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Office of the President

TO MEMBERS OF THE COMMITTEE ON HEALTH SERVICES:

ACTION ITEM

For Meeting of April 18, 2016

ENDORSEMENT OF UC IRVINE MEDICAL CENTER ELECTRICAL PLANT PROJECT, IRVINE CAMPUS

EXECUTIVE SUMMARY

The University of California Irvine Medical Center (UCIMC) Orange campus has a physical inventory of 33 buildings with a total of approximately 1,225,000 gsf (gross square feet). The Orange campus is the central hub of UC Irvine Health. A 411-bed hospital, inpatient and outpatient surgical services, and a comprehensive array of primary and specialty ambulatory services are located on the campus, providing a single-stop location for patients. UCIMC buildings are separated into two categories: those that fall under the building code of the California Office of Statewide Health Planning and Development (OSHPD), and those that do not (non-OSHPD). OSHPD buildings on the campus provide acute-care inpatient medical services, with non-OSHPD buildings providing sub-acute care, outpatient, support, and administrative services. Until 2009, all buildings at the Medical Center were served by a five Kilovolt (kV) electrical distribution system. With construction of the new Douglas Hospital in 2009, a modern 12 kV system was installed for the hospital and is being expanded to serve the other two OSHPD buildings (this expansion is being carried out as a separate project). The existing five kV electrical distribution system supporting the approximately 511,000 gsf of non-OSHPD buildings is outdated and needs to be replaced with a 12 kV system to meet modern standards. The proposed Electrical Plant project will provide a modern electrical distribution system to serve existing and future non-OSHPD buildings for the UCI Medical Center.

The campus expects to request approval of the project budget and external financing at the Regents' May 2016 meeting. UCIMC intends to submit the project for approval of design through the Delegated Approval process, following action pursuant to the California Environmental Quality Act.

RECOMMENDATION

The President of the University recommends that the Committee on Health Services ~~recommend to the Regents endorsement of~~ endorse the UC Irvine Medical Center Electrical Plant Project.

BACKGROUND

All existing non-OSHPD buildings on the UCIMC campus are served by a five Kilovolt (kV) electrical distribution system installed in 1979. Although portions have been modified over the years, the system as a whole has exceeded its useful life. The deteriorated condition of the electrical distribution equipment makes continued operation of the system more and more difficult and prone to failure. In addition to reliability, a modern 12 kV system uses less energy, leading to cost savings, and provides more flexibility in supplying power to existing and future buildings. Additionally, installation of a 12 kV electrical distribution non-OSHPD system will provide backup for the existing OSHPD system in the event of an emergency.

PROJECT DRIVERS

A number of drivers related to the capacity and reliability of UCIMC's existing electrical distribution system have led UC Irvine Health to propose this project. Major drivers include the following:

- Existing demand and code requirements require a reliable and serviceable electrical distribution system to meet the needs of a dynamic and operational medical center.

- Problems with the existing five kV system, as described below, severely affect the Medical Center's operations and ability to provide patient care. For instance, a recent power failure resulted in loss of all normal and emergency power to a clinical facility.

- The existing five kV system has reached the end of its useful life. The equipment is obsolete and parts needed for maintenance and repair of the system are no longer readily available.

- Years of weathering and deterioration of the system have resulted in corrosion of the electrical contacts on the transformers and deterioration of the insulation on the distribution lines, both of which create a high potential for failure of the system.

- The system includes a number of obsolete oil-filled selector switches that pass electricity through transformers and into buildings. Failure of one of these switches could result in ruptured switchgear tanks, with the potential for damage to property.

- In the event of a failure of the electrical distribution system to a particular building, that building would have to be connected to other parts of the system by means of temporary above-ground conductors. These temporary conductors could put further stress on the five kV system and increase chances of multiple failures.

- The existing emergency generators that back up the electrical system have exceeded their useful life, have become unreliable, and are frequently out of service. Maintenance and repair of both the generator equipment and the automatic transfer switches that transfer

electrical loads from normal to emergency power in the event of an outage are very difficult due to lack of available parts and technicians.

- UCIMC's electrical service must accommodate future demand and allow for streamlined implementation and flexibility in the expansion or repurposing of existing facilities as well as construction of future buildings. Modern utility systems are necessary to support expansion in ambulatory care and academic, research, and administrative/service activities, as outlined in the 2003 Long Range Development Plan (LRDP).

