

Importance of Utility Systems Master Planning in Campus Environment

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Utility systems are an essential component of a functional group of facilities in a campus environment. Often hidden and invisible, they are also the most overlooked, forgotten and neglected systems in a campus environment. These utility systems typically comprise of electrical, water, gas, centralized heating and cooling systems, sewer system, storm drain and telecommunications systems and are sized to meet the demands of the group of facilities existing in a campus environment.

Addition of new buildings on campus (usually dictated by academic and facilities master plans) are often planned and budgeted without considering the impact of these buildings on the current utility systems. In some cases, the budget fails to include either extension or upgrade of these utility systems to serve the proposed facilities.

Utility systems master planning is thus an essential effort and an important step towards creating an effective and useful planning tool in guiding a campus in not only expanding and maintaining these utility systems to support existing facilities but also support future facilities planned at the campus. Without a good utility master plan, utility expansion may not be sized properly for the added facility; utilities may be added and/or installed without proper isolation valves and tees, manholes, or junction boxes located where future connections may be required and utilities may be sized for only one particular facility without considering the need to serve future facilities planned in the area that might necessitate a larger size. Utility mains may even be routed through a future proposed facility site, which will require relocation when the future building is constructed. This not only results in extreme waste of campus resources and costs more to not only duplicate pipe runs or relocate mains, but also disrupts campus operation and sometimes takes buildings out of service for an extended period of time. Another primary reason utility master planning is required is the need to anticipate the demands on the utility system so that the required services are available when a new building comes online. Usually the utility system capacity increase and utility services expansions do not occur in conjunction with the construction of a new building. The master plan document determines the magnitude of the needed utility expansion, when the expansion must occur, and the budget required for the expansion.

An effective utility master plan should address (1) the existing condition, capacity, deficiency, redundancy, flexibility, routing and age of existing utility systems; (2) analysis of existing systems to identify capacities and upgrades to support existing and future facilities at the campus; (3) identifying cost effective options to modify/upgrade existing systems to support the needs of the current and future facilities at the campus; (4) identifying phasing of these upgrades and modifications to not burden the campus with the total upfront costs of supporting future facilities that are typically spread over a ten or a twenty year period, (5) Recommendations to

modify/upgrade these utility systems over the master plan period to support current and future facilities planned at the campus (6) specifications for proposed expansion of these utility systems to maintain consistency and standardization of materials and systems and (7) associated phased costs for each of the improvements.

An effective master plan thus helps a campus to not only plan and phase their utility systems upgrades, expansions and modifications to serve planned facilities at the campus but also help a) in siting the planned future facilities correctly resulting in reduced capital costs, b) prevent campus disruptions, and c) maintain consistency and standardization of these systems resulting in reduced maintenance costs.