Item 1
Winter Weather Briefing
Wednesday: Good chance of wintry precipitation in northern Arkansas in the form of freezing rain and sleet Sunday night. Uncertain whether it will extend into central Arkansas. Rain only in south Arkansas.

Thursday: More certainty about icy precipitation in north Arkansas from midday Sunday, ending Monday morning. Possible freezing rain in central Arkansas for awhile Sunday night. Only rain in south Arkansas.

Friday: Winter Storm Watches for north Arkansas, greater probability of freezing precipitation in central Arkansas Sunday night, slight chance of freezing precipitation in south Arkansas late Sunday night.
Weather Advisories

Ice Storm Warning
Winter Storm Warning
Winter Weather Advisory
Saturday: “There is likely to be a band of heavy sleet, probably somewhere in the northern third of the state, where sleet could pile up 1 to 2 inches. This would be an unusually large amount.”

Sunday: “Amazingly low temperatures in all parts of the state for the next few days and nights.”
County by County

Crew Report Times

Sunday

District 10

District 1
County by County

Crew Report Times

Sunday

6am

6am

6am

6am

Noon

Noon

Noon

Noon

3pm

3pm

3pm

3pm

11am

8am

District 10

District 1
Sunday 6:00 a.m.
Sunday 6:00 p.m.

Road Conditions:
(501) 569-2374
Total Sleet Accumulation :: March 2 - 3, 2014

This preliminary map was created by the National Weather Service Office in Memphis, Tennessee using reports from Emergency Managers, COOP Observers, and members of the public.
Communications Summary

Sunday

- 6:23 a.m. – 36 degrees and light rain in Jonesboro.
- 11:39 a.m. – Randolph Co. ice issues, one accident.
- 3:24 p.m. – Icy conditions on several highways. Nothing on 40 or 55 in east or northeast Arkansas.
- 8:21 p.m. – Ice on Interstates 40 & 55, including W. Memphis.
- 9:58 p.m. – 6 inches of snow and ice on I-55.
- 10:59 p.m. – I-55 getting worse in Miss County. Very deep sleet & ice. Traffic moving slowly. Tow trucks unable to move on sleet.
Monday

- 12:33 a.m. – I-55 8mm shut down, vehicles stuck.
- 1:51 a.m. – I-55 in Miss Co. covered with several inches of sleet. Very dangerous. Plows having trouble.
- 2:21 a.m. – I-40 east truck stuck on Missouri St. Overpass.
- 4:50 a.m. – Vehicles moving on Missouri St. Overpass
- 6:42 p.m. – I-55 in Miss Co. shut down at 41 mm. Multiple accidents. Multiple trucks need removal.
- 10:13 p.m. – I-55 covered in ice. Traffic at standstill. Accidents at 41 and 36 mm.
- 11:06 p.m. – NB I-55 at 41mm re-opened.
Tuesday

- 1:36 a.m. – I-55 in Miss Co. NB & SB moving from 55 mm. Waking truckers.
- 3:12 a.m. – Semi broke down on I-55 SB at 48 mm within construction zone.
- 3:36 a.m. – I-55 SB shutdown as wrecker removes semi.
- 4:23 a.m. – I-55 SB traffic shutdown again north of 48 mm. Semi jackknifed and stuck. Another one at 51mm. We are out of wreckers. One coming from J-boro.
- 5:49 a.m. – I-55 shutdown from Missouri.
Tuesday

- 9:29 a.m. – I-55 NB & SB slowly moving in Miss. County. Numerous vehicles in ditches.
- 10:00 a.m. – AHTD enlists help from contractor on I-55. AHTD & contractor work through const. zone.
- 11:25 a.m. – Governor enlists help from National Guard.
- 11:37 a.m. – I-40 WB at 267mm overturned tractor trailer.
- 12:42 p.m. – MO & TN close I-155 from Hayti to Dyersburg due to six inches of ice on the highway.
- 1:06 p.m. – MODOT: We have I-55 SB and I-155 EB closed. All traffic is forced back north or west in Missouri.
Tuesday

