



Holland's Snowmelt System

Michigan Winter Operations Conference

Dan Sorek, PE
October 17, 2013
Gaylord, MI

Background

- City of Holland
 - Since 1867
 - Tulip City
 - Population: 33,279 (2012)
 - Immediate metro population >100,000
 - Area: 17.35 mi²
- Board of Public Works
 - Since 1893
 - 2nd Largest Municipal Electric Utility in Michigan

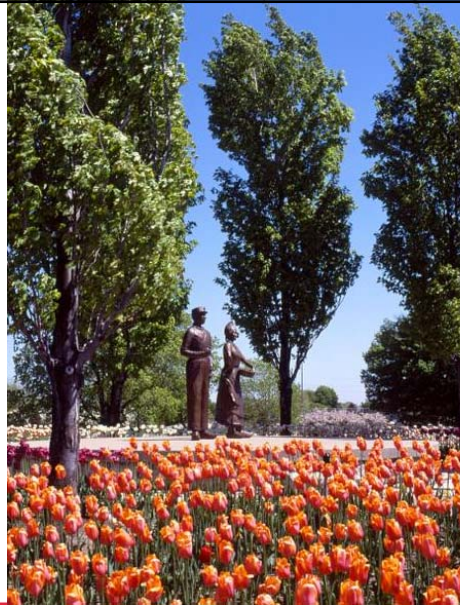


Winter Operations Conference
October 17, 2013



Background

- 35 Years as Tree City USA
- 3-Time America in Bloom Winner
- Prettiest Town in America (Forbes Magazine)
- #2 Happiest Healthiest Place to Live in America (Gallup-Healthways Well-Being Index)
- Top Five Best Places to Retire (Money Magazine)
- All America City (National Civic League)
- Top Five Safest Cities in US (Forbes Magazine)
- Great American Mainstreet (National Trust for Historic Preservation)



Winter Operations Conference
October 17, 2013



History

- Mid 1980's
- New Mall
- Urban Sprawl
- Big Box Stores



Winter Operations Conference
October 17, 2013



History

- Streetscape Project
- Infrastructure Improvements
- Added Parking
- Many local business owners



Winter Operations Conference
October 17, 2013



History

- Edgar D. Prince
(1931-1995)
 - President of Prince Corporation
 - BPW Board Member 1978-1982
 - Owner of many downtown properties



Winter Operations Conference
October 17, 2013



Proposal

- Snowmelt idea from Europe
- Expanded Idea to all of Downtown
- Many Unknowns
- Assessment District
- Not Universally Accepted
- Private Donation to Maintain Affordability
- Public-Private Collaboration

Winter Operations Conference
October 17, 2013



Proposal

- Approval, Financing and Design
- Short Time Line!
- Limited Construction Window
- Full Reconstruction all utilities, new curb & gutter

Winter Operations Conference
October 17, 2013



Design

- Feasibility
- Additional \$1.1M to Install on top of \$3M Streetscape Project
- Supplied by Waste Heat from BPW Coal Plant
- Heat Exchangers Installed to Ensure Reliability



Winter Operations Conference
October 17, 2013



Design

- Initial install on 3 blocks downtown
- Storefront to Storefront
- Wirsbo Meltaway® System selected
- 1" PE Tubing w/ 6" Spacing
- Melt 1" of Snow/Hour @ 20° F &



Winter Operations Conference
October 17, 2013



Construction

- Last Utility Installed
- Two 12" lines down the middle
- Supply & Return placed next to each other

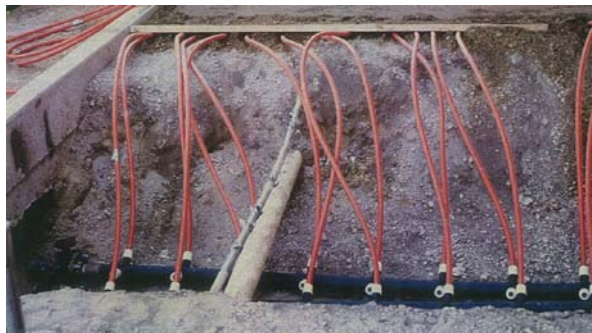


Winter Operations Conference
October 17, 2013



Construction

- Manifolds Buried in the Street
- Valves Buried in Valve Boxes



Winter Operations Conference
October 17, 2013



Construction

- Gravel/stone subbase
- Tubing
- Gravel/Stone base with Pavement over top
- Sand base with brick pavers over top



Winter Operations Conference
October 17, 2013



Extensions

- First major extension occurred in 2004
- New Farmer's Market
- New Police Station & Court Building
- Design Revised



