



Chapter 6 - Costs

Costs for Domestic Water System

Building/ Location	Area (SF)	Description of Impact to Campuswide Utilities	Estimated Cost
Peterson Hall 3 Replacement Building	160,000	The work limit of the proposed replacement building for Peterson Hall 3, Microbiology and Science Lecture Hall should shrink along the northern edge so that it no longer conflicts with the existing 8-inch line that connects two existing 6-inch lines running north/south on the east and west sides of the Peterson Halls. There is also a fire hydrant to the north of the project site that should be avoided. By reducing the project limits slightly, the only modifications necessary to the water system will be removal of local service lines to existing buildings that will be demolished as part of the project. Potholing should be performed to verify the location of the 8-inch line. Service to the project can be provided from either of the 6-inch lines to the east and west of the project or the 8-inch to the north. Some improvements to the Campus mains should also be constructed as part of this project, including replacement of the 6-inch line in East Campus Drive with a 10-inch line from the water meter near the Central Plant to Microbiology.	\$130,000
Liberal Arts Building (Phases 1 and 2)	155,000	The work limit of the proposed replacement building for Peterson Halls 1 & 2 and Faculty Office 5 should shrink in the southwest corner to avoid conflicting with the existing 6-inch main on the west side of the Peterson Halls. Potholing should be performed to verify the location of the 6-inch line. Service to the project can be provided from either of the 6-inch lines to the east and west of the project. Some improvements to the campus mains should also be constructed as part of this project, including replacement of the 6-inch line in the East Campus Drive with a 10-inch line, from Microbiology to Studio Theatre.	\$150,000
Parking Structure 3	416,000	No modifications to the existing water network are necessary to accommodate the proposed Parking Structure 3. Service to the project can be provided from the 8-inch line to the south.	-
Student Recreation Center	120,000	No modifications to the existing water network are necessary to accommodate the proposed Recreation Building. Service to the project can be provided from the 8-inch lines to the north, west and south.	-
Nursing Building Addition	5,000	It is recommended to replace the 6-inch ACP line that conflicts with the site of the proposed Nursing School Expansion with a DI pipe, but moved slightly to the north. The ACP line is old and should be replaced soon. The replacement could be confined to the portion conflicting with the proposed building or could expand to include the entire Residence Commons 6-inch ACP loop. Potholing should be performed to verify the location of the 6-inch line.	\$60,000
Outpost Replacement Building	8,000	No modifications to the existing water network are necessary to accommodate the proposed building.	-
Liberal Arts Complex	155,000	No modifications to the existing water network are necessary to accommodate the proposed replacement building for Liberal Arts 2, 3 & 4, Instructional Resources, Lecture Hall and Faculty Office 2. Service to the project can be provided from the 6-inch transite line to the west. The service connections to the existing buildings can be removed with the construction of the proposed building. There is also a drinking fountain located to the east of Instructional Resources that will need to be removed or reconnected to the 6-inch line to the south during the construction of the proposed building. Some improvements to the Campus mains should also be constructed as part of this project, including replacement of the 6-inch line in West Campus Drive with a 10-inch line running from the 8-inch water meter on Seventh Street to Parking Lot 3.	\$ 225,000
Student Services Complex	70,000	No modifications to the existing water network are recommended to accommodate the proposed Student Services Complex. Service to the project can be provided from the 6-inch line to the south. Some improvements to the campus mains should also be constructed as part of this project, consisting of replacement of the 6-inch line to the south with a 10-inch line being constructed in West Campus Drive to the existing 8-inch water meter by the Central Plant.	\$125,000
Engineering 3 & 4	80,000	The work limit of the proposed replacement building for Engineering 3 & 4 should shrink along the northern and western edges so that it doesn't conflict with the 6-inch mains in those areas. It should also shrink in the southeastern corner to avoid conflicting with the existing 4-inch line between Engineering 2 and ECS. Potholing should be performed to verify the location of the 4-inch and the 6-inch lines. Service to the project can be provided from either of the 6-inch lines to the north and west of the project.	-
Corporate Yard Expansion	71,000	No modifications to the existing water network are necessary to accommodate the proposed expansion.	-
Parking Structure 5 (Lot 7)	-	The western edge of the work limit of the proposed Parking Structure conflicts with an existing 6-inch water line. However, the 6-inch water line is undersized and should be replaced with a 10-inch line. The replacement water line can be constructed further to the west of the Parking Structure. There is also an existing fire hydrant in the current Parking Lot that will need to be removed and relocated along East Campus Drive. The extent of the new 10-inch line should cover from the 10-inch line being constructed in East Campus Drive as part of Peterson 1 and 2 and extend to the existing 8-inch water meter on Seventh Street.	\$130,000
Parking Structure 4 (Lot 14)	-	The proposed structure does not interfere with any of the existing water lines.	-
Satellite Dining Facility (Lot 15)	-	The proposed building is in conflict with a 8-inch line to the south. The 8-inch lines will need to be relocated to accommodate the proposed building. The relocated 6-inch lines could potentially serve the proposed building.	\$30,000
Miscellaneous	-	Replace existing transite water pipes on the south side of the campus.	\$130,000



