Winter is upon us. At the recent Montana LTAP Winter Maintenance workshops at the end of November, as well as our December webinar on Winter Maintenance, topics covered included snow fences and prewetting road abrasives.

Snow fences as we all know can help prevent drifting and improve visibility. Surprisingly enough, it only takes 8 to 10mph winds to pick up loose snow. This snow becomes rounded and forms a dense layer when deposited. Density can increase to more than ten pounds per cubic foot. With economic solutions being sought, snow fences may be an alternative to mechanical snow removal that can cost about 100 times more than trapping snow with fences.

According to snow fence studies, fences should be eight feet or taller with a gap equal to 10% of the total fence height under the fence. Fences should be set back at least 35H from the road shoulder.

The old method of scattering road abrasives indicated about half of the materials stayed in the center of the road. Unfortunately we know that it does not take long for these materials to be either blown off the road or eventually pushed to the shoulder. By prewetting the road materials with a liquid deicer brings a greater success with the materials melting partially into the road and will not be lost. By prewetting almost 80% will remain in the center with only a minimal amount going off the road.

Another advantage of prewetting road abrasives is its ability to actively penetrate the surface rather than being blown off.

As we head into this New Year, thank you to all who keep our winter roadways safe!

Happy New Year,
Steve Jenkins, MT LTAP Director

Front Page Photo: Plow Driver Steve Terry, Gallatin County Road Dept. - by Michele Beck, MT LTAP

Local Technical Assistance Program

The LTAP/TTAP Mission is to foster a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce and decision makers.

MT LTAP Advisory Committee Members

The Advisory Board meets annually to make recommendations and evaluate the effectiveness of the Montana LTAP program.

Russ Albers  Chouteau County
Dave Hand  Montana Dept of Transportation

VACANT  APWA Rep

Kris Christensen  Montana Dept of Transportation

Thomas Danenhower  MMIA

Kelly Eiser  Town of Ennis

Eric Griffin  Lewis and Clark County

Our website lists upcoming training courses, registration forms, library information, our contact information, newsletters, various links, and MACRS information. Please go to: http://www.coe.montana.edu/ltapv2/index.html

The Local Technical Assistance Program/Tribal Technical Assistance Program (LTAP/TTAP) is a nationwide network of 58 centers - one in every state, seven serving Native American tribal governments and one in Puerto Rico.

Front Page Photo: Plow Driver Steve Terry, Gallatin County Road Dept. - by Michele Beck, MT LTAP
City of Bozeman Wins 2012 You Show Us Award

Last spring, Steve Kurk, City of Bozeman Street Department, submitted his entry for the Montana LTAP You Show Us Contest. This contest is a profitable way to share your innovative ideas with others who may benefit from your concept. You also receive some well earned recognition for your efforts.

In October Montana LTAP sent Montana entries to the regional competition at the Local Road Builders Conference in South Dakota to compete with LTAP Region 7 state entries (MT, WY, CO, ND, SD, NE, KS, OH, IA) to determine regional winners. Kurk received recognition for the Montana entry.

While everyone at the City of Bozeman thought about solutions, Kurk formulated a plan and moved forward with this project to get it built and installed in the field with the assistance of Keith Blewett and Matt Heckel.

Following is Steve Kurk’s entry:

**Entry: Intake Backing Plates for City Storm Drains**

**Problem Statement:**
On the Bozeman city streets, intake backing plates covering stormwater drains were being damaged by heavy equipment running over them or struck by snow plow trucks during winter months. These plates are required by City of Bozeman’s Engineering Department to protect debris from getting into the stormwater drain systems.

**Discussion of Solution:**
The usual method of replacing damaged intake backing plates required digging out old broken plates embedded in concrete, removal of concrete and infrastructure in concrete. It would take approximately three days in labor cutting into concrete to replace entire backing structure. After looking at viable solutions, it was determined that a metal cap could be bolted onto the remaining infrastructure of the damaged plate.

