

Harnessing Energy Underground

Short-term Pain for Long-term Gain at NMC's Cherry Lot

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Students and faculty commuting to NMC's Front Street Campus have been competing for 287 fewer parking spots this fall due to the Cherry parking lot closure.

While frustration and late class arrivals have given way to resignation as everyone gets settled into their fall semester routines, the question remains: what is going on over there?

The parking lot was demolished in May to allow for the installation of an underground network of piping—a borefield—that will be part of a new geothermal heating and cooling system serving five campus facilities. Since then, contractors have been operating drilling rigs non-stop to bore holes 465 feet deep and placing 38 looping miles of 14-inch diameter High-Density Polyethylene (HDPE) pipe that will connect to Osterlin, Health and Science, Les Biederman, and Tanis buildings as well as Scholar's Hall.

Why Geothermal

In 2021 NMC started investigating a sustainable replacement for the aged, fossil fuel powered heating and cooling systems in five of its campus buildings. Geothermal emerged as the best alternative energy solution because it is extremely efficient, environmentally responsible, and will have a low life cycle cost.

"Geothermal is basically harnessing the energy in the Earth. Of all the types of renewables that we have, this is the most consistent," said Tiffani Wilke, Professor of Meteorology and Environmental Science at NMC.

Temperatures underground remain steady throughout the year at about 50 to 60 degrees Fahrenheit. The miles of piping beneath the Cherry Lot will circulate a liquid solution, which will absorb heat from the ground and bring it indoors during the winter, or transfer heat from indoors into the cooler earth during the summer, Wilke explained.

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Consistent temperatures that come with a geothermal system is one reason why Patrick Quinlan, NMC's Facilities Director, is "very excited about it". Students and faculty will experience a better indoor environment in these buildings contributing to quality of life. As a result, he anticipates fewer hot and cold calls for Facilities staff to address.

NMC's new geothermal system is already paying dividends in the community. Wilke pointed out that while her students are frustrated with the current parking situation "they have been really excited about the college really doing something environmentally."

Cherry Lot Reopening

This geothermal project is being completed in multiple phases. The borefield installation and Cherry Lot reconstruction constitute Phase 1, which is scheduled to be completed by November 1st according to Quinlan.

Quinlan added that students can look forward to the same amount of parking spots, new curbing, and a surface free of potholes in the restored lot. A small



manifold building with storefront windows toward the back of the lot will be constructed to showcase color coded borefield pipes, and placards will be posted for educational purposes.

More Work Ahead

In May 2027, Phase 2 will commence where contractors will connect the borefield pipes to the five campus buildings. This work will require Scholar's Hall, Health and Science, Les Biederman, and Tanis buildings to close over the summer. Plans are for staff, faculty, and students to relocate to the Osterlin building during that time. Contractors will connect the Osterlin building to the geothermal system after it is running in the other four facilities.

Once the new heating and cooling is fully online, NMC will retire four steam boilers that have been heating the five campus facilities for upwards of 50 years. The boilers and the Power House where they reside are slated for demolition. The site, which sits between the Osterlin building and Cedar lot, has potential to become additional parking once it is restored according to Quinlan.

Wilke takes her Environmental Science students on field trips to visit renewable energy systems in the area, like the solar farm on M-72, and small wind turbines in a few parks. She is now looking forward to including the college's own geothermal system in these trips as well.



TOP CENTER & RIGHT: WORKERS COMPLETING ABOVE GROUND CONSTRUCTION, CHERRY LOT

BOTTOM CENTER; UNDERGROUND PIPING AT CHERRY LOT

Photos courtesy of AUSTIN STARKEY.