

An aerial photograph of a city street in Holland, Michigan, during winter. The street is covered in snow, and the surrounding buildings and parking lots are also snow-covered. The sky is overcast. The text "Snowmelt System in Holland, Michigan" is overlaid in white on the image.

Snowmelt System in Holland, Michigan

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Introduction

Brief overview of
the snowmelt
system

Importance of
snow-free streets
and sidewalks
during winter



History of Snowmelt in Holland

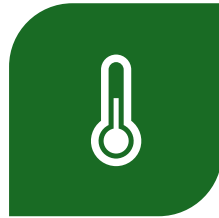
- The late 80's and 90's brought a need to revitalize Downtown Holland
- Downtown Holland business owners rallied together with the City and the BPW to develop a plan that focused on parking, pedestrian friendly streets and new utilities
- Holland native and Prince Corporation founder, Edgar Prince, approached the city about an idea he had seen used in Europe – a snowmelt system for the streets and sidewalks
 - The idea was bold but was backed by both the City, BPW and business owners
 - Prince even put up the first \$250,000 of his own money toward the \$1.1 million project



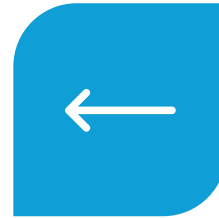
How It Works



UTILIZATION OF WASTE
HEAT FROM THE HOLLAND
BOARD OF PUBLIC WORKS
(BPW) POWER PLANT



WATER HEATED TO 95
DEGREES FAHRENHEIT



CIRCULATION THROUGH
400 MILES OF TUBING
UNDERNEATH
DOWNTOWN HOLLAND



HEATED WATER PASSES
THROUGH DISTRIBUTION
PIPES AND VALVES TO A
SYSTEM OF $\frac{3}{4}$ " TUBES
SPACED EVERY 6"
UNDERNEATH STREETS
AND SIDEWALKS.



THE SYSTEM CAN MELT 1"
OF SNOW PER HOUR AT 20
DEGREES WITH A 10-MPH
WIND



Where to get the heat from?



Holland caught a huge break at the outset when it came to installing a snowmelt system: its municipal coal powered power plant was located downtown, so they could use the circulating water from the waste heat rather than a boiler system. Water initially came from Lake Macatawa, but now the city uses potable water from Holland Energy Park, which opened in 2017



Switching to the natural gas plant also makes it possible to expand the system to four times the size it is now





Cost to build and keep going

- \$300 per square foot for transmission
- \$40 per square foot for distribution
- Rather than charging residents for the snowmelt system, the city places an assessment on businesses that directly benefit from it; the rate this year is 52 cents per square foot
- Water circulates throughout the system year-round. For comparison's sake, the energy charge was \$2,460 in February but only \$27 in August last year
- Holland gets an average of 70+ inches of snow per year



System Details



Closed system: Water circulates repeatedly



The sidewalks above the snowmelt system consist of brick pavers rather than cement so leaks can be more easily repaired, and sand gravel helps absorb water when the snow melts



Transition to using potable water for reduced sediment and valve wear



Total area of road and sidewalk melted is approx. 1,050,000 square feet or about 24 acres or 8 miles