**Labor, Equipment, and Materials Used**

- Shop time to cut and mold cap plate to specific intake plate location, and labor to replace plate:
  - One Employee @ $25 x 3 hours = $75
- Equipment Used: Metal Cutter; Metal Folding Equipment, Wrench
- Material Used: 3/16 Metal Plate, Bolts, Paint to Match Curb = $ 25
- Total Cost $100

**Savings and Benefits to City:**
The savings and benefits to the City of Bozeman include less time and materials for repairing damaged intake plates, approximately three hours versus three days, for a savings of $700. The other benefit is repairing a damaged intake plate in a quicker time frame and thereby meeting the requirements of City of Bozeman’s Engineering Department protecting the stormwater drain system.

Keith Blewett, Steve Kurk, & Matt Heckel, City of Bozeman, with You Show Us Award
The Montana Association of County Road Supervisors Board, better known as MACRS, met in November to prepare planning for our Spring Conference March 25-28, 2013. As President this year and hearing solid suggestions of what to present at this conference, I am reminded of the increasing concerns Montana county road supervisors are faced with each day.

Technical information as it relates to county road departments' issues rises to the top of the list. Questions come up of how can we provide better road inventories including hours on the job, materials used, equipment maintained; access to crash data to assist in maintaining and building safer roads; and developing and maintaining a sign inventory—just to name a few major concerns.

The theme for our conference this year is "Technical Information for Transportation." Speakers have been invited to present on road construction, DEQ forms and regulations, Excel spreadsheet analysis, and GPS/GIS training and caching to provide information and assistance. Having worked in the road industry for over thirty years, eye-to-eye meetings provide the most insightful and memorable learning experience possible.

Another valuable tool we are using this year is a Mock Trial regarding Right-of-Way issues on public lands. As we all know, liability has become paramount to maintaining and constructing safe roads. There will be a presentation on depositions followed by the trial, complete with judge, attorneys, plaintiffs, and defendants. Our thanks goes out to MACo, Montana Association of Counties, in providing their legal staff to assist with this event. Because hands-on is the best learning tool, this mock trial will be of utmost value to all who attend. Let me mention here attendees include road crew and county commissioners also.

There will be over sixty vendors available with the newest technology also. MACRS appreciates their continued support of this conference.

Montana LTAP will be providing registration materials at the beginning of January. Check out their website at http://www.coe.montana.edu/ltapv2/training/index.html for registration information or call them at 1-800-541-6671. For more information about MACRS, go to http://www.coe.montana.edu/ltapv2/resources/macrs/index.html.

On behalf of MACRS, I look forward to greeting you at our 33rd annual conference. Be sure to contact me also if you have any questions, 406-390-2457.

Tom Fairbank, MACRS President
Blaine County Road Supervisor
Chinook, MT

---

Reprinted from Solutions,
MDT Research Newsletter Fall 2012

By Craig Abernathy,
Statewide Experimental Program Manager,
Montana Department of Transportation

The realignment of Secondary 325 near Chinook (Blaine County) required the Montana Department of Transportation to install a new culvert over the existing irrigation canal. This culvert was installed in 2012. The structure chosen was the ConTech Ribbed Aluminum Box Culvert (ABC). This type of culvert is assembled on-site using preformed aluminum plates, reinforced rib sections, and nut and bolt attachment. Construction of this culvert does not require special tools or the use of large cranes. This particular unit was approximately 151 feet in length, span of 25.2 feet and a rise of 7.74 feet. This design allows for quick assembly and a minimum fill depth of seventeen inches. The performance of this culvert will be monitored overtime.

See http://www.mdt.mt.gov/research/projects/aluminum.shtml for more information or contact Craig Abernathy (cabernathy@mt.gov, 406.444.6269).
Local public agencies (LPAs)—mostly counties, cities and towns—own and operate the vast majority of the nation’s highway system. The nation’s local roads network comprises about 3 million miles, or nearly 75 percent, of the overall system, and more than half of the bridges. Local public agencies build and maintain the local roads network using a variety of funding sources, including the Federal-aid Highway Program. Every year LPAs administer about $7 billion in Federal-aid projects, which can range from short sidewalks and bike-pedestrian facilities to pavement overlays and bridges.

