get information for the team, and then easily prioritize projects. That way, crews know what they are going to see before they get there. They can determine the best repair method ahead of time and arrive prepared.

Because the app uses GIS data, there are more than 20 layers that track each category of information and can be turned on or off to simplify viewing or give multiple perspectives. In fact, the app is so beneficial, its use has spread to other departments. How can another agency create a similar app?

“The average GIS person can do whatever you want, but they don’t know what you want,” Runyan says. “You’ve got to be able to communicate that to them.”

And, he adds, don’t be afraid to try new things. “It helps us stay ahead of the curve.”

To enter Minnesota’s 2020 Mousetrap competition, please submit an entry form by May 31 at mnltap.umn.edu/research/mousetrap. For more information, contact Katherine Stanley at sel0146@umn.edu or 612-626-1023.

Submit your ideas for the 2020 Mousetrap competition!
OPERA project: Otta seal on an unpaved gravel road

Small communities with limited resources often struggle to maintain their local roads, many of which are unpaved. Franklin Township in Wright County, Minnesota, has about 2,800 residents, approximately 70 miles of roads—60 miles of which are gravel—and an annual levy just under $1 million.

In need of harder surfaces to reduce maintenance costs and improve ride quality on its high-traffic gravel roads, Franklin Township officials experimented with a relatively inexpensive bituminous surface treatment, known as Otta seal, on a small section of an existing gravel road with a crushed-granite road base. Otta seal essentially is a thick mixture of asphalt and crushed rock.

Franklin Township received a $5,000 grant through the LRRB’s Local Operational Research Assistance (OPERA) Program to test the products and materials, and their application, then share the results. The township hired a contractor to apply two layers of the special Otta seal oil with an aggregate mixture over a graded and well-compact granite base stretching 0.7 mile. The project cost about $68,000, which included site prep, $64,000 for material and application, and the unexpected repair of two frost boils during the first year.

Franklin Township officials chose the test section because it connects two paved roads. In addition, it connects to an adjacent similar unpaved road they’re using for comparison. Part of the experiment involved no grading or dust control on the Otta seal test section. Ordinarily, grading and dust control account for most of the routine maintenance of gravel roads—and most of the ongoing cost.

The success of the Otta seal experiment depends on how long the test section lasts. Routine maintenance of a similar length of township gravel road costs about $12,000 each year. If the Otta seal test section lasts 10 years without needing further maintenance, it would cost about $6,800 annually—significantly less than a typical gravel road. But if it lasts only five years, the annual cost would rise to $13,500, slightly more than a typical gravel road.

After a year and a half, the Otta seal test road is holding up. Maintenance costs have been less than neighboring gravel roads, except for the unexpected frost boil repairs. The road surface is not smooth and does not compare in quality to a fully rebuilt road with bituminous pavement, but it has eliminated the need for dust control.

Boulevard turfgrass guides promote successful installations

Across Minnesota, local agencies have noted that maintaining successful boulevard turfgrass installations after road construction projects is an ongoing challenge, requiring much time, effort, and expense.

Research into turfgrasses that are resilient to the state’s harsh conditions, including work by the University of Minnesota’s Turfgrass Science Program, has led to many discoveries and advances. However, research results frequently take time to reach practitioners in the field. The LRRB sought to incorporate both established best practices and new research findings about turfgrass installation into a set of informational tools. The resulting project developed these three tools:

- An easy-to-access, two-page flyer shows residents how to establish and care for new turf plantings near their homes.
- A short YouTube video also created for residents clearly and quickly illustrates how homeowners can care for newly planted boulevard turfgrass after road construction projects are completed.
- A more detailed guide provides agencies and contractors with design, construction, and maintenance practices along with resources for more information.

County agencies may use these products—available at lrrb.org—as best practices guides for highway construction contractors, designers, and residents.