Costs for Sanitary Sewer System

Building/ Location	Area (SF)	Description of Impact to Campuswide Utilities	Estimated Cost
Peterson Hall 3 Replacement Building	160,000	The work limit of the proposed replacement building for Peterson Hall 3 and Science Lecture Hall should shrink along the western edge so that it no longer conflicts with the existing 10-inch main to the west of the project. The proposed building can be served from either the existing 10-inch line to the west or the existing 8-inch line to the east. As shown in the sewer video, there are some instances of severe root intrusion and pipe cracking in the downstream 10-inch line (see Appendix: Inspection Report from MH 28 to MH 41). Based on the added usage caused by the proposed projects and the existing condition of the 10-inch line, it is recommended that the 10-inch line be replaced with a 12-inch line from the connection point with the 12-inch line in West Campus Center Drive to the project site.	\$100,000
Liberal Arts Building (Phases 1 and 2)	155,000	The work limit of the proposed replacement building for Peterson Halls 1 & 2 and Faculty Office 5 should shrink along the western edge so that it no longer conflicts with the 10-inch main to the west of project. The proposed building can be served from either the existing 6-inch line to the south or the existing 10-inch line to the west. The remainder of the 10-inch line not replaced by the Peterson Hall 3 project should be replaced with a 12-inch line. The 6-inch line was found to have several locations with minor to major root intrusion (see Appendix: Inspection Report from MH 48 to MH 47) and should be replaced with a new 8-inch line.	\$225,000
Parking Structure 3	416,000	The location of the proposed Parking Structure 3 does not conflict with any existing sanitary sewer mains. There is a 24-inch LACSD main to the west that could provide a sewer service* to the proposed Structure, or 6-inch and 8-inch Campus lines further to the west that could provide service.	-
Student Recreation Center	120,000	The work limit of the proposed Recreation Building should shrink along the western edge so that it no longer conflicts with the existing 24-inch LACSD main to the west of the project. The proposed building can be served from either the existing 24-inch main* to the west or the 8-inch Campus line to the south.	-
Nursing Building Addition	5,000	The work limit of the proposed Nursing School Expansion should shrink along the northeast edge so that it no longer conflicts with the 12-inch LACSD sewer main to the northeast of the project. The Structure could potentially be served by the 12-inch main* or by the existing 6-inch Campus line to the west of the building.	\$45,000
Outpost Replacement Building	8,000	No modifications to the existing sanitary sewer network are necessary to accommodate the proposed building.	-
Liberal Arts Complex	155,000	The proposed replacement building for Liberal Arts 2, 3 & 4, Instructional Resources, Lecture Hall and Faculty Office 2 conflicts with the existing 3-inch main that can be removed at the same time as the Liberal Arts buildings in the construction of the proposed building. The proposed building could potentially be served by the 6-inch Campus line to the west of the Liberal Arts buildings.	-
Student Services Complex	70,000	The proposed Student Services Complex is not in conflict with of any existing sewer lines. The Structure could potentially be served by the 12-inch Campus line to the southwest of the building.	-
Engineering 3 & 4	80,000	The proposed replacement building for Engineering 3 & 4 is not in conflict with any existing sewer lines. The Structure could potentially be served by the 6-inch Campus line to the west of the building. Due to the moderate to severe cracks found in several locations along the 6-inch line (see Appendix: Inspection Report from MH 71 to MH 70), it should be replaced with an 8-inch line from the new building to the connection with the 8-inch Campus sewer to the south.	\$75,000
Corporate Yard Expansion	71,000	No modifications to the existing sanitary sewer network are necessary to accommodate the proposed expansion.	-
Parking Structure 5 (Lot 7)	-	The proposed structure does not interfere with any of the existing sewer lines.	-
Parking Structure 4 (Lot 14)	-	The proposed structure does not interfere with any of the existing sewer lines.	-
Satellite Dining Facility (Lot 15)	-	The proposed building does not interfere with any of the existing sewer lines. The proposed building could potentially be served by a 4" line located on the south side of the proposed facility.	\$25,000
Miscellaneous	-	Replace existing deteriorating sewer pipes per sewer video report.	\$230,000



