Holland’s Snowmelt System

Michigan Winter Operations Conference

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Background

• City of Holland
  – Since 1867
  – Tulip City
    • Immediate metro population >100,000
  – Area: 17.35 mi²
• Board of Public Works
  – Since 1893
  – 2nd Largest Municipal Electric Utility in Michigan
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)

History

- Mid 1980’s
- New Mall
- Urban Sprawl
- Big Box Stores
History

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

History

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

Proposal

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

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 &
Construction

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

Construction

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

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

Extensions

• First major extension occurred in 2004
• New Farmer’s Market
• New Police Station & Court Building
• Design Revised
Extensions

• 18” Transmission Main Loop
• Added Capacity
• Allowed better circulation and Reliability

Costs

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

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

Maintenance

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

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

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
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
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

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
Questions

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