Weighing the benefits of crack-sealing techniques

In a life-cycle cost analysis of the two most common crack-sealing treatments, LRRB-funded researchers found that rout-and-seal is slightly more effective, but clean-and-seal is still the right solution for many applications. Rout-and-seal, in which crews grind a shallow trench in the asphalt over the crack and fill with sealant, lasts about four years at an average performance level. Clean-and-seal, in which workers clean cracks with an air compressor and seal the joint, lasts about three years. Download the report at lrrb.org.
FLOODING

Why storms kept flooding this neighborhood

Post-storm flooding had become the norm for one southeastern Wisconsin neighborhood. Stormwater would regularly turn streets, yards, and golf course fairways into waterways, damaging property along the way. The storm sewer system once got so overburdened during a 2014 storm, it blew out a manhole and ripped apart the road.

The storms weren’t necessarily big, and the relatively new development should have been able to withstand them. So why did this keep happening?

Getting to the root cause
To get to the bottom of the issue, the community brought on MSA Professional Services, a design engineering firm.

MSA Water Resources Team Leader Eric Thompson and his team dove in, reviewing the storm sewer system’s design and crunching numbers. At first, nothing looked amiss—it appeared the original designer had done everything right.

But when they turned their attention to the area’s three ponds, they discovered the golf course had modified two of them. The golf course had raised the water level of one pond and lowered the overflow of another.

The change made both ponds look more aesthetically pleasing and enhanced golf play but reduced how much stormwater they could hold by 65 percent. This was causing ponds to overflow much more frequently than planned, including onto one resident’s yard and into her basement.

“I thought, ‘There you go, this is where the problem is,’ ” Thompson explained to attendees of the Minnesota Chapter of the American Public Works Association’s fall 2019 conference. “It wasn’t a problem; it was the problem.”

But moving forward would be trickier than expected. As it turned out, there was nothing the city could do about the modified pond because it legally wasn’t its to maintain. The city owned a storm sewer system that counted on ponds to help capture stormwater, but not the pond itself.

“Developing a plan and putting a stamp on it isn’t the end of the project’s life cycle,” emphasized Thompson, reflecting on what everyone could learn from the experience. “A pond is going to be there for the life of a subdivision... But if someone doesn’t understand what the functionality of it is, that functionality is going to be lost.”

Problems pile on

Undersized ponds weren’t the only issue. Homeowners built houses lower than they should have, with side- and rear-facing doors and windows at or near the ground surface. When water overflowed from the street or ponds, it went right into people’s houses.

The team also discovered the storm sewer that runs beneath the street wasn’t large enough to handle extreme storms.

“It couldn’t save the day in a 100-year storm,” said Thompson, referring to a storm with so much rain that there’s only a 1 percent chance of it happening in any given year.

While the development was designed using the best available data at the time, more recent data about the area’s rainfall projections and soil properties told a more troubling story.

Today, the threshold for a 100-year storm is 6.8 inches over a 24-hour period. Back in 2001, 6 inches of rain would have been considered a 100-year storm (based on data published in 1969). A 0.8-inch increase may not seem like a lot, but translates to nearly 20 percent more runoff in such a storm.

Pond continued on page 5

Mitigation measures include a flood control ditch.

They were working with a highly developed Fridley watershed, packed with commercial, industrial, and residential buildings and intersected by railroad tracks, gas mains, sewer mains, roads, and overhead power lines.

“There were not a lot of places to put water-quality projects or places to negotiate,” Bryce Cruey explained to attendees of the Minnesota Chapter of the American Public Works Association’s fall 2019 conference. Cruey is an associate senior engineer with Wenc, the project’s design engineering firm.

A storm rolls in

Just as they were closing in on an agreement that made everyone happy—including Treehouse Foods, which owned the property for the proposed pond—a storm pummeled the area, flooding parts of the food manufacturer’s facilities and parking lots.

“They got 6 to 8 inches of rain in about seven hours,” said Cruey, describing the September 21, 2016, storm. “That’s a lot of rain.”

