WESTERN MICHIGAN UNIVERSITY
SNOW REMOVAL PLAN

Tim Holysz, Director
FM Landscape Services
Kalamazoo, MI
Outline

- Overview
- Street Plan
- Parking Lot Plan
- Sidewalk, Step, and Entrance Plan
- Special Needs Accommodations
- Emergency Procedures
- Resources
Campus Snow Removal
What We Do

- 120 acres of parking surface
- 26.5 lane miles of streets
- 39 miles of sidewalk
- 75,000 square feet of steps
- 200,000 square feet of handwork
- 72” average snow fall
- 3” to 6” average snow event
Assets

- **Equipment**
  - 5 end loaders w/14” blades
  - 2 trucks w/de-icing application equipment
    - Under carriage blades to scrape pavement bare
  - 8 pick up trucks
    - 4 w/salt boxes
    - 2 w/anti icing tanks
  - 2 Bobcats and 1 ToolCat
  - 2 tractors w/buckets or blades
Sidewalk Snow Removal Equipment
Why We Do It

- Purpose of our plan
- Safety and efficiency
- Mission Statement
- Organization, coordination, and flexibility
- Increase the coefficient of friction
24 Hour Coverage

- All roads 24/7
- Lots, 9 p.m. to 7 a.m.
- Sidewalks, morning crew 3 to 11:30 a.m.
- Sidewalks, afternoon crew 11 a.m. to 8:30 p.m.
  - Monitor streets
  - Service for evening events
  - Begin lot plowing
- Hand shovelers, 6 a.m. to 2:30 p.m.
- Friday, Saturday, Sunday coverage 6 a.m. to 2:30 p.m.
Identify and Prioritize Streets

- What type of street?
- What is it used for?
- How often is it monitored?
- Describe the plan
  - Primary routes patrolled 1/hour, 24/7
  - Primary routes move traffic around campus
  - Secondary routes (interior feeders) off the ring roads to buildings and lots
Parking Lots

- Set priorities
  - Faculty/staff lots
  - Primary visitor lots
  - Dining service loading docks and courts
  - Student commuter lots
  - Apartment and residence hall lots

- Describe the scope of the work
  - Over 100 lots
  - 120 acres of parking surface
  - Over 13,000 spaces
Sidewalk, Step and Entrance Plan
Strategy

- What/where?
  - Describe scope

- Who?
  - Publicize assignments

- Who?
  - Snow work schedules
Majority of light equipment operators work 3 to 11:30 a.m. Monday through Friday
Two are assigned a night shift
One works 3 afternoons plus weekend days
Additional operators have been trained for extra support when needed
Hand shoveling crews work 6 a.m. to 2:30 p.m.
Major snow events alter schedules and increase staff
Snow Shoveling
Snow Shoveling Details

- Identify steps by location
- Step closures
- Reduced coverage on weekends
- Accessible entrances identified
- See attached schedule example
Special Needs/Accommodations
Special Needs

- Attempt to contact disabled students and staff
  - Notice published in WMU News
  - Disability Student Services office contacts clients

- Accommodations
  - Ensure pathways are cleared
  - Inform students of available pathways

- Add information into Snow Plan
Mobility Access Entrances
Emergency Procedures
Emergency Response

- Identify highest priority lots, streets, and walks
- Authorize/pre-plan altered work schedules
- Contact staff via mobile phone or radio?
- Procedure for DPS to contact staff
- Weather forecasting system
  - Up to the minute weather and forecasts
  - Improve planning for major and minor events
Example

- Alter crew schedules/call-in’s/12 hour shifts
- Prioritize lots by
  - Usage, essential services/staff/faculty
  - Location
- Identify major campus street routes
  - Ring road
- Build plan around institution’s emergency snow policy
Identify major routes
- Linking essential buildings to parking
- Linking essential buildings to each other

Identify routes to link campus with
- Local community
- All major buildings within campus

Promote pedestrian/non-motorized transportation efforts
## Salt Usage Summary

<table>
<thead>
<tr>
<th>Season</th>
<th>Snow Total</th>
<th>Salt Used</th>
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<tbody>
<tr>
<td>2006-07</td>
<td>76.5”</td>
<td>1,740 ton</td>
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<tr>
<td>2007-08</td>
<td>95”</td>
<td>1,710 ton</td>
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<tr>
<td>2008-09</td>
<td>126”</td>
<td>1,403 ton</td>
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<tr>
<td>2009-10</td>
<td>80”</td>
<td>1,184 ton</td>
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<tr>
<td>2010-11</td>
<td>79”</td>
<td>1,248 ton</td>
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<tr>
<td>2011-12</td>
<td>54.5”</td>
<td>927 ton</td>
</tr>
<tr>
<td>2012-13</td>
<td>64”</td>
<td>1,100 ton</td>
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Reductions/savings are a direct result of pre-wetting bulk salt w/beet juice
Beet Juice as Snow Removal Tool

- Environmentally friendly, 100% organic
- Lower overall lane mile cost, salt usage drops
- Proven residual effect
- Begins de-icing process immediately
- Reduces bounce and scatter
- Improves melting efficiency rinses solids concentration
- Helps prevent black ice
- Prevents salt piles from clumping and freezing
Beet Juice Application
<table>
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<tr>
<th>Season</th>
<th>Snowfall Total</th>
<th>Streets &amp; Lots</th>
<th>Walks</th>
<th>Total Complaints</th>
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*80/20 mix brine/beet juice on walks  **Pre-wetted all bulk salt ***Continued anti-icing walks w/80-20 mix brine/beet juice
Resources

- Weather Service
- City and county contacts
- Contractors pre-arranged for help
- Payment contracts in place
- Tools, equipment, materials, vendor contacts w/purchase protocols in place
SKYGUARD RAIN TURNING TO ICE WARNING 0719
Prepared exclusively for Western Michigan University

Start Time: Sun, 01/13/2013, 04:00 AM EST
Expire Time: Sun, 01/13/2013, 08:00 AM EST

Locations: Kalamazoo, MI

Conditions: Rain Turning to Ice

Comments:
Rain will overspread the area later tonight. Rain will turn to a period of freezing rain and some sleet very late tonight, then end as a few flurries or freezing drizzle Sunday morning. There can be a small accumulation of sleet, but the main concern is freezing rain. The heaviest precipitation will be plain rain while temperatures are still above freezing through most of tonight.

Total Ice Accumulation: TR-0.05 inches.

Rain Type: Freeze [26-32].

Effect of Rain: Make Roads Icy and Icing on Trees/Powerlines.
Untreated Road Conditions: Main roads: Icy in Spots and Wet.
Secondary roads: Icy in Spots and Wet. Icing on bridges.

Low tonight 32. High tomorrow 35.

Contact:
If you have weather-related questions, please call (814) 235-8721
Your AccuWeather SkyGuard Meteorologist is Carl Erickson.

Issued Time: Sat, 01/12/2013, 01:44 PM EST
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Chemical Tools

- De-icing/anti-icing techniques
- What is used and where
- List suppliers
  - Phone contacts
  - Costs
  - Contract numbers
- Application equipment
  - Spreaders for pick-ups/dump trucks
  - Liquid dispensing equipment
Chemical Tools - 2
Summary and Conclusion

- Organize response to inclement weather
- Set goal to clear campus before students arrive
- Complete coverage details
- Identify problems
- Identify resources