

# CHRONICLEONLINE

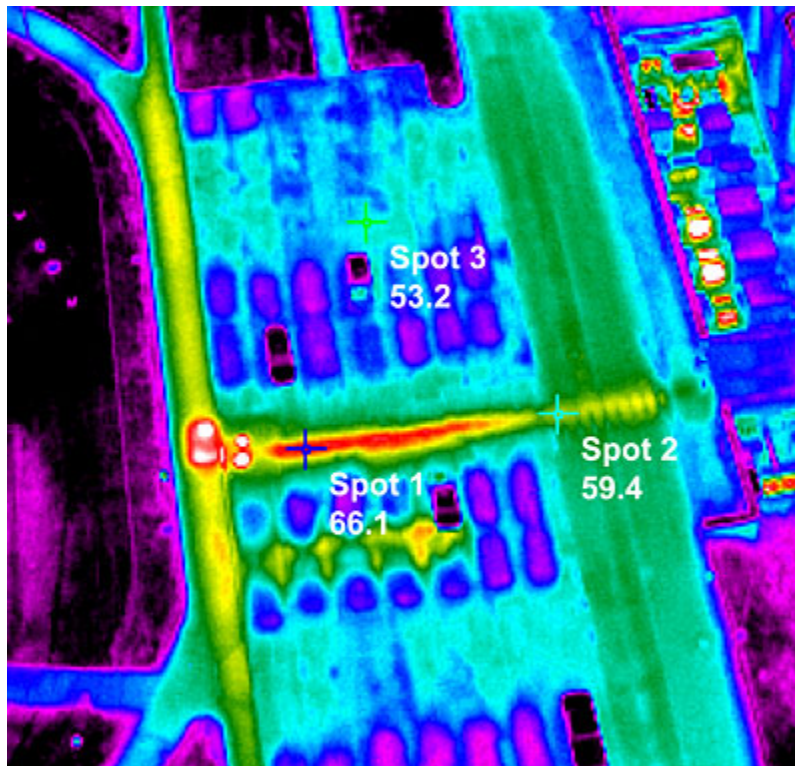
Nov. 15, 2011

## Helicopter to buzz campus in search of heat leakage

Campus residents may find it a bit noisy one evening next week. A helicopter fitted with an infrared camera will be criss-crossing the campus looking for leaks in Cornell's 25 miles of high-pressure steam heating pipes. Heat escaping from the system warms the ground, and the camera picks up the hot spots.

"This is a check before winter to find out if there are any problems with the system," said Frank Perry, project manager for Utilities Services in the Division of Facilities Services. "It will show you where insulation is beginning to fail or you might have a leak and helps us plan for future renewal of the system." The flights are conducted every two or three years.

"I think of this as the red light on the dashboard," added Andy Andersen, project coordinator for Utilities Services. "You'll always pick up something you didn't know about."



This 2005 infrared flyover image shows a hot spot above a steam heating pipe leading into Wilson Synchrotron Lab (red color shows highest temperature). The line has since been replaced.

Flying at 500 feet for about an hour, the helicopter, operated by Mid-Atlantic Infrared Services Inc. will follow a GPS path based on the digital campus utility map. The utility mapping system tracks not just steam pipes, but the 86 miles of electrical cable, 50 miles of sanitary and storm piping, 36 miles of potable water pipes, 18 miles of chilled water piping, NYSEG gas pipes, and all the CIT cables that run beneath the campus. They serve more than 300 buildings with almost 14 million square feet of space.

The problems uncovered can be serious. An expansion joint leak discovered under the Bailey Hall parking lot a few years ago could have interrupted heat service to a significant portion of the campus had it not been discovered.

"The whole parking lot was hot on the infrared image and there were no other signs," said Andersen. "That line

Media Contact:  
Claudia Wheatley  
(607) 255-9451  
[caw43@cornell.edu](mailto:caw43@cornell.edu)  
Cornell Chronicle:  
George Lowery  
(607) 255-2171  
[gpl5@cornell.edu](mailto:gpl5@cornell.edu)  
Related  
Information:  
[Facilities Services](#)

Share:

- [Twitter](#)
- [Digg](#)
- [Reddit](#)
- [del.icio.us](#)
- [Google](#)
- [Yahoo! MyWeb](#)
- [Facebook](#)
- [MySpace](#)
- [StumbleUpon](#)

is absolutely critical to heating the campus during the winter."

Leaks translate into wasted dollars, added Andersen. Once they know the temperature at the surface of a leak, he said, they can use that information to determine the financial cost of the leak over time. There are also safety issues. Hot spots during winter can cause water to freeze and thaw, resulting in ice on walkways.

The efficiency of the campus heating system has improved greatly since infrared examinations began 35 years ago. Some pipes date to 1914, when there were several steam systems on campus and a number of buildings had their own furnaces. Today's campuswide system was constructed in 1922.

"If you look at the infrared work we did early on, the whole campus is red," said Andersen. "Leaks and condensate were all over the place. If you compare that to what we see today, you see how much we have improved the system over the years."

Perry says patience is a necessary part of planning for the infrared flights. The criteria for a successful flight are many, including dry ground, leafless trees, no rain or snow, and little wind, which can cool the ground surface. It's a challenge, especially in late autumn in upstate New York, and explains why they pick a week rather than a specific day to pull it off.

"It's a short-notice job," he said. "If the weather is right, we do it today."