Unable to drain effectively, stormwater crept up the tires of truck trailers, rose to the level of the loading dock, and poured into the facility. It reached depths of 10 feet in some areas. This halted operations at Treehouse Foods, rose to the level of the loading dock, and poured into the facility. It reached depths of 10 feet in some areas. This halted operations at Treehouse Foods, reducing the oxygen that fish and other aquatic life need to survive.

Fearing too much phosphorus in the water can cause excessive algae growth, which reduces the oxygen that fish and other aquatic life need to survive. The team also installed a flood control ditch and splitter structure to store and reroute excess stormwater and graded the site along the parking area. The approach ultimately diverts stormwater to the pond, where it’s stripped of its pollutants.

Forging forward

A central part of their solution included forging ahead with the original plan to increase the size of the pond. By expanding its storage capacity, they could reduce how much pollutant-laced water would make its way into the creeks and rivers.

To further boost the pond’s pollution-fighting capabilities, designers also added an iron-enhanced sand filter bench to the perimeter. The sand collects particles, while the iron removes dissolved phosphate from the stormwater before it drains to the nearby creek and the Mississippi River. Otherwise, too much phosphorus in the water can cause excessive algae growth, which reduces the oxygen that fish and other aquatic life need to survive.

The team also installed a flood control ditch and splitter structure to store and reroute excess stormwater and graded the site along the parking area. The approach ultimately diverts stormwater to the pond, where it’s stripped of its pollutants.

U of M offers stormwater seminar series

The Minnesota Stormwater Seminar Series brings experts from around the country to the Minneapolis campus. Seminars are streamed and archived for later viewing.

Upcoming seminars are “Maintaining and Upgrading the Performance of Stormwater Management Ponds” (April 23) and “Bioretention Media/ Vegetation” (May 14).

For more information, please visit wrc.umn.edu/projects/stormwater/swseminars.

Floods from page 1
How communities can prepare for floods

Big floods often change how a community approaches emergency preparedness and response. After a devastating flood in 1978, the City of Rochester embarked on a massive flood control effort, building structures such as channels and reservoirs. “All these are great, but the city still has residual risks,” said Barr Engineering’s Joe Waln, speaking to attendees of the Minnesota Chapter of the American Public Works Association’s fall 2019 conference. “They want to know, If it floods, what will it look like?”

Fortunately, there are publicly available tools that can answer this question for Rochester and other cities. Waln identified three ways communities can use these tools to better understand and plan for flood risks.

1. Check flood forecasts
   The National Weather Service has gauges that measure flood levels of rivers and streams all over the country. Some provide short-term flood forecasts in the form of a line graph that depicts the flood stage (in feet) over a several-day period, for both the actual stage and the multi-day forecast.

2. Use inundation maps
   The National Weather Service and US Geological Survey maintain a range of flooding-related data, including inundation map libraries. Inundation maps make it easier to interpret what stream gauge levels like “stage 18” or “stage 22” mean for a given community, including if it could cause flooding. Users can even determine which flood-stage level would cause a specific area to flood.

   Rochester, for example, developed a way to integrate inundation maps and other data-sets into its GIS system. This makes the data more accessible and helps city officials understand and act on flood forecasts.

   “They can quickly bring these maps up and print them for emergency responders,” said Waln, who worked with the city to integrate the data into a tool. “It improves response time.”

3. Identify action triggers
   Once a community understands what a flood of a certain magnitude looks like, Waln recommends identifying the flood stages that would trigger closing a road, evacuating residents, or deploying emergency responders. He stressed inundation maps and other tools are key to this step: “Have the information available so you can say, When this happens, this is what we’re going to do about it.” —Michelle Hoedeman, LTAP freelancer

Flooding mitigation publications

Minnesota LTAP has compiled this selection of flood-related publications:

- Development and Regionalization of In Situ Bioslopes and Bioswales (MnDOT, 2019). Available at lrrb.org.
- NCHRP Synthesis Report 527: Resilience in Transportation Planning, Engineering, Management, Policy, and Administration (TRB, 2018). Download the full report after entering your email address via the TRB website: trb.org/Main /Blurbs/177737.aspx
- Design Considerations for Embankment Protection During Road Overtopping Events (MnDOT, 2017). Available at lrrb.org.