When LPAs receive Federal-aid funding, they begin a process of working closely with their respective state department of transportation (state DOT) to meet all Federal-aid requirements, such as environmental reviews, civil rights compliance, right-of-way acquisitions, safety, and construction contract administration. Understanding Federal-aid requirements is critical to the successful delivery of federally funded projects at the local level. Non-compliance can lead to project delays and LPAs not receiving timely Federal-aid reimbursements.

To help LPAs meet their Federal-aid requirements, the Federal Highway Administration (FHWA) recently launch a new information-sharing initiative, called Federal-aid Essentials for Local Public Agencies, that offers an abundance of information about key aspects of the Federal-aid program on a single public website.

The Federal-aid Essentials website features a resource library of more than 80 informational videos and related materials. The videos focus on a single topic in the most critical areas of Federal-aid. The videos are relatively short at less than 10 minutes long, professionally narrated in non-technical language, and supported with engaging graphics and animation that give viewers the most essential content. The videos can be viewed in any sequence from any computer or mobile device with Internet access.

When users first enter the Federal-aid Essentials website at www fhwa dot gov federal aid essentials, they will be greeted with a brief introductory video about the Federal-aid Essentials initiative and how to navigate the Web site. From there, users will have access to the resource library via a convenient drop-down menu that presents seven categories of video modules:

- Federal-aid Program Overview
- Civil Rights
- Environment
- Finance
- Right of Way
- Product Development
- Project Construction and Contract Administration

After choosing a category, a menu of video modules for the specific category appears next to the video viewing screen. Users simply click on the desired video title and the presentation begins. On the same page, users have access to a wealth of companion materials, including a written, printable script of each video, the applicable Code of Federal Regulations, helpful reference information, and links to additional online resources. Another function allows users to give feedback on a particular video, the full resource library and the website itself.

If users have questions about a particular video’s content or about the Federal-aid program in general, they can click on a State Resources button on the main page and gain access to a list of useful information, including individual state and FHWA local office LPA coordinator contacts and web links to state DOTs, state LPA manuals, local technical assistance program (LTAP) centers, and other helpful online resources. A drop-down menu on the main page, titled “I want to know about...”, helps users find information quickly and conveniently about common Federal-aid topics. The site is regularly updated and new features added to meet state DOT and LPA needs and requests.

Since the modules are available anywhere there is Internet access, they can be used in a multitude of settings on any Internet-ready device. They can be shown at meetings, viewed in one’s office or viewed on a job site using a laptop computer or mobile device. A project team can access the videos on a minute’s notice anytime, anywhere for discussion with stakeholders and partners. After viewing the videos, viewers acquire enough knowledge to know what questions to ask their state DOT counterparts, what appropriate technical terminology to use, and how and where to get additional assistance. State DOTs and LPAs also can use the videos to augment training at the local level.

The Federal-aid Essentials website helps LPAs understand their Federal-aid requirements as they pursue better, faster and smarter ways of delivering the Federal-aid program at the local level.

You can read more about the Federal-aid Essentials initiative in FHWA’s Public Roads magazine at http://www fhwa dot gov publications publicroads 12septoct 03 cfm.

For more information on this initiative, please e-mail the Federal-aid Essentials for Local Public Agencies program at LPA- feedback@dot.gov.
**Calendar of Events • January 2013 - June 2013**

### January 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1: New Year's Day - MT LTAP Offices Closed  
13-17: Transportation Research Board, Washington, DC  
**14-17:** 11th Annual Safety Congress - Great Falls, MT (MT LTAP):  
14 am: Signing & MUTCD  
14 pm: Prisms/Clear Zones / Safety Audits  
15 am: Sign Vandalism/Driver Behavior/Traffic Laws  
15 pm: Winter Survival  
16 am: Work Zone Tech  
16 pm & 17 All Day: Traffic Control Supervisor  
18: MDT Flagger Trainer  
21: Martin Luther King Day - Offices Closed  
22: MT LTAP Safety Webinar - 7:30am-8:00am

### February 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18: President's Day - Observed (Montana LTAP Offices Open)  
25 - March 1: SafetyFestMT - Missoula, MT; www.safetyfestmt.com  
26: MT LTAP Safety Webinar - 7:30am-8:00am