Costs for Storm Drain System

Building/ Location	Area (SF)	Description of Impact to Campuswide Utilities	Estimated Cost
Peterson Hall 3 Replacement Building	160,000	The proposed replacement building for Peterson Hall 3 and Science Lecture Hall is located on top of existing 6-inch and 12-inch lines that collect local runoff and tie to the Campus network. The lines and area drains can be removed during the construction of the proposed building. The proposed building could potentially be served by the 12-inch line to the west or the 21-inch line to the east.	-
Liberal Arts Building (Phases 1 and 2)	155,000	The proposed replacement building for Peterson Halls 1 & 2 and Faculty Office 5 only conflicts with existing local collection lines and area drains that can be removed during construction of the proposed building. The proposed building could potentially be served by the 10-inch line to the south.	-
Parking Structure 3	416,000	No modifications to the existing storm drain network are necessary to accommodate the proposed expansion.	\$20,000
Student Recreation Center	120,000	The location of the proposed Parking Structure 3 conflicts with the existing 15-inch line that collects local drainage in the northern third of Parking Lot 11. The 15-inch line will need to be removed and the 10-inch line that collects runoff from the eastern portion of the Lot which is to remain will need to be reconnected to the Campus system via the 12-inch line to the south of the proposed building.	\$20,000
Nursing Building Addition	5,000	The proposed Recreation Building conflicts with the existing 10-inch and 12-inch local collection lines and area drains in Parking Lot 11 that can be removed during construction of the proposed building. It also interferes with a 4-inch line that collects runoff from the south and ties into the lines in Lot 11. This 4-inch line will need to be relocated. The proposed building could potentially be served by the existing 15-inch line to the southwest.	-
Outpost Replacement Building	8,000	The proposed Nursing School Expansion is not in conflict with any existing storm drain lines. The Structure could potentially be served by the 8-inch line to the north or the 12-inch line to the west.	-
Liberal Arts Complex	155,000	No modifications to the existing storm drain network are necessary to accommodate the proposed building.	-
Student Services Complex	70,000	The proposed replacement building for Liberal Arts 2, 3 & 4, Instructional Resources, Lecture Hall and Faculty Office 2 only conflicts with existing local collection lines and area drains that can be removed during construction of the proposed building. The proposed building could potentially be served by the 10-inch line to the south or the 8-inch line to the west.	-
Engineering 3 & 4	80,000	The proposed Student Services Complex conflicts with a storm drain line that collects some local area drainage and outlets to the Channel. It also conflicts with a sump pump that connects to a 6-inch line that also outlets to the Channel. The area drains and storm drain outlet to the Channel will need to be relocated further to the west of the proposed building as will the sump pump.	\$10,000
Corporate Yard Expansion	71,000	The proposed replacement building for Engineering 3 & 4 conflicts with 4-inch, 6-inch and 8-inch storm drain lines that take care of local drainage for the buildings that will be removed as part of the project. The proposed building also conflicts with a 4-inch local drainage line to the east of the building that must be reconnected to the Campus network, either to the 8-inch line to the south or the 6-inch line to the north. The proposed building could potentially be served by the 12-inch line to the west or the 8-inch line to the south.	-
Parking Structure 5 (Lot 7)	-	The proposed structure conflicts with 18-inch and 12-inch storm drain lines. The same need to be relocated to accommodate the proposed facility.	-
Parking Structure 4 (Lot 14)	-	The proposed structure does not interfere with any of the existing storm drain lines. However, drainage in parking lot 14 will have to be evaluated as part of the proposed structure project.	-
Satellite Dining Facility (Lot 15)	-	The proposed building conflicts with 6-inch and 8-inch storm drain lines. The same need to be relocated to accommodate the proposed facility.	\$10,000
Miscellaneous	-	Replace existing deteriorating storm drain pipes.	\$400,000