- MnDOT Flood Mitigation page: dot.state.mn.us/floodmitigation
- Minnesota LTAP Disaster Management topic page
- Minnesota LTAP librarian: 612-626-8753, ctslib@umn.edu

Similarly, a soil map generated before 2018 would have said the development sat atop hydrologic soil group B, a soil type that holds water relatively well. Since then, half that same area was reclassified as soil group C, a more finely textured soil that causes more water to run off elsewhere (e.g., onto the street). Simply having a soil type that absorbs less water can cause 20 percent more water to run off.

“We’ve got 20 percent [more runoff] through more rain and another 20 percent through worse soil. And on top of that, we’ve got a system that really wasn’t up to snuff,” said Thompson. “It just seemed like everything went wrong.”

Working toward a solution

To fix the flooding issues, Thompson and team worked with the golf course to add a small pond in the rough (a less-manicured area of a golf course next to where the game is played). It’s a happy medium: the system can now withstand the older 6-inch, 100-year storms while being discreet enough to not affect golf play.

They also increased the capacity of a portion of the storm sewer system by replacing 1,000 feet of 48-inch pipes with larger ones. This ultimately made the whole system work better.

After experiencing flooding in 2014, 2016, and 2018, the neighborhood now has the proper infrastructure in place. Should the pattern continue with a big storm in 2020 or beyond, they’ll be ready for it.

—Michelle Hoedeman, LTAP freelancer
Heavy metals: new plowing technology gives MnDOT an edge

When heavy snowstorms threaten to close roads, snowplow drivers are the ones on the front lines. During any given storm event, the Minnesota Department of Transportation will have a little more than 800 trucks out working to clear the roads, often with plows on the road for 24 hours straight.

“We want to reduce that [time] to bare lane because we never get calls saying it was just too good a drive into work during today’s storm,” said Jed Falgren, MnDOT state maintenance engineer. At the Road Salt Symposium on October 24, presenters offered perspectives on how to reduce salt use while also improving road safety for drivers. Increased plowing efficiency is one way to do this, and Falgren had a variety of exciting new technologies to share in his update about MnDOT’s heavy metal tools.

New, improved blades

A standard snowplow has at least three blades: the front plow, the underbody plow, and the wing plow. MnDOT has more than 34,000 lane-miles of roadway, and snow conditions can change dramatically at any point along the way. MnDOT has 25 different front plow blades alone that it can utilize in these different situations, and it’s always looking for new, improved designs. “When we buy a plow, there are lots of things we can look at,” Falgren said.

“Traditionally, road maintenance crews have relied heavily on salt, but recent shifts in understanding have led researchers to realize that salt comes at a cost. "There are multiple aspects to this chloride issue that we need to tackle," said Andy Erickson, research associate at the St. Anthony Falls Laboratory at the University of Minnesota and a presenter at the Road Salt Symposium in October 2019. "There are high costs to the environment and to our infrastructure." Fortunately, the U of M has been working on the problem. At the gathering, Erickson outlined some of the more promising practices that he and others at the U have been developing.

Alternative chemicals

Every deicing chemical has its pros and cons. Potassium acetate, for example, has been used by MnDOT for deicing bridges in certain parts of the state, and it works at colder temperatures than chloride. It’s less corrosive to most metals, but it does cost more and has greater impacts on galvanized steel. It also has some environmental impacts of its own; they’re just different, and the impacts have yet to be fully studied, Erickson said.

Propylene glycol is less corrosive to metals than salt and causes less environmental and infrastructure damage, but it also costs more and seems to have a negative effect on asphalt and concrete. Alternative chemicals, in general, show a lot of promise, but their advantages and disadvantages need to be studied and weighed carefully before committing, he explained.