Winter Operations Conference
October 17, 2013



Extensions

- 18" Transmission Main Loop
- Added Capacity
- Allowed better circulation and Reliability



Winter Operations Conference
October 17, 2013



Costs

- Roughly \$2M in Capital Costs
- \$50k annual operating costs
- \$7k annual maintenance costs
- \$40k collected through special assessments



Winter Operations Conference
October 17, 2013



Maintenance

- System is charged with City Water
- Annually Flush what we can
- Design/Repair/Replace poor performing areas



Winter Operations Conference
October 17, 2013



Maintenance

- Possible to maintain
- Bricks Removed & Replaced
- Move out of way, re-install with wire mesh for spacing



Winter Operations Conference
October 17, 2013



Lessons Learned

- Access to Tubing
- Valving and Flushing
- System Design Limits
- Stairs
- Private Systems



Winter Operations Conference
October 17, 2013



Benefits

- No Snow Removal
- Extended Pavement Life
- Extended Brick Paver Life
- No Salt/Sand/Deicer
- Reduced Slip & Fall Liability
- Many Winter Activities Downtown
- Added Customers during Down seasons
- Reduced wear inside retail stores
- Sustainable Practice
- Recruiting



Winter Operations Conference
October 17, 2013

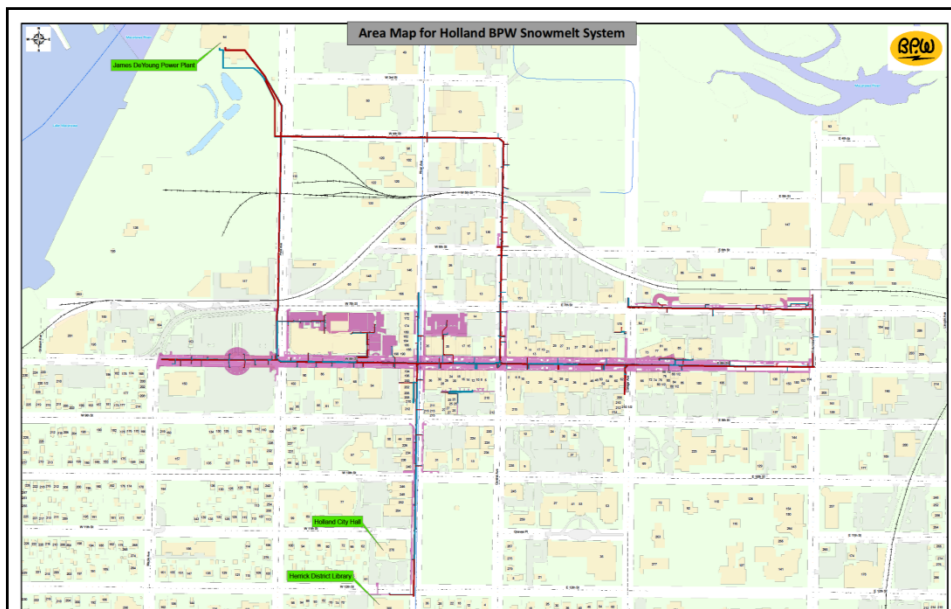


Today

- 100 Zones
- 450,000 ft² Treated
- 9 miles of transmission & distribution piping, 2"-20"
- 1,750 loops
- 4,000 GPM
- 40,000 MBH (1,000 BTU/hour)
- 80 BTU/ft²-hour



Winter Operations Conference
October 17, 2013



Winter Operations Conference
October 17, 2013



Future

- New \$190 Million CCGT Power Plant to be Built
- Expand Capacity of Snowmelt up to 5 times current size
- Old coal plant to be retired to peaker station
- New Utilities including District Heating and Reclaimed Water



Winter Operations Conference
October 17, 2013



Special Thanks

- Michigan Winter Operations Conference
- [Downtown Holland](#)
- [West Coast Chamber of Commerce](#)
- [Holland Area Convention & Visitors Bureau](#)
- Riverview Group
- [Quality Air](#)
- [Wirsbo](#)
- [City of Holland](#)
- [Holland Board of Public Works](#)
- [Johnson Controls](#)
- [Lumir Corporation](#)

Winter Operations Conference
October 17, 2013



Questions

Contact Information:

Dan Sorek, PE
Superintendent of Water/Wastewater Services
Holland Board of Public Works
Direct: 616.355.1644
Cell: 616.218.2940
Email: dsorek@hollandbpw.com
www.hollandbpw.com

Winter Operations Conference
October 17, 2013