Costs for Irrigation Water System

Building/ Location	Area (SF)	Description of Impact to Campuswide Utilities	Estimated Cost
Peterson Hall 3 Replacement Building	160,000	The proposed replacement building for Peterson Hall 3, Microbiology and Science Lecture Hall is located on top of several small irrigation water lines that serve the planted areas surrounding the buildings that will be demolished. Future Irrigation water services can be provided from either of the two existing 6-inch water lines that run north/south on the east and west sides of the Peterson Halls.	-
Liberal Arts Building (Phases 1 and 2)	155,000	The proposed replacement building for Peterson Halls 1 & 2 and Faculty Office 5 does not conflict with any existing irrigation lines, but is located on top of an existing 6-inch water main on the west side of the Peterson Halls. Section 4.1 discusses recommendations for water lines. Future Irrigation water services can be provided from either the relocated 6-inch water line on the west side or the 6-inch water line on the east side of the Peterson Halls.	-
Parking Structure 3	416,000	No modifications to the existing irrigation network are necessary to accommodate the proposed expansion.	-
Student Recreation Center	120,000	The proposed Parking Structure 3 does not conflict with any existing irrigation or domestic water lines. Future Irrigation water services can be provided from either the 6-inch reclaimed water line to the north or the 4-inch reclaimed water line to the west.	-
Nursing Building Addition	5,000	The proposed Recreation Building does not conflict with any existing irrigation or domestic water lines. Future Irrigation water services can be provided from the 6-inch reclaimed water line to the west.	-
Outpost Replacement Building	8,000	The proposed Nursing School Expansion does not conflict with any existing irrigation water lines, but it is located on top of an existing 6-inch water line that serves the Residence Commons. Section 4.1 discusses recommendations for water lines. There are several irrigation water valves located around the site of the proposed Structure that could be used to provide irrigation water, otherwise it could potentially come from the relocated 6-inch line.	-
Liberal Arts Complex	155,000	No modifications to the existing irrigation network are necessary to accommodate the proposed building.	-
Student Services Complex	70,000	The proposed replacement building for Liberal Arts 2, 3 & 4, Instructional Resources, Lecture Hall and Faculty Office 2 does not conflict with any existing irrigation water lines, but it is located on top of an existing 3-inch water main on running through Liberal Arts 4. Section 4.1 discusses recommendations for water lines. There are several irrigation water valves located around the site of the proposed building that could be used to provide irrigation water, otherwise it could potentially come from the 6-inch domestic water line to the west.	-
Engineering 3 & 4	80,000	The proposed Student Services Complex is not in conflict with any existing irrigation water lines. The Structure could potentially be served by a 6-inch domestic water line to the south of the building.	-
Corporate Yard Expansion	71,000	The proposed replacement building for Engineering 3 & 4 does not conflict with any reclaimed water lines. There are several irrigation water valves surrounding the location of the proposed building that could potentially provide irrigation service, otherwise it could potentially come from the 6-inch domestic water line to the north and west.	-
Parking Structure 5 (Lot 7)	-	Refer to the Recommendations Table in the domestic water section.	-
Parking Structure 4 (Lot 14)	-	Refer to the Recommendations Table in the domestic water section.	-
Satellite Dining Facility (Lot 15)	-	Refer to the Recommendations Table in the domestic water section.	-
Miscellaneous	-	Provide new back flow preventers on the south side of the campus.	\$175,000



Costs for Chilled and Heating Hot Water Systems

Description	Estimated Cost
Provision of new 600 ton VFD chiller	\$600,000
Provision of new 10,000 ton-hr chilled water thermal storage tank	\$1,900,000
Provision of piping extensions to new buildings	\$450,000
Provision of condenser water reset and pumped condenser water for Ice Harvesters	\$50,000