Sand and heat

Chloride and other chemicals aren’t the only way to break the bond between pavement and ice: U of M researchers have looked into creating hydrophobic coatings that prevent ice from sticking to pavement in the first place. They’ve also considered the possibility of conductive, heated pavements and microwaving roads. Sand also has a lot of potential, especially if heated before application to prevent bouncing. “If you heat the sand,” Erickson said, “as soon as it hits any type of ice, it melts and then freezes into the ice, and makes the ice effectively sandpaper.”

New materials and designs are often suggested to MnDOT, and the testing process involves a lot of trial and error. Tests are carried out by MnDOT’s eight districts, he said, and the Clear Roads research program also provides a great forum for sharing research with other states battling snow and ice.

Icebreakers

The real heavy metal game-changer in recent years has been the icebreaker. Equipped with a front-mounted drum spiked with metal tines, the machine is designed to poke thousands of tiny holes in the surface of hard-packed snow or ice. This breaks up the ice and makes it easier to scrape away with an underbody plow. It has the added benefit of creating a porous surface that’s easy to salt, reducing salt waste and increasing salt effectiveness.

“We had a situation on Interstate 94 last year near Alexandria where we had a very serious accident,” Falgren said. Traffic had to be diverted off the interstate, but a heavy storm had created 3 to 4 inches of snow compaction on the alternative route. “They pulled the icebreaker out, went through, came in and treated it, and less than 30 minutes later they were looking at bare, wet pavement. Units cost a little under $40,000 each, and drum replacements run about $30,000. MnDOT has had success using them on ice ranging from ⅛ inch to 4 inches in thickness.

An edge against winter

Road maintenance during Minnesota snowstorms requires a varied arsenal. New innovations in plow blade and icebreaker technology give MnDOT an edge when the elements are working against them.

Creating a low-salt future with innovative alternatives

Keeping Minnesota roads clear in the winter is a large order. Traditionally, road maintenance crews have relied heavily on salt, but recent shifts in understanding have led researchers to realize that salt comes at a cost.

Sand and heat

Chloride and other chemicals aren’t the only way to break the bond between pavement and ice: U of M researchers have looked into creating hydrophobic coatings that prevent ice from sticking to pavement in the first place. They’ve also considered the possibility of conductive, heated pavements and microwaving roads.

Smart Salting training

The Minnesota Pollution Control Agency started the Smart Salting training program as a way to help property managers save money and protect water resources by using less salt to deice pavement. The program includes two levels of certification:

- Level 1 is designed for individual road salt applicators and teaches best practices for maintaining roads, parking lots, and sidewalks.
- Level 2 is designed for public and private organizations and focuses on using the Smart Salting Assessment tool to monitor salt use and take steps to minimize it.

Visit pca.state.mn.us/water/smart-salting-training to find a calendar of upcoming training dates and more information about the program.

—Sophia Koch, LTAP Freelancer

MINNESOTA TECHNOLOGY EXCHANGE

MAINTENANCE

6 March 2020
would have deferred some maintenance such as seal coating. Antonen says. The legislation is not permanent; it will hold until the 2020 census and must be renewed if the situation repeats itself, he adds. On a wider scale, Minnesota as a whole has similar stakes in the 2020 census. In 2016, according to a fact sheet from the Counting for Dollars 2020 Project, the state received around $15 billion in federal program funding, $659 million of which was allocated to Minnesota. The extra money, he adds, is well worth it; the city’s response rate rose by 5 percent. The key in 2020, Virden says, will be “getting the right message to the right people.” Certain communities, particularly poor, minority, and rental populations, tend to be difficult to count due to language barriers, lack of access to technology, distrust of the government, or difficulties notifying them. These “hard to count” communities stand to gain or lose a lot, Virden says; undercounts might drive away businesses, result in underfunding for public projects and maintenance, and discourage new residents. The Minnesota SDC is trying to reach these populations in part by putting together materials for unsupported languages and working with local community leaders. In Circle Pines, reminders are being sent out with utility bills, door-to-door census workers are making extra efforts to reach rental communities, and schools and faith groups are being used to get the word out. “We're lucky that we have great elected officials and enough staff,” Antonen says. “We're just trying to get the word out more than anything.” —Sophia Koch, LTAP freelancer

**SEARCH ME**

The Minnesota LTAP website features custom search engines to help you find information. You can search:
- **LTAP & TTAP Centers**
- **State DOTs**
- **Transit agencies**
- **University transportation centers**

Bookmark mnltap.umn.edu/publications/library.