- Afternoon – AHTD sends crews from Pine Bluff to Forrest City and Little Rock to West Memphis.
- 2:41 p.m. – I-40 WB 250mm at dead stop.
- 5:40 p.m. – I-55 NB & SB Traffic slow and stopping in Miss. Co. 1 lane passable from Missouri to Burdette.
- 5:41 p.m. – I-40 at 248 mm in St. Francis Co. shutdown as AHTD works on bridges.
- 6:00 p.m. – Trucks stuck in both directions on Hwy 148 overpass near Burdette. Wreckers called. Arrived at 9:00 p.m. Trucks removed by 10:00 p.m.
Tuesday

- 5:26 p.m. – I-40 EB & WB back open.
- 10:24 p.m. – One lane blocked at I-40 WB at 166 mm in St. Francis County due to overturned semi.
- 11:13 p.m. – I-55 NB at 21mm at a standstill.

Wednesday

- 1:48 a.m. – I-55 open in both directions. Traffic moving.
- 4:43 a.m. – I-40 WB at 166mm moving after truck is removed.
- 4:57 a.m. – I-55 N of 21mm looks good. Waking truckers.
- Afternoon – AHTD sends crews from Batesville to Osceola.
### Annual Snow & Ice Removal Costs

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>$18,064,699.90</td>
</tr>
<tr>
<td>2013</td>
<td>$4,983,550.96</td>
</tr>
<tr>
<td>2012</td>
<td>$1,612,364.18</td>
</tr>
<tr>
<td>2011</td>
<td>$12,319,883.30</td>
</tr>
<tr>
<td>2010</td>
<td>$11,572,338.88</td>
</tr>
<tr>
<td>2009</td>
<td>$6,115,738.51</td>
</tr>
<tr>
<td>2008</td>
<td>$4,750,376.87</td>
</tr>
</tbody>
</table>
Crews were sent from Sikeston and Kewanee areas to work solely on I-55 from Hayti south.

8 belly plow trucks with 14’ front plows and 12 cubic yard spreaders were dedicated to the 30 miles north of the state line. These trucks did not work any other highways.
✓ Missouri had one truck for every 15 lane miles on that section of Interstate 55.

✓ Missouri’s volume of equipment and materials allowed them to hit a given location once every 36 minutes.

✓ It took Missouri 31 hours to clear Interstate 55.
✓ We have a total of 8 trucks in Mississippi County
✓ None of the trucks have belly plows
✓ 8 trucks responsible for 418 lane miles
✓ That equates to 52 lane miles per truck
✓ With trucks and area of responsibility, we could only hit a given area once every 125 minutes
In comparison:

- There are 46 counties in Missouri’s southern two highway districts that border Arkansas.
- They have 570 belly plows those two districts.
- Arkansas has almost 700 trucks statewide, BUT
- Arkansas only has 6 belly plows.
In comparison:

- Missouri has 5100 employees
- Arkansas has 3600 employees
- Missouri receives $20,000 more revenue per mile
- Missouri’s annual budget is $2.8 billion
- Arkansas’ annual budget is $1.0 billion
New Belly Plow
**In comparison:**

- Missouri belly plows have spreaders that are operated and calibrated from cab
- Arkansas spreaders are turned on and off at rear of truck
- Missouri has 1,250 people to operate plows in south
- Arkansas has 1,400 people available statewide
What we have learned from meeting

- Missouri has comprehensive snow & ice removal plan
- Goal is to clear highways in as short a time as possible after precipitation ends
- Must be aggressive early to stay ahead of storm
- Publicize A, B, and C routes and clear them in that order
- A = Continuous Operation Routes (ADT’s above 2,500)
- B = Non-Continuous Operation Routes
- C = Cleared after A & B Routes
What we have learned from meeting

- Aggressive in moving people and equipment
- Use greater amounts of salt (often use it straight)
- Salt is pre-treated with beet juice
- Private weather service provides hourly forecasts
- Workers below a Resident Engineer can drive plow
- Hire seasonal employees during winter months
- Statewide snow drill in early November
Snow and Ice Removal Guide

