Utilities on the main campus that are included in this analysis are described below.

- Primary electric distribution system: the Physical Plant operates a distribution system serving all buildings on the main campus. The campus system is connected to WE Energies via substations located on the campus. The AE is expected to work with the Physical Plant staff to obtain location, size, age, material, load and circuit information on the existing system.

- Signal/IT/telecom: the Computer Science Department (academic) operates a distribution system serving all buildings on the main campus as well as Kenilworth, GLRF, and Saukville. The IT infrastructure on the main campus – duct system and cabling -- was inventoried in 2004 for use planning future projects. This report will be supplied to the AE team.

- Steam – Condensate: the Physical Plant operates a central plant providing steam heating to all buildings on the main campus. A portion of the campus is served by low-pressure steam. The AE will analyze current performance and cost of operating this system and determine the cost and optimum extent of the service area for low-pressure steam. The campus is currently completing 2 studies on the steam tunnel system. One study is looking at the ongoing problems with groundwater in the tunnels and recommending a solution. The other study is looking at the current condition of the steam and chilled water facilities in the tunnels and performance of these systems across the main campus. These studies will be supplied to the AE team along with modeling data. The AE will work with the physical plant staff to verify locations of existing mechanical site utilities.

- Chilled water: the Physical Plant operates a central plant providing chilled water currently cooling select buildings on the main campus. See the study information for the steam system. The AE will work with the physical plant staff to verify locations of existing mechanical site utilities.

- Condenser Water: The physical plant has a central plant using Lake water for heat rejection from the central chillers. This system consists of the lake water inlet and outlet in Lake Michigan and a remote pumping station near the lake. The AE will analyze the capacity of this Lake water system and identify improvements required to meet future demand scenarios.

- Compressed air: the Physical Plant operates a distribution system serving equipment in buildings on the main campus. Compressed air runs in the steam tunnels and box conduits. The current condition and performance of the compressed air system is also part of the steam and chilled water study. The AE will work with the physical plant staff to verify locations of existing mechanical site utilities.

- Domestic water: the Physical Plant is connected to the City of Milwaukee water system by separate service to each building or at meter pits and distributes water through the campus operated water system. The AE will work with the physical plant staff to verify locations of the existing water system and obtain information on the age, maintenance history and performance of the water system components. The system will be examined for adequate performance under anticipated daily use and fire conditions.
• Sanitary sewer: the Physical Plant is connected to the Milwaukee Metropolitan Sewerage System by separate service to each building or through the campus operated sewer system. The AE will work with the physical plant staff to verify locations of the existing sanitary sewer system and obtain information on the age, maintenance history and performance of the water system components. Some or all of the gravity system may need to be televised. Lift stations serving one or more buildings will be analyzed for remaining life, maintenance needs as well as potential growth in the service area. The system will be examined for adequate performance under anticipated daily use.

• Storm Water Management: the Physical Plant operates and maintains storm sewer system on the main campus. The storm sewer system is connected to the MMSD combined sewers in the City of Milwaukee and the Village of Shorewood. The AE will work with the physical plant staff to verify locations of the existing storm water system components and obtain information on the age, maintenance history and performance of the storm water system components. The system will be examined for adequate performance under a variety of storm events. The AE will also look at storm water management for the main campus. Several planning documents and studies are underway or have been completed by the campus and consultants. The AE will received copies or access to these documents for reference.

Utilities at the Columbia Hospital site currently serve only the hospital.

Utilities at Kenilworth, Saukville, University Services Building and GLRF typically serve only one or two buildings. For these locations, the AE will locate the existing utilities and determine the age, material, condition and capacity. Potential development for these sites will be identified and the AE will analyze the utility impacts on the attributes listed above.

The County site is currently undeveloped. The County facilities do include a central heating and cooling plant and electric distribution system.