### March 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1: SafetyFestMT - Missoula, MT  
5: Work Zone Tech Course - Helena (MT LTAP)  
6: Work Zone Tech Course - Missoula (MT LTAP)  
7: Work Zone Tech Course - Kalispell (MT LTAP)  
10-16: MSU Spring Break  
12: Flagging Certification Course - Great Falls (MT LTAP)  
13: Flagging Certification Course - Lewistown (MT LTAP)  
14: Flagging Certification Course - Billings (MT LTAP)  
19: Asphalt Institute, Helena, MT (MT LTAP)  
19: MT LTAP Safety Webinar - 7:30am-8:00am  
25-28: MACRS 33rd Annual Conference Heritage Inn, Great Falls, MT (MT LTAP)

### April 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
</tr>
<tr>
<td>28</td>
<td>29</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7-10: APWA North American Snow Conference, Charlotte, NC  
8-9: Gravel Roads - Glendive (MT LTAP)  
10-11: Gravel Roads - Wolf Point (MT LTAP)  
15-19: National Work Zone Awareness Week (FHWA)  
16: MT LTAP Safety Webinar - 7:30am-8:00am  
21-25: NACE 2013, Des Moines, Iowa; www.naco.org  
22-23: Gravel Roads - Great Falls (MT LTAP)

### May 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14-16: Rocky Mountain Chapter - APWA - Spring Conference, Jackson, WY in conjunction with ITE Intermountain Section  
More info: http://rockymountain.apwa.net  
8-9: ARTBA LoTrans Virtual Conference  
14: Work Zone Flagging Course - Miles City (MT LTAP)  
15: Work Zone Flagging Course - Glendive (MT LTAP)  
16: Work Zone Flagging Course - Wolf Point (MT LTAP)  
21: MT LTAP Safety Webinar - 7:30am-8:00am  
27: Memorial Day - Offices Closed  
30 & 31: LTAP Region 7 Meeting  
**Some dates and locations are subject to change.**  
**Call Genevieve Albert, LTAP, 1-800-541-6671 to confirm.**

### June 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>29</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4: Work Zone Flagging Course - Bozeman (MT LTAP)  
5: MACRS Executive Meeting - Bozeman  
6: Montana LTAP Annual Advisory Board Meeting - Bozeman  
18: MT LTAP Safety Webinar - 7:30am-8:00am

**Safety Meeting Webinars from Montana LTAP**  
January 22, 2013 - Funding Road Projects  
February 26, 2013 - Spread Sheets for Road Management  
March 19, 2013 - Back Safety  
April 16, 2013 - Work Zone Safety  
May 21, 2013 - Roadside Management: Mowing & Weeds  
Monthly Thirty-Minute Safety Webinars held at 7:30am on Tuesday Mornings  
Call Montana LTAP at 1-800-541-6671 for more information!
# Calendar of Events • July 2013 - December 2013

## July 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
</tr>
<tr>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4: Fourth of July Holiday - Offices Closed  
22-25: National LTAP/TTAP Summer Conference, Boise, ID

## August 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25-28: APWA International Public Works Congress & Exposition, Chicago, IL

## September 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
</tr>
<tr>
<td>28</td>
<td>29</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2: Labor Day Holiday - Offices Closed  
4&5: 24th Annual Equipment Safety Training and Snow Rodeo - Billings, MT (MT LTAP)  
BROchure available in July  
17: MT LTAP Safety Webinar 7:30am-8:30am  
22-26: MACo 104th Annual Conference, Colonial Hotel, Helena, MT  
[www.mtcounties.org](http://www.mtcounties.org) or MACo’s Karen Houston 406-449-4360

## October 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
</tr>
<tr>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
</tr>
</tbody>
</table>

TBA: MACRS Fall District Meetings  
8-10: 82nd League of Cities & Towns - Colonial Hotel, Helena, MT  
14: Columbus Day - Observed (Montana LTAP Offices Open)  
11: Put On The Brakes Day - 13th Anniversary  (go to: www.brakesonfatalities.org)  
22: MT LTAP Safety Webinar 7:30am-8:30am  
TBA: 28th Regional Local Road Coordinators Conference, Rapid City, SD

## November 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
</tr>
</tbody>
</table>

11: Veterans’ Day - Offices Closed  
TBA: MACRS Planning Meeting, Heritage Inn, Great Falls, MT  
19: MT LTAP Safety Webinar - 7:30am - 8:30am  
28 - 29: Thanksgiving Holiday - Offices Closed

## December 2013

<table>
<thead>
<tr>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>29</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18: MT LTAP Safety Webinar - 7:30am-8:30am  
24 & 25: Christmas Holiday - Offices Closed

---

Some dates and locations are subject to change.  
Call Genevieve Albert, LTAP, 1-800-541-6671 to confirm.