Costs for Gas

Building/ Location	Area (SF)	Description	Estimated Cost
Student Recreation Center	120,000	Extension of 4-inch line adjacent to the Corporation Yard approximately 400 ft to the location of the new Recreation Center and provision of 2-inch branch to serve the proposed building.	\$40,000
Liberal Arts Complex	155,000	Modifications of existing gas infrastructure to support the new complex as detailed in recommendations.	\$30,000
Miscellaneous	-	Replace existing old steel and PVC gas pipe	\$500,000



Costs for Electrical System

Building/Location	Area (SF)	Installed Proposed Capacity (KVA)	Description of Impact to Campuswide Utilities	Estimated Cost
Peterson Hall 3 Replacement Building	160,000	2000	The proposed replacement building for Peterson Hall 3, and Science Lecture Hall does not conflict with any existing electrical infrastructure systems. Future service to these buildings will be provided by a 15KV, 600A, Selector Switch (S23), Feeder '9' located on north side of the proposed buildings.	\$20,000
Liberal Arts Building (Phase 1 & 2)	155,000	1250	The proposed replacement Liberal Arts building is located on top of existing underground conduit and feeders that should be relocated. Future electrical service to these buildings will be provided through a 15KV, 600A, Selector Switch (S25), Feeder '9' located on north and west side of the proposed buildings.	\$150,000
Parking Structure 3	416,000	1000	The proposed parking structure building does not conflict with the existing electrical infrastructure system. Future electrical power to this building will be provided by a new 15KV, 600A, Selector Switch (S40), Feeder '5' to feed the building.	\$125,000
Student Recreation Center	120,000	2000	The proposed Recreation center does not conflict with the existing electrical infrastructure system. Future electrical power to this building will be provided by a new 15KV, 600A, Selector Switch (S40), Feeder '5' and connecting it to the 12kV network.	\$40,000
Nursing Building Addition	5,000	750	The proposed Nursing building addition does not conflict with the existing electrical infrastructure system. Future electrical service will be provided by upgrading the existing 300 kVA padmount transformer to 500 kVA (currently served from 15KV Selector Switch (S18)) that currently serves the Nursing Building.	\$50,000
Outpost Replacement Building	8,000	225	The proposed Outpost replacement building is located on top of underground feeders that will be relocated. Future electrical service will be provided by a 15KV, 600A Selector Switch (S3), Feeder '1' located on the south side of the proposed building.	\$225,000
Liberal Arts Complex	155,000	2000	The proposed replacement building for Liberal Arts Complex is located on top of existing electrical underground conduit, and feeders that should be relocated. Future electrical service will be provided by 15KV, 600A, Selector Switch (S33), Feeder '11'.	\$150,000
Student Service Complex	70,000	750	The proposed Student Service Complex does not conflict with existing electrical infrastructural system. Future electrical service will be provided by a 15KV, 600A Selector Switch (S19), Feeder '4' located on the north east corner of the proposed building.	\$125,000
Engineering 3 & 4	80,000	1000	The proposed replacement building for Engineering 3 & 4 does not conflict with existing electrical infrastructural system. Future electrical service to this building will be provided by a 15KV, 600 Selector Switch (S7), Feeder '2' located on the south side of the proposed building.	\$30,000
Corporate Yard Expansion	71,000	500	The proposed Corporate Yard Expansion does not conflict with any existing electrical systems. Future electrical power will be provided by a 15KV, 600A, Selector Switch (S2), Feeder '1' located on the north and south side of the proposed expansion layout.	\$20,000
Parking Structure 5 (Lot)	-	1000	The proposed parking structure building does not conflict with existing electrical infrastructural systems. Future electrical power to this building will be provided by a new 5-way 15KV, 600A, Selector Switch (S27), Feeder '10' to feed the building.	\$30,000
Parking Structure 4 (Lot)	-	500	The proposed parking structure building does not conflict with existing electrical infrastructural systems. Future electrical power to this building will be provided by a 15KV, 600A, Selector Switch (S13), Feeder '3' to feed the building.	\$30,000
Satellite Dining Facility	-	225	The proposed satellite dining facility does not conflict with existing electrical infrastructural systems. Future electrical power to this building will be provided by a 15KV, 600A, Selector Switch (S13), Feeder '3' to feed the building.	\$30,000
Miscellaneous	-	-	Replace existing 15kV cables at the end of their lifespan.	\$2,000,000