**OTHER GREAT RESOURCES:**
- LRBB’s site: lrrb.org
- MnDOT Library’s catalog: dot.state.mn.us/library

---

**INFORMATION SERVICES**

**EACH YEAR, NEARLY 6,000 PEOPLE**

in the US are killed in weather-related crashes.

---

**MnDOT uses WebMDSS for weather-responsive management**

Weather-responsive management strategies (WRMS) can help agencies affected by winter weather conditions to improve their road maintenance activities. More than 16 state transportation agencies currently use automated processes such as maintenance decision support systems (MDSS) to support winter maintenance and operations. MnDOT uses WebMDSS, a web-based application, to manage its roadways and resources during inclement weather. The application provides road advisories, warnings, and treatment information and recommendations for road maintenance, and serves as the primary resource for forecasting. The tool allows MnDOT staff to make more informed decisions for maintenance planning and tactical actions through detailed, hour-by-hour, weather and pavement forecasts at the maintenance route level. These informed decisions result in improved mobility and safety, as well as cost savings and reduced environmental impacts from reduced material usage. For example, reports on speed while applying chemicals, average precipitation, material usage by route, and sander status support MnDOT’s efforts to track material usage in a more efficient manner.

Using existing mobile observation capabilities, MnDOT provides the public with information to make informed travel decisions. In addition to weather condition information in the agency’s S11 traveler information system, MnDOT provides road condition images taken from active plows in the field. This provides additional information on current and anticipated roadway dangers and conditions. Traffic operators can also use these images to create messages to post on dynamic message signs where needed, keeping motorists informed with real-time information.

To learn more about MnDOT’s use of WebMDSS, please visit MnDOT’s RWIS website—rwis.dot.state.mn.us. To learn more about how WRMS can help your agency provide better response to winter weather events, email David.Johnson@dot.gov with the FHWA Office of Operations.

(Reprinted from EDC News, Jan. 30, 2020.)

---

**CENSUS FROM PAGE 1**

***Every Day Counts*** is the FHWA’s initiative to advance a culture of innovation in the transportation community in partnership with public and private stakeholders.
Census trivia

Who was president when the first census was done?

George Washington  Andrew Jackson  Theodore Roosevelt

Only one state lost population during the last census period (from 2000 to 2010). Which state was it?

Iowa  Michigan  Ohio

Demo Day to showcase chainsaw safety training

The Minnesota Roadway Maintenance Training and Demo Day will be held May 7 at the Otter Tail County Highway Facility in Fergus Falls. Attendees will earn one Roads Scholar Maintenance credit. This year Demo Day is showcasing chainsaw safety training. The session will focus on the importance of chainsaw safety, the dangers of running a chainsaw, and proper chainsaw maintenance. Outdoor demonstrations will include:

- PPE/assessing the situation
- Sharpening/gassing the saw and prep
- Notching/felling/roping
- Body position – cutting off the stump

Other Demo Day topics include gravel road maintenance and design and CDL/load securement.

ONLINE TRAINING: Anytime, anywhere!

Math Basics for Maintenance Technicians
(1 RS Maintenance credit)

Installation and Management of Roadside Turfgrasses
(1 RS Maintenance credit)

Turfgrass Pathology Course
(0.5 RS Maintenance credit)

Culvert Design and Maintenance
(1 RS Maintenance credit) LTAP

Sign Maintenance and Management for Local Agencies
(1 RS Maintenance credit) LTAP

Gravel Road Maintenance and Design
(1 RS Maintenance credit) LTAP

Work-Zone Safety Tutorial
(0.5 RS Maintenance credit) LTAP

Roads Scholar credit

You can earn credits in Minnesota LTAP’s two Roads Scholar (RS) certificate programs by attending LTAP and CTAP workshops and other cosponsored events. To learn more or enroll in the program, visit mnltap.umn.edu/roadsscholar.