---

**Training on Request:**  
**Summer Survival**  
**Hand Safety**  
**Slips, Trips, & Falls**

**Training on Request:**  
**Forklift**  
**Sign Safety**  
**Road Audits**

---

**Training Opportunities at Montana LTAP Website:**  
[http://www.coe.montana.edu/ltapv2/training/index.html](http://www.coe.montana.edu/ltapv2/training/index.html)
Every Day Counts 2

At the end of November, Michele Beck, MT LTAP Graphic Designer/Librarian, attended FHWA’s Every Day Counts Region 6 meeting in Portland, Oregon. Represented at this meeting were six northwest states, Guam, Hawaii, and Western Federal Lands. Personnel came from various Federal Highways agencies, departments of Transportation, and city and county local governments. The conference opened with John Horsley, AASHTO Executive Director, supporting the past EDC initiatives and outlining how EDC2 will fit with MAP-21. FHWA Deputy Administrator Greg Nadeau announced EDC2 initiatives coming out in 2013 and 2014:

- 3D Engineered Models for Construction
- Accelerated Bridge Construction
  - Geosynthetic Reinforced Soil-Integrated Bridge System
  - Prefabricated Bridge Elements and Systems
  - Slide-in Bridge Construction
- Alternative Technical Concepts
- Construction Manager/General Contractor
- Design Build
- First Responder Training
- Geospatial Data Collaboration
- High Friction Surfaces
- Implementing Quality Environmental Documents
- Intelligent Compaction
- Intersection and Interchange Geometrics
- Locally-Administered Federal Aid Projects
- Programmatic Agreements

Why EDC? At the EDC website (http://www.fhwa.dot.gov/evrydaycounts/) this quote sums up the purpose behind these initiatives: “The Every Day Counts initiative is designed to identify and deploy innovation aimed at reducing the time it takes to deliver highway projects, enhance safety, and protect the environment.” As Nadeau pointed out, it is taking too long to get projects off plans and into reality. Safety is being compromised with the length of time it takes to go from idea to completed construction.

During this opening session, each state presented their successes with the particular EDC initiatives that fit their region. MDT’s Jim Walther provided Montana’s information. After lunch and the following morning, concurrent sessions were presented on the new EDC2 initiatives. Each state then gathered to review and draft implementation plans for the coming year.

Montana was represented at this FHWA regional meeting by:
- Michele Beck - MT LTAP
- Harold Blattie - Montana Association of Counties
- Ann Cundy - City of Missoula, Montana MPO
- Jake Goettle - Montana Department of Transportation
- Paul Harker - FHWA Montana Division
- Chris Hertz - City of Billings, Public Works Engineering Division
- Jon Knowles - City of Helena, Engineering Division
- Kevin McLaury - FHWA Montana Division
- Chuck Nemfakos - Montana Department of Transportation
- Jim Walther - Montana Department of Transportation

GRS-IBS

Because of the interest from Montana county road departments at last year’s EDC initiative regarding Accelerated Bridge Construction’s Geosynthetic Reinforced Soil - Integrated Bridge System, following is more information regarding the GRS-IBS presentation led by Daniel Alzamora, FHWA Resource Center: Geosynthetic Reinforced Soil (GRS) Integrated Bridge System (IBS) technology uses alternating layers of compacted granular fill material and fabric sheets of geotextile reinforcement to provide support for the bridge. GRS also provides a smooth transition from the bridge onto the roadway, and alleviates the “bump at the bridge” problem caused by uneven settlement between the bridge and approaching roadway.

The technology offers unique advantages in the construction of small bridges, including:

**Reduced construction time and cost, with costs reduced 25 to 60 percent from conventional construction methods.**

Easy to build with common equipment and materials; easy to maintain because of fewer parts.