Costs for Telecommunications Systems

Building/ Location	Area (SF)	Description of Impact to Campuswide Utilities	Estimated Cost
Peterson Hall 3 Replacement Building	160,000	<ul style="list-style-type: none"> Install (6) 4 inch underground conduits from existing manhole CMH#16 to the new building BDF. (See Exhibit EC11-A.) Install 600 pair copper building entrance cable from MDF A to the new building BDF in the existing ductbank on East Campus Drive. (See Exhibit EC12-A.) Relocate the fiber fusion splice from BDF in PH I to manhole CMH#14. This will require rearrangements of the cables serving building 41, Microbiology and building 45, FO5. It may require a small temporary fiber cable from manhole CMH#14 to building 37, PH I to maintain existing service until the building is replaced during project #2. (See Exhibit EC13-A.) Provide a new underground fiber optic cable with 36 singlemode/18 multimode optics from the existing 96/48 fiber cable in manhole CMH#14 to the new building. The new cable will be spliced into the new fusion splice described above. (See Exhibit EC13-A.) 	\$175,000
Liberal Arts Building (Phases 1 and 2)	155,000	<ul style="list-style-type: none"> Extend (6) 4 inch underground conduits from the cutoff conduits and pull box CPB#14A. (See Exhibit EC11-A.) Install 600 pair copper building entrance cable from splice in manhole CMH#14 to the new building BDF. The existing 600 cable pairs removed from building 37, PH I will be reused to serve the new building. (See Exhibit EC12-A.) Provide a new underground fiber optic cable with 36 singlemode/18 multimode optics from the existing 96/48 fiber cable in manhole CMH#14 to the new building. The new cable will be spliced into the new fusion splice described in project #1. (See Exhibit EC13-A.) 	\$85,000
Parking Structure 3	416,000	<p>We recommend Option C: Serve Parking Structure 3 From Parking Structure 2 For Data Service And With Direct Copper Pairs To MDF B For Voice Service. This plan requires no demolition and provides for the following infrastructure upgrades:</p> <ul style="list-style-type: none"> (2) 4 inch underground conduits from existing pull box CPB#28A serving Parking Structure 2. (See Exhibit EC11-B.) Install 50 pair copper building entrance cable from splice in manhole CMH#28 to the new Parking Structure 3 BDF room. In manhole CMH#28, splice the new entrance cable to 50 spare cable pairs in the 300 pair cable from MDF B. (See Exhibit EC12-B.) Install fiber cable consisting of 12 singlemode and 6 multimode optics in the existing and new ductbank from Building 91, Parking Structure 2. (See Exhibit EC13-B.) 	\$80,000
Student Recreation Center	120,000	<ul style="list-style-type: none"> (4) 4 inch underground conduits from existing manhole CMH#25. (See Exhibit EC11-B.) Install 300 pair copper building entrance cable from MDF B. (See Exhibit EC12-B.) Install fiber cable consisting of 24 singlemode and 12 multimode optics in the existing and new ductbank from MDF B. (See Exhibit EC13-B.) 	\$75,000
Nursing Building Addition	5,000	<p>Our recommendation is Option A, Avoid And Maintain The Ductbank And Manhole Along Northwestern Boundary And Serve The Nursing School Building From The Existing Manhole. This plan requires no demolition and provides for the following infrastructure upgrades:</p> <ul style="list-style-type: none"> Extend (4) 4 inch underground conduits from existing manhole CMH#44. (See Exhibit EC11-C.) Install 300 pair copper building entrance cable from splice in manhole CMH#44 to the new building BDF. In manhole CMH#44, splice the new entrance cable to 300 spare cable pairs in the 1200 pair cable from MDF C. (See Exhibit EC12-C.) Install fiber cable with 24 singlemode optics and 12 multimode optics in the existing and new ductbank from MDF C. (See Exhibit EC13-C.) 	\$150,000
Outpost Replacement Building	8,000	<ul style="list-style-type: none"> (4) 4 inch underground conduits from existing manhole CMH#22A. (See Exhibit EC11-B.) 100 pair copper building entrance cable from splice in manhole CMH#22A. Reduce the number of copper cable pairs serving building 55, Human Services and Design, by 100. Re-use the 100 cable pairs in the existing 600 pair cable to serve the proposed building. (See Exhibit EC12-B.) Install fiber cable consisting of 24 singlemode and 12 multimode optics in the existing and new ductbank from MDF B. (See Exhibit EC13-B.) 	\$80,000
Liberal Arts Complex	155,000	<p>Re-use and extend (4) 4 inch conduits from the western site boundary to serve the new building. Provide fiber cable with 24 singlemode and 12 multimode optics from MDF A building to serve the new building. Provide 900 pair copper cable from MDF A.</p> <p>Recommendation for Rerouting Ductbank and Cables: Our recommendation is Option A: Avoid and Maintain Two Ductbanks Along North and South Site Boundaries And Relocate the Existing Ductbank Through Center Of Proposed Site. This plan provides for the following infrastructure upgrades:</p> <ul style="list-style-type: none"> Extend (4) 4 inch underground conduits from the cutoff conduits serving building 16 to existing manhole CMH#6C in the quad. (See Exhibit EC11-A.) Install 1800 pair copper cable in the new ductbank from manhole CMH#54 to CMH#6C to re-route existing copper cable serving buildings 6, 15, and 94. (See Exhibit EC12-A.) Install fiber cable consisting of 48 singlemode and 24 multimode optics in the new ductbank from MDF A Building to manhole CMH#6C to re-route existing fiber cables serving buildings 6 and 15. (See Exhibit EC13-A.) 	\$350,000
Student Services Complex	70,000	<p>Our recommendation is based on the assumptions that the new building is located adjacent and attached to the south-east side of Brotman Hall. The building can also be constructed over the existing ductbank.</p> <p>The Student Services Complex will contain one or more telecommunications rooms that will be IDF rooms served from the BDF and Data Center in Brotman Hall. The pathways will be constructed inside the building in the space above the dropped ceilings on the first floor. The new IDF rooms will be connected to the BDF and Data Center in the new building with conduits, copper cables, and fiber cables.</p> <p>Recommendation For Rerouting Ductbank and Cables In Conflict With Proposed Building Site: Our recommendation is Option A, Avoid and Maintain The Existing Ductbank in the proposed building site. This plan eliminates the requirement to reroute the existing ductbank and cables.</p>	\$75,000
Engineering 3 & 4	80,000	<ul style="list-style-type: none"> (4) 4 inch underground conduits from existing manhole CMH#26A. (See Exhibit EC11-B.) 300 pair copper building entrance cable from splice in manhole CMH#26A. Re-use the existing 300 cable pairs in the 1200 pair cable that will be available after the existing buildings are demolished. (See Exhibit EC12-B.) Install fiber cable consisting of 48 singlemode and 24 multimode optics in the existing and new ductbank from MDF B. (See Exhibit EC13-B.) 	\$75,000