PROJECT DESCRIPTION

Scope/Program

The proposed UCIMC Electrical Plant project will result in the phased conversion from an antiquated five kV electrical system to a modern 12 kV system. The project will upgrade electrical equipment and distribution to support a modern 12 Kilovolt (kV) system for permanent non-OSHPD buildings. Some of the existing non-OSHPD buildings are deteriorated and slated for eventual replacement and demolition. These "temporary" buildings will not be converted to the new 12 kV system, but will remain on the five kV system until they are demolished. The new system will be sized to accommodate potential future growth outlined in the 2003 LRDP. The project will replace all emergency generators serving all non-OSHPD buildings and construct a centralized electrical yard adjacent to the planned non-OSHPD Chiller Plant, just west of the existing steam plant, Building 31 (refer to Attachment 1a – Project Site Map).

The major elements of the existing five kV system are located in the existing Building 32 Electrical Plant (refer to Attachment 1b – Electrical Plant Site Plan). It includes the main service switchgear, feeder distribution switchboard, SCE service transformers, distribution switches, and auxiliary equipment. A phased approach to cutting over the existing five kV system to a new non-OSHPD 12 kV system is programmed. The anticipated configuration of the power distribution system will be a loop-feed arrangement in order to facilitate maintenance and increase reliability. The proposed project would include:

- Construction of a new electrical yard to centralize normal (12 kV) and emergency power systems.

- Extending a new 12 kV main-line feeder from the existing pad-mounted switch at Building 32 to the new distribution switchgear located at the new electrical yard location, adjacent to the non-OSHPD Chiller Plant.

- Conversion of several dual voltage transformers at existing permanent buildings from five kV to 12 kV.

- Installation of electrical distribution equipment to support 12 kV power.

- Installation of emergency generators to support existing non-OSHPD buildings.

- Installation of new 12 kV electrical distribution lines for Substation 81A.

- Distribution of the new electrical power service to permanent non-OSHPD buildings.

Schedule

UCIMC intends to request approval of the project budget and external financing at the Regents' May 2016 meeting. Pursuant to the California Environmental Quality Act (CEQA) and the University Procedures for implementation of CEQA, an Initial Study/Mitigated Negative Declaration (IS/MND) is being prepared to determine any potential environmental effects associated with the project. Consideration and adoption of a Mitigated Negative Declaration will occur prior to design approval through the Delegated Approval process. Following approvals, it is estimated that construction would commence in December 2016 with completion targeted for July 2018.

FINANCIAL FEASIBILITY

Funding Plan

UC Irvine Medical Center plans to use external financing to fund the proposed project. The Medical Center's financial pro-forma, which includes the external financing of this project, is provided as Attachment 2. The Medical Center projects days' cash on hand to remain above the recommended floor of 60 days throughout the projection period. Actual days' cash on hand as of Fiscal Year ending 2015 was 125 days.

The project is included in the UC 2015-25 Capital Financial Plan (CFP) accepted by the Regents in November 2015, under the name UCIMC Electrical Plant and B81A Substation Replacement.

Key to Acronyms

UCIMC	University of California, Irvine Medical Center
OSHPD	California Office of Statewide Health Planning & Development
LRDP	Long Range Development Plan
CEQA	California Environmental Quality Act
CFP	Capital Financial Plan
GSF	Gross square feet

Attachments:

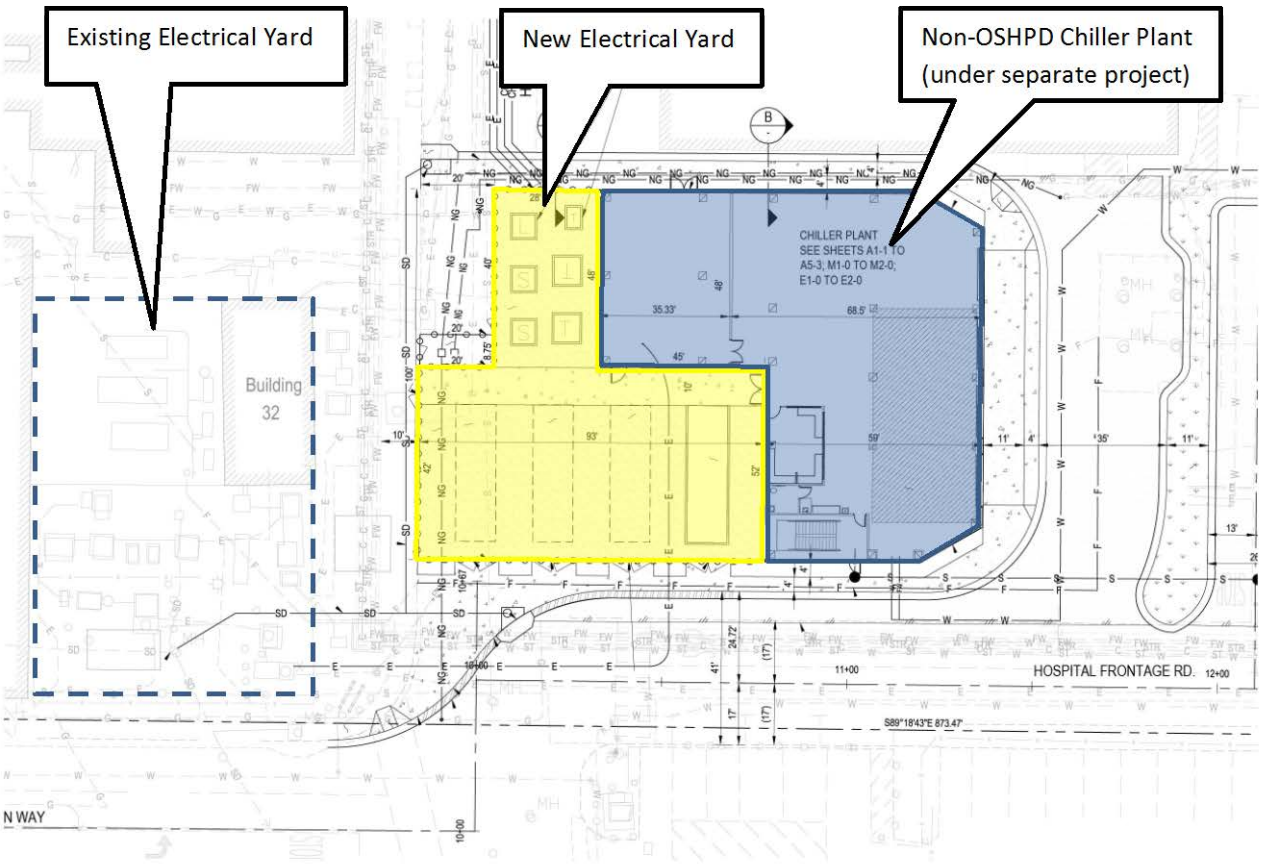
Attachment 1a: Project Site Map
Attachment 1b: Electrical Plant Site Plan
Attachment 2: UC Irvine Medical Center Financial Pro-forma

ATTACHMENT 1a

PROJECT SITE MAP

ATTACHMENT 1b

ELECTRICAL PLANT SITE PLAN



ATTACHMENT 2

UC Irvine Medical Center Financial Proforma (Dollars in thousands)

	Audited FY 2013	Audited FY 2014	Audited FY 2015	Projected FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Income available for debt service:															
Net Income	61,502	65,914	63,552	55,821	58,651	54,850	61,994	55,921	66,597	67,811	49,528	61,346	72,622	81,929	72,263
Interest	17,306	16,864	16,093	15,817	15,454	15,504	17,314	17,251	17,057	16,813	16,550	16,272	15,997	15,691	15,359
Depreciation	56,078	64,991	57,710	68,426	68,426	68,426	70,085	70,085	70,085	70,085	70,085	70,085	70,085	70,085	70,085
Income available for debt service	134,886	147,769	137,355	140,064	142,531	138,780	149,392	143,257	153,739	154,708	136,162	147,703	158,704	167,705	157,706
Debt service:															
Interest	17,306	16,864	16,093	15,817	15,454	15,504	17,314	17,251	17,057	16,813	16,550	16,272	15,997	15,691	15,359
Principal	23,519	19,002	17,096	8,230	1,585	2,880	1,245	4,600	4,805	5,025	5,285	5,540	5,800	6,075	8,199
Total debt service	40,825	35,866	33,189	24,047	17,039	18,384	18,559	21,851	21,862	21,838	21,835	21,812	21,797	21,766	23,557
Debt service coverage	3.3	4.1	4.1	5.8	8.4	7.5	8.0	6.6	7.0	7.1	6.2	6.8	7.3	7.7	6.7
Days cash on hand	82	132	125	122	118	117	123	115	122	128	126	129	137	145	152