Flexible design that’s easily modified in the field for unforeseen site conditions, including unfavorable weather conditions.

GRS IBS is a form of accelerated bridge construction (ABC) that lowers cost, slashes construction time, improves durability, and increases safety—all at the same time. For budget-challenged State Transportation Agencies (STAs), that is a life-saver.

Rather than drilling a deep foundation, the reinforced soil method builds up the substructure in a faster, simpler way. One engineer described it as similar to building a layer cake. First, builders lay a row of facing blocks. Second, they add a layer of compacted fill (soil, etc.) to the height of the facing blocks (8 in.) Next, they add a layer of geosynthetic fabric. The process is repeated over and over until the desired height is achieved.

This low-tech approach continues as the bridge is placed directly on the GRS abutment mass. A GRS approach way is then built behind the bridge beams to transition the bridge to the approaching roadway. No joint or cast-in-place concrete is needed. The bridge extends naturally out of the roadway.

This simplified process radically reduces construction time. A GRS IBS is built in days or weeks, not months. There is no need to wait for cast-in-place concrete to dry; the substructure is immediately ready for the bridge.

On-site changes are easy to accommodate. As one engineer commented, “If I want to make it one foot wider, I put one more block in and take more fabric off the roll.”

Weather is rarely a problem, since this type of construction can occur in variable conditions. And fewer delays mean faster completion.

Shortened construction time means fewer labor hours. In Defiance County, Ohio, one bridge abutment was built in just 3 days. Using traditional techniques such as cast-in-place construction, that same abutment would have required two to three weeks.
This lower-tech option also reduces materials costs. Inexpensive, common materials and equipment are used. There is no need for highly skilled labor. And simpler construction also means simpler maintenance.

The environment also benefits with GRS IBS. The technology is environmentally sensitive and results in minimal environmental impacts. The construction footprint is reduced since no deep foundation is needed. Moreover, construction can be adapted to fit the environmental needs of a variety of applications.

Workers also benefit. Because the abutments are built from the inside out, personnel are less exposed to potential roadside hazards. And simpler construction generally means fewer accidents.

Shorter construction time also means shorter travel disruptions. Travel lanes are closed for much shorter periods of time. Typically, fewer lanes need to be closed. The jointless construction is also a noticeable side benefit to travelers because of the smooth transition on and off the bridge.

GRS IBS is strong and durable. A recent full scale shake table experiment showed that a GRS abutment structure can withstand a 1.0 g earthquake acceleration.

The clean, simple design of GRS IBS is modern and attractive. The realization of GRS technology will ultimately lead to widespread use and expanded applications in building better roads and bridges.

Demands on the bridge and highway system continue to grow dramatically, and budgets rarely keep pace. Many bridges are either functionally or structurally deficient; there is an increasing need for new bridges. In combining insights from the past with cutting-edge modern technologies, GRS IBS offers an effective and economical solution.

Go to this website to watch an informational twenty minute video describing how to build the GRS-IBS: http://www.youtube.com/watch?v=w_5WFoAdoUw.

FHWA worked with Defiance County officials to build bridges with the geosynthetic-reinforced soil (GRS) integrated bridge system (IBS). They not only succeeded in building a bridge for less money and time; they went on to build 18 more bridges with the GRS. By the end of the 2010 construction season, an additional 3 bridges were built.

The Bowman Road Bridge in Defiance County was built in just 6 weeks. Construction time could have been reduced to less than 3 weeks, if two separate labor crews had been available to build both abutments simultaneously. This represents a radical departure from typical construction time for a conventional bridge, which would have stretched into months.

Concerns were discussed in the GRS-IBS session using this type of construction. Scouring was a top issue. As more agencies across the country use GRS-IBS, more data will become available.

**Conclusion**

At the conclusion of this Region 6 meeting, all states met individually to assess how they were going to be able to further the EDC2 initiatives in their states through different agencies. In Montana, LTAP will continue to publicize the meeting locations and times to local government constituents as received from the Montana division of FHWA. Coordination for sites will occur between Montana FHWA and MDT, as well as determination of what EDC2 initiatives fit target audience.
Welcome to the LTAP Lending Library where publications, videos, DVD’s, and software may be borrowed for a two-week period. We have a limit of three videotapes or DVD’s for a rent-free two-week period. Some publications are free for or for a nominal charge upon request.

