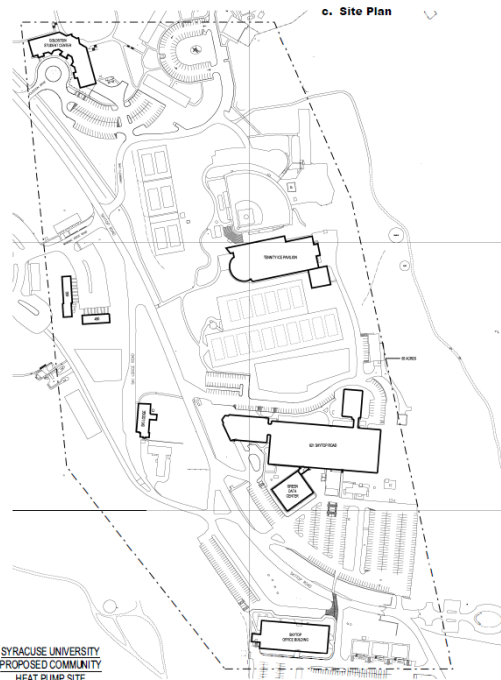


**Syracuse University
Category A Feasibility Study
NYSERDA PON 4614**

Onondaga County

Technical Lead: M/E
Engineering

Anticipated completion of
study/availability of final
report: February 2022



V1 6/2021

The Site & Beneficiaries

Syracuse University is an existing educational campus with 300 buildings. Some buildings are served by a centralized thermal system, and other buildings have their own individual heating system mostly consisting of natural gas-fired steam boilers. A subset cluster of eight buildings, collectively 300,000 square feet, will be analyzed to explore district-style heat pumps. These 8 buildings have diverse occupancy patterns and thermal load profiles, consisting of office buildings, data center, ice rink, restaurant, and apartments. One building has an existing heat pump which was installed many years ago. The analysis will quantify the peak of the composited thermal load and compare to the sum of the individual peaks in order to assess the load-flattening benefits of aggregating into a district.

Potential Thermal Resources

The primary opportunity anticipated will leverage heat recovery heat pumps to move heat from one building to another, and supplemental thermal resources if needed could include ground-coupled boreholes. Drilling of a test bore is included in the effort.

Potential Configuration

Will explore 4G design, consisting of a central Thermal Building which houses the heat pumps and from which hot water and chilled water will be distributed via conveyance pipes to the end-use buildings (simple radiators can be used in the end-use buildings). Benefits of this configuration include: opportunity to integrate with existing thermal infrastructure and use the heat pumps as the first-call (reserving the fossil fuel systems as supplement to meet extreme peaks or for systemwide redundancy for resilience): focusing the location where electric infrastructure upgrades are needed to meet the expanded electrification demand to occur at the Thermal Building (as opposed to at the end-use buildings) to minimize disruption to mission-focused activities during construction; and cost containment.