LTAP workshops

LTAP workshops, along with events cosponsored by Minnesota LTAP, are marked with an LTAP at left. Check the web for details and to register online: mnltap.umn.edu. To be added to our print or electronic mailing lists, email mnltap@umn.edu or call 612-625-1813.

CTAP workshops

Circuit Training and Assistance Program (CTAP) workshops bring LTAP services to your neck of the woods. CTAP uses a fully equipped van to provide on-site technical assistance and training. Each CTAP workshop earns 0.5 RS credit. For more information or to schedule classes, call the CTAP instructor, Kathy Schaefer, at 651-366-3575, or email Kathleen.Schaefer@state.mn.us.

Ethics training is online

“Professional Ethics: Dilemmas and Solutions” is available on the CTS website. The two-hour online training reviews 10 commonly encountered ethical dilemmas and their appropriate solutions.

Cost is $65. For more information, please visit cts.umn.edu/education/ethicsonline or contact Katherine Stanley at sell0146@umn.edu for assistance.

CALANDAR

For details and an up-to-date list of events, please see mnltap.umn.edu.

Census trivia

Which state was it?

Locations throughout the state in March and April

March 20, Mankato
March 18, Willmar
March 24, St. Paul

Extending Pavement Life through Pavement Preservation Techniques, Strategies, and Preventative Maintenance
(1 RS Maintenance credit) LTAP
April 14, Baxter

Minnesota Truck-Weight Education Training
(1 RS Maintenance credit) LTAP
March 17–18, Fargo

Outdoor demonstrations will include:

- a chainsaw, and proper chainsaw maintenance.
- the importance of chainsaw safety, the dangers of running a chainsaw, and proper chainsaw maintenance.
- outdoor demonstrations will include:
  - PPE/assessing the situation
  - sharpening/gassing the saw and prep
  - notching/felling/roping
  - body position – cutting off the stump
- other demo day topics include gravel road maintenance and design and cdL/load securement.

ONLINE TRAINING: anytime, anywhere!

math basics for maintenance technicians
(1 rs maintenance credit)

installation and management of roadside turfgrasses
(1 rs maintenance credit)

Turfgrass pathology course
(0.5 rs maintenance credit)

culvert design and maintenance
(1 rs maintenance credit) LTAP

Sign maintenance and management for local agencies
(1 RS Maintenance credit) LTAP

Gravel Road Maintenance and Design
(1 RS Maintenance credit) LTAP

Work-Zone Safety Tutorial
(0.5 RS Maintenance credit) LTAP

Roads Scholar credit

you can earn credits in Minnesota LTAP’s two Roads Scholar (RS) certificate programs by attending LTAP and CTAP workshops and other cosponsored events. To learn more or enroll in the program, visit mnltap.umn.edu/roadsscholar.

LTAP workshops

LTAP workshops, along with events cosponsored by Minnesota LTAP, are marked with an LTAP at left. Check the web for details and to register online: mnltap.umn.edu. To be added to our print or electronic mailing lists, email mnltap@umn.edu or call 612-625-1813.

CTAP workshops

Circuit Training and Assistance Program (CTAP) workshops bring LTAP services to your neck of the woods. CTAP uses a fully equipped van to provide on-site technical assistance and training. Each CTAP workshop earns 0.5 RS credit. For more information or to schedule classes, call the CTAP instructor, Kathy Schaefer, at 651-366-3575, or email Kathleen.Schaefer@state.mn.us.

Ethics training is online

“Professional Ethics: Dilemmas and Solutions” is available on the CTS website. The two-hour online training reviews 10 commonly encountered ethical dilemmas and their appropriate solutions.

Cost is $65. For more information, please visit cts.umn.edu/education/ethicsonline or contact Katherine Stanley at sell0146@umn.edu for assistance.