For information or checkout procedures, please call Genevieve Albert or Michele Beck, LTAP, 1-800-541-6671. If you have computer access, please e-mail us: mtltap(at)coe.montana.edu.

**New Publications**

**p-16.10 Multiple Corrosion-Protection Systems for Reinforced Concrete Bridge Components (FHWA Nov 2011)**
The results presented in this report represent the findings obtained during the first half of a 5-year study that includes longer-term ASTM G 109 and field tests. In the short-term tests used to date, the epoxy-coatings evaluated provide superior corrosion protection to the reinforcing steel. The results also indicate that the bars will continue to perform well in the longer term, although the tests do not evaluate the effects of long-term reductions in the bond between the epoxy and the reinforcing steel. (255 pages) [http://www.fhwa.dot.gov/publications/research/infrastructure/bridge/07043/index.cfm](http://www.fhwa.dot.gov/publications/research/infrastructure/bridge/07043/index.cfm)

This guide is based on lessons learned from early adopters of the Highway Safety Manual (HSM), many of whom are participating in the AASHTO’s Lead State Initiative. It outlines what the HSM is (and is not), how it relates to other core technical documents and policies, and the potential benefits of its use. The guide is written in three sections – Introduction to the HSM, HSM Implementation Considerations, and HSM Implementation Opportunities in Program Development and Project Delivery. (34 pages) [http://safety.fhwa.dot.gov/hsm/hsm_mgrsguide/hsm_mngrguide.pdf](http://safety.fhwa.dot.gov/hsm/hsm_mgrsguide/hsm_mngrguide.pdf)

**p-310.11 Estimation of Key PCC, Base, Subbase, and Pavement Engineering Properties From Routine Tests and Physical Characteristics (FHWA August 2012)**
This study initially verified the adequacy of the Long-Term Pavement Performance (LTPP) data and also made a preliminary assessment of the feasibility of developing the correlation models. In the next phase of the study, prediction models were developed to help practicing engineers estimate proper MEPDG inputs. This report describes the basis for selecting material parameters that need predictive models, provides a review of current LTPP program data, and proposes several statistically derived models to predict material properties. (214 pages) [http://www.fhwa.dot.gov/publications/research/infrastructure/pavements/ltpp/12030/index.cfm](http://www.fhwa.dot.gov/publications/research/infrastructure/pavements/ltpp/12030/index.cfm)

This user’s guide provides a summary of the models developed, describes their applications for specific project conditions, and lists their limitations. The following models are included:

- **PCC materials**: Compressive strength, flexural strength, elastic modulus, tensile strength, and coefficient of thermal expansion.
- **Stabilized materials**: Elastic modulus of lean concrete base.
- **Unbound materials**: Resilient modulus of fine-grained and coarse-grained materials.

**p-340.10 FHWA Freight and Land Use Handbook (FHWA April 2012)**
The goal of this Freight and Land Use handbook is to provide transportation and land use planning practitioners in the public and private sectors with the tools and resources to properly assess the impacts of land use decisions on freight movements, as well as the impacts of freight development and growth on land use planning goals. The handbook identifies freight-related land use issues, key considerations, and available resources. Throughout the handbook, examples and case studies from a range of urban and rural areas across the country are used to demonstrate the effectiveness of these techniques. (138 pages) [http://www.ops.fhwa.dot.gov/publications/fwhahop12006/index.htm](http://www.ops.fhwa.dot.gov/publications/fwhahop12006/index.htm)
p-637 Stabilization and Rehabilitation Measures for Low-Volume Roads (USFS December 2011)
This guide has been written relying upon the working knowledge of many road engineers with many years of experience to present a wide range of available rehabilitation practices. Every road project is unique, so application of this information should be tempered and augmented with local, on-the-ground working experience to adapt these ideas and techniques to the given local situation. (333 pages) Online, only Chapter 1: http://www.fs.fed.us/t-d/pubs/pdf/11771801_Stabil&Rehab/lo_res/Ch1.pdf

