

**Electrical Utility Infrastructure Conversion (DTE-PLD)
Design and Preparation Authorization**

Recommendation

It is recommended that the Board of Governors authorize the President, or his designee, to increase the design budget by \$700,000 for the construction of building electrical infrastructure upgrades. This is an increase from the \$800,000 authorization approved in April 2016. These upgrades will support converting buildings that were formerly fed from the Detroit Public Lighting Department (PLD) to Detroit Edison Company (DTE), and to provide additional electrical capacity at a total cost not to exceed \$1.5M. Funding for this effort will be provided by borrowing from the Cash Pool, with repayment provided by future bond proceeds that would be secured for the purpose of implementing this project.

Background and Project Description

The concept for this series of electrical upgrades was presented to the Board of Governors in April of 2016. Authorization was given at the time to proceed with the design portion of the work at a cost of \$800,000. Two factors have impacted the development of this project and have necessitated seeking a higher level of spending approval of \$1.5M prior to seeking approval for full construction: 1.) The concept of a New Data Center was approved by the Board of Governors in September of 2016, and these two design efforts have since worked concurrently, and 2.) Detroit Edison (DTE) has further designed its city-wide conversion project and has further developed their schedules and priorities. An increased design, coordination, and preparation effort will lead to a smoother implementation over the upcoming 2 to 3 years. The effort inherently will be disruptive to campus operations, and detailed planning is necessary to keep that disruption to a minimum.

On July 1, 2014, PLD ceased to exist as an electric utility provider, and DTE assumed responsibility to supply electric power to all former PLD customers. PLD previously supplied electrical power to 44 of the University's buildings, representing over half of the electricity consumed by the University annually. The PLD infrastructure, historically known for being unreliable, has caused numerous power outages that greatly impacted normal operations, including the University being forced to cancel classes and close. The transition of service responsibility to DTE includes their commitment to replace the PLD infrastructure that supplies electricity to the University and other former PLD customers. The scope of this conversion involves constructing two new electrical substations that will support the MidTown area, installing new underground conduits and cables, and new above ground transformers and switching equipment to each of the former PLD buildings. Except for two electrical capacity upgrades highlighted below, DTE is responsible for the total capital cost to accomplish this conversion.

Of the 44 University buildings to receive new electrical service from DTE, five should have portions of their electrical systems upgraded at the same time. The Engineering Building, State Hall, Life Science, Science and Engineering Library, and Shapero each have components of their electrical infrastructure that are obsolete, antiquated, out of code compliance, and/or beyond their useable service life. In some cases service components are no longer available. This proposed Wayne State project will mitigate these deficient conditions.

Additionally, the existing electric service to the University's Computing Center is at maximum capacity, and the data center's HVAC and power systems are obsolete and well beyond their service life. A new data center is now being designed, and this Wayne State project will provide a new substation with larger electrical service. Similarly, the Athletic Complex has severe electrical power capacity constraints which prevents further expansion without a significant new electrical substation being constructed. While DTE will pay to replace existing electrical services of identical capacity, they will not pay for larger service upgrades like that needed for the new data center or for future development on the Athletic Complex.

The conversion of the University's buildings to new DTE service is expected to take place in multiple phases during the next three to four years. First, DTE will construct new underground duct banks and conduit pathways around the perimeter of campus, mostly on Warren Avenue and Anthony Wayne Drive. Beginning in the summer of 2017, steps will be taken to physically connect each building to new electrical services from DTE. This construction will impact the campus as additional underground pathways are established from the street or pedestrian malls to each building where new cable will be connected to transformers and switch cabinets, many of which will be installed outside, adjacent to the building. To minimize the visual impacts of the transformers and switch cabinets, many will be located behind new screen walls, and at McGregor an underground vault will be constructed to accommodate the DTE equipment leading to McGregor, Law and the Education Building. A similar but smaller underground vault will be constructed for the community arts buildings. With the exception of those buildings supported by full building backup generators, each building will also experience a temporary shutdown during the cable connection process. In the five buildings proposed to receive electrical equipment upgrades, the electrical shutdown durations will be very carefully coordinated to minimize operational impacts, and every effort will be made to support each conversion with a temporary electrical generator.

As shared with the Board of Governors in April 2016, the total project cost to implement these electrical infrastructure upgrades is anticipated to be in the range of \$11M. Each component of the work is being estimated with the design process. Competitive bids will be obtained before requesting construction approval. Wayne State's project phasing will follow DTE's project phasing. The fund source for the overall project is planned to be bond proceeds. Approval of Construction by the Board of Governors will be requested incrementally for each phase beginning in spring 2017. There will be subsequent Construction approvals requested in 2018 and 2019.