Prepared by the Maintenance Division
2014
## Snow & Ice Removal Guide

### Implementation Needs

<table>
<thead>
<tr>
<th></th>
<th>Trucks</th>
<th>Plows</th>
<th>Spreaders</th>
<th>Salt</th>
<th>Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needed for Implementation</td>
<td>614</td>
<td>614</td>
<td>614</td>
<td>32,000 tons per storm</td>
<td>1750</td>
</tr>
<tr>
<td>Current Inventory</td>
<td>692*</td>
<td>362</td>
<td>420</td>
<td>TBD</td>
<td>1400</td>
</tr>
<tr>
<td>Balance of Needs</td>
<td>TBD</td>
<td>252</td>
<td>194</td>
<td>TBD</td>
<td>350</td>
</tr>
</tbody>
</table>
Average Age of AHTD Off-Road Equipment

Average Age (Years)


Year

Average Age of AHTD On-Road Equipment

Year

Average Age (Years)
6.25 6.48 6.81 6.79 6.93 7.19 7.35 7.70 8.11 8.58
Average Age of AHTD Equipment Fleet

Average Age (Years) vs. Year

- 2005: 10.52
- 2006: 10.58
- 2007: 10.87
- 2008: 10.71
- 2009: 11.00
- 2010: 11.22
- 2011: 11.39
- 2012: 11.65
- 2013: 11.96
- 2014: 12.22

$21.7 mil
<table>
<thead>
<tr>
<th>Years</th>
<th>Normal Maintenance Expense Allotted</th>
<th>Between Allotment &amp; Requested</th>
<th>Normal Maintenance Expense Request</th>
<th>Percentage of Previous Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>$25,887,000</td>
<td>0</td>
<td>$25,887,000</td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>$28,512,000</td>
<td>0</td>
<td>$28,512,000</td>
<td></td>
</tr>
<tr>
<td>1987</td>
<td>$31,328,000</td>
<td>$1,014,357</td>
<td>$32,342,357</td>
<td>9.88</td>
</tr>
<tr>
<td>1989</td>
<td>$28,185,000</td>
<td>$5,346,294</td>
<td>$33,531,294</td>
<td>0.01</td>
</tr>
<tr>
<td>1990</td>
<td>$25,355,000</td>
<td>$19,241,316</td>
<td>$44,596,316</td>
<td>-10.04</td>
</tr>
<tr>
<td>1991</td>
<td>$27,800,000</td>
<td>$18,063,518</td>
<td>$45,863,518</td>
<td>9.64</td>
</tr>
<tr>
<td>1992</td>
<td>$29,672,000</td>
<td>$16,400,070</td>
<td>$46,072,070</td>
<td>6.73</td>
</tr>
<tr>
<td>1993</td>
<td>$29,672,000</td>
<td>$17,322,530</td>
<td>$46,994,530</td>
<td>0.00</td>
</tr>
<tr>
<td>1994</td>
<td>$31,157,000</td>
<td>$16,970,228</td>
<td>$48,127,228</td>
<td>5.00</td>
</tr>
<tr>
<td>1995</td>
<td>$32,841,000</td>
<td>$19,313,996</td>
<td>$52,154,996</td>
<td>5.40</td>
</tr>
<tr>
<td>1996</td>
<td>$36,036,500</td>
<td>$19,439,291</td>
<td>$55,475,791</td>
<td>9.73</td>
</tr>
<tr>
<td>1997</td>
<td>$38,561,000</td>
<td>$18,821,219</td>
<td>$57,382,219</td>
<td>7.01</td>
</tr>
<tr>
<td>1998</td>
<td>$38,129,079</td>
<td>$20,860,224</td>
<td>$58,989,303</td>
<td>-1.12</td>
</tr>
<tr>
<td>1999</td>
<td>$37,010,788</td>
<td>$25,270,469</td>
<td>$62,281,257</td>
<td>-2.93</td>
</tr>
</tbody>
</table>
## Maintenance Budget  *Allotments vs. Needs*