p-662 Simplified User’s Guide to Time-Domain-Reflectometry Monitoring of Slope Stability (USFS September 2009) This is a simplified guide for the implementation and use of a TDR (time domain reflectometry) cable system for monitoring the movement of known and potential landslides. The purpose of this guide is to summarize basic information to assist field personnel in assembling and installing a TDR measurement system, as well as processing the TDR data. (25 pages) http://www.fs.fed.us/eng/pubs/pdf/08771804.pdf

p-2201 Asset Management and Safety Peer Exchange (FHWA October 2011) This report summarizes the proceedings of the Asset Management and Safety Peer Exchange hosted by the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO). The peer exchange was held in Cheyenne, WY on August 2, 2011. The peer exchange addressed various aspects of asset management and safety—How do agencies plan, prioritize, and budget safety asset needs? Managers from state DOTs and FHWA gathered to dialogue on best practices, challenges, and sharing of experiences. (53 pages) http://www.fhwa.dot.gov/asset/hif12005/hif12005.pdf

p-2244 Risk-Based Transportation Asset Management: Evaluating Threats, Capitalizing on Opportunities (FHWA June 2012) The Federal Highway Administration (FHWA) Office of Asset Management offers this report as the first of five that will explore what risk management is and how it can be applied to transportation asset management. The use of risk management among U.S. transportation agencies largely is limited to managing risk during construction. These five brief reports will describe how the benefits of risk management can be expanded to programs that manage existing highway assets. (36 pages) http://www.fhwa.dot.gov/asset/pubs/hif12035.pdf

New DVDs
DVD 320 Crack Filling/Sealing – Best Practices (Ohio DOT 2011) To better understand pavement preservation and the basics of crack filling and sealing, Ohio DOT reviews necessary PPE and methodology. (18 minutes)

New Software
SW371 Recycled Materials for Local Engineers (RMRC – New Hampshire T2 Center Sponsored Seminar- March 31, 2011) This CD contains videos and narrated powerpoint presentations. Must be used with Mac or PC computers only:
Presentation Videos:
• NH Department of Environmental Services: Recycled materials in Road Projects
• A Minnesota County’s Experience With In-Place Recycling
• Crushed Glass in Road Applications
Narrative Presentations:
• Introduction: Recycled Materials in Roads
• NH Department of Environmental Services: Recycled materials in Road Projects
• A Minnesota County’s Experience With In-Place Recycling
• Crushed Glass in Road Applications
• Crushed Concrete in Road Applications
• Recycling for Performance: Recycling with HMA
Presentation PDF Files (just slides – no sound, no narrative)
• Introduction: Recycled Materials in Roads
• NH Department of Environmental Services: Recycled materials in Road Projects
• A Minnesota County’s Experience With In-Place Recycling
• Crushed Glass in Road Applications
• Crushed Concrete in Road Applications
• Recycling for Performance: Recycling with HMA

SW405 Consolidation of Concrete by Vibration (Portland Cement 1983) and FHWA Stockpile Recovery to Minimize Segregation (US DOT 2005) The first video provides insight on using Portland Cement in building roads (19 minutes) and the second video outlines best practices of how to take from gravel stock piles and load into dump trucks (8 minutes). (Must use with computer to select and play videos.)
LTAP MATTERS is published quarterly. Funding for this program is provided by the Federal Highway Administration, Montana Department of Transportation, Montana State University, and a portion of Montana’s gas tax revenues.

This newsletter is designed to keep you informed about new publications, techniques, and new training opportunities for you and your community.

Present and past issues are available at http://www.coe.montana.edu/ltapv2/newsletter/index.html or by calling 1-800-541-6671.

Approximately 700 copies of this public document were published at an estimated cost of $2.03 per copy for a total cost of $1,147.78 which includes $1,031.99 for printing and $385.79 for distribution.

LTAP attempts to provide accommodations for any known disability that may interfere with a person participating in any service, program or activity. Alternative accessible formats of this document will be provided upon request.

Please send us any comments or concerns you may have regarding this newsletter with your name and address in order that we may respond in a timely manner.