Benefits

1

No salt, sand or de-icer needed

No plowing or snow removal required

No snowbanks

2

Enhanced safety for pedestrians and drivers

Increased downtown winter activities

3

Extended pavement life

Extended brick paver life

Reduced wear inside retail stores

Impressive Scale

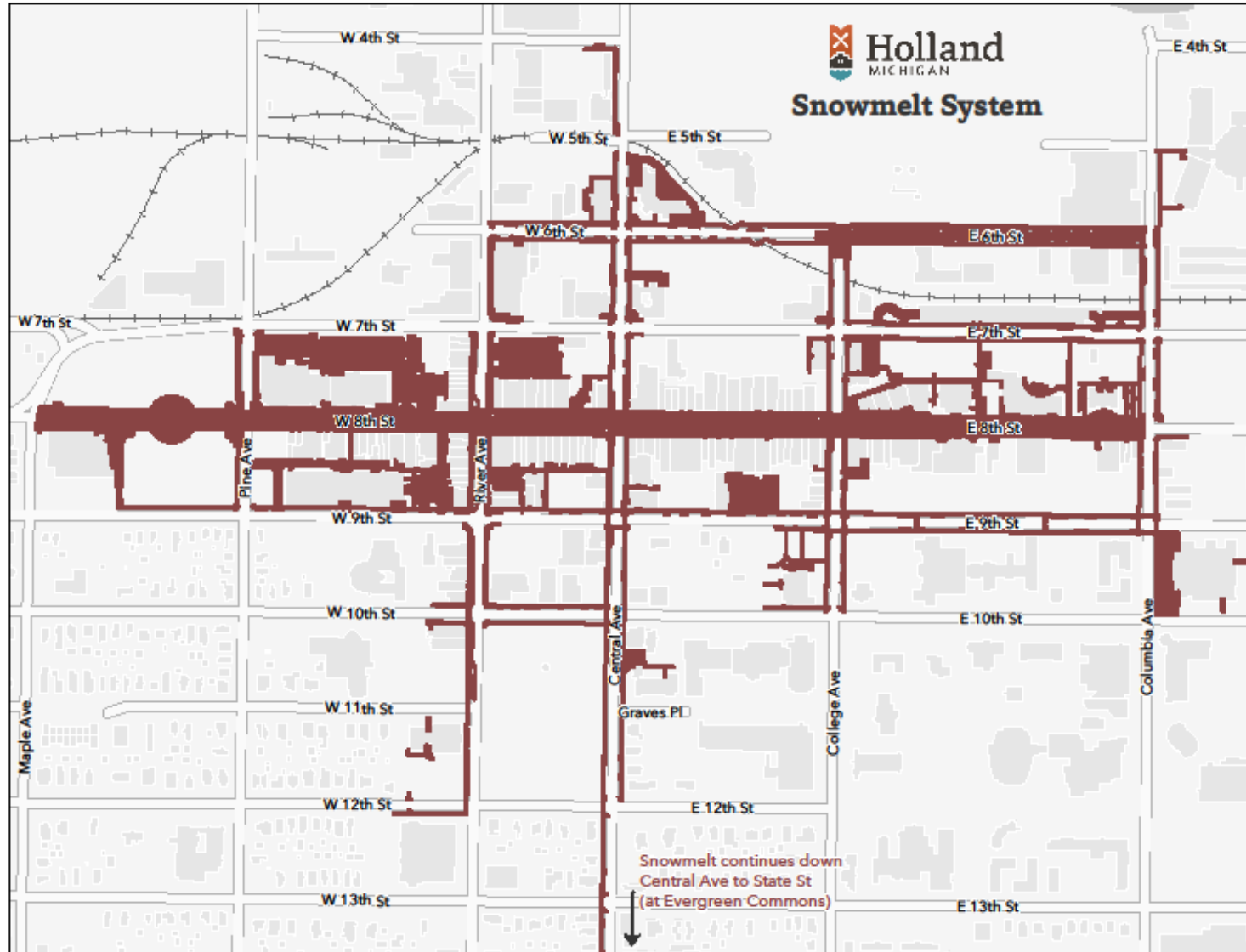
Publicly-owned system: 860,000 square feet of heated sidewalks and streets

Privately-owned systems: 190,000 square feet heated with water from City snowmelt mains

Largest municipal snowmelt system in North America



Snowmelt coverage map





Holland
MICHIGAN

Conclusion

APPRECIATION FOR INNOVATION AND COMMUNITY WELL-BEING. REDUCED AMOUNT OF SALT USED AND MINIMALIZES ROAD DAMAGE FROM PLOWS

HOLLAND'S COMMITMENT TO WINTER COMFORT AND SAFETY. TO HELP PROMOTE A MORE VIBRANT DOWNTOWN SHOPPING AND DINING EXPERIENCE NO MATTER THE WEATHER





BLU VERANO
FARMACIA

WELCOME

NAUTILUS



JEWELER
EST. 1900

RIVERVIEW