<table>
<thead>
<tr>
<th>Years</th>
<th>Maintenance Expense Allotted</th>
<th>Between Allotment &amp; Requested</th>
<th>Maintenance Expense Request</th>
<th>Percentage of Previous Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>$38,647,500</td>
<td>$24,164,934</td>
<td>$62,812,434</td>
<td>4.42</td>
</tr>
<tr>
<td>2001</td>
<td>$40,145,041</td>
<td>$23,489,894</td>
<td>$63,634,935</td>
<td>3.87</td>
</tr>
<tr>
<td>2002</td>
<td>$42,203,050</td>
<td>$24,620,204</td>
<td>$66,823,254</td>
<td>5.13</td>
</tr>
<tr>
<td>2003</td>
<td>$42,152,250</td>
<td>$24,758,551</td>
<td>$66,910,801</td>
<td>-0.12</td>
</tr>
<tr>
<td>2004</td>
<td>$43,498,547</td>
<td>$25,598,219</td>
<td>$69,096,766</td>
<td>3.19</td>
</tr>
<tr>
<td>2005</td>
<td>$44,860,153</td>
<td>$29,627,850</td>
<td>$74,488,003</td>
<td>3.13</td>
</tr>
<tr>
<td>2006</td>
<td>$44,860,153</td>
<td>$32,039,114</td>
<td>$76,899,267</td>
<td>0.00</td>
</tr>
<tr>
<td>2007</td>
<td>$46,603,160</td>
<td>$40,896,979</td>
<td>$87,500,139</td>
<td>3.89</td>
</tr>
<tr>
<td>2008</td>
<td>$47,540,096</td>
<td>$44,016,576</td>
<td>$91,556,672</td>
<td>2.01</td>
</tr>
<tr>
<td>2009</td>
<td>$49,507,000</td>
<td>$44,386,930</td>
<td>$93,893,930</td>
<td>4.14</td>
</tr>
<tr>
<td>2010</td>
<td>$52,477,420</td>
<td>$57,691,234</td>
<td>$110,168,654</td>
<td>6.00</td>
</tr>
<tr>
<td>2011</td>
<td>$55,399,000</td>
<td>$62,667,141</td>
<td>$118,066,141</td>
<td>5.57</td>
</tr>
<tr>
<td>2012</td>
<td>$58,168,950</td>
<td>$53,522,275</td>
<td>$111,691,225</td>
<td>5.00</td>
</tr>
<tr>
<td>2013</td>
<td>$61,078,500</td>
<td>$47,068,470</td>
<td>$108,146,970</td>
<td>5.00</td>
</tr>
<tr>
<td>2014</td>
<td>$65,353,995</td>
<td>$49,768,556</td>
<td>$115,122,551</td>
<td>7.00</td>
</tr>
</tbody>
</table>
Maintenance Budget  Allotments vs. Needs

[Bar graph showing maintenance budget allotments vs. needs from 1987 to 2013. The graph indicates a significant increase in the needs compared to actual allotments, with the red bars representing needs and the green bars representing allotments. The total needs for fiscal year 2013 are $115,122,551.]
Lessons Learned

✓ Communications from roadway to districts & Administration must improve

✓ Be more aggressive in moving equipment & personnel

✓ Be more aggressive when considering closing major highways
Lessons Learned

✓ Require cross-training of employees so more can operate snow plows

✓ Major highways are priority, but secondary roads can’t be neglected

✓ Extended cold temps will complicate a manageable snow & ice event
Lessons Learned

✓ There is no magic potion:
  - Beet Juice
  - Potato Mash
  - Salt
  - Salt Brine
  - Calcium Chloride

✓ It takes muscle (equipment & people)
Where do we go from here?
Where do we go from here?

- Repair existing winter damage
- Foster & expand a culture of mutual assistance
- Purchase 12 belly plow trucks
- Construct regional salt storage facilities
- Pursue equipment upgrades
- Snow & Ice line item in budget
- Assist with humanitarian aid
Item 2
Other Business and Discussion
Arkansas State Highway Commission Meeting
Tuesday, March 11, 2014