Building/ Location	Area (SF)	Description of Impact to Campuswide Utilities	Estimated Cost
Parking Structure 5 (Lot 7)	-	Our recommendation is Option A: Avoid and Maintain The Ductbank Along North Boundary And Serve The Parking Structure From the Existing Manhole. This plan requires no demolition and provides for the following infrastructure upgrades: <ul style="list-style-type: none"> • Extend (2) 4 inch underground conduits from existing manhole CMH#5. (See Exhibit EC11-A.) • Install 100 pair copper building entrance cable from splice in manhole CMH#5 to the new Parking Structure BDF. In manhole CMH#5, splice the new entrance cable to 100 spare cable pairs in the 1200 pair cable from MDF A. (See Exhibit EC12-A.) • Install fiber cable consisting of 12 singlemode and 6 multimode optics in the existing and new ductbank from Building 27, University Theater. Serve the Parking Structure as an IDF from BDF in Building 27 in lieu of a new fiber cable back to MDF A. (See Exhibit EC13-A.) 	\$30,000
Parking Structure 4 (Lot 14)	-	Our recommendation is Option A, Avoid And Maintain The Ductbank And Manhole Along The Southwestern Boundary And Serve The Parking Structure From The Existing Manhole. This plan requires no demolition and provides for the following infrastructure upgrades: <ul style="list-style-type: none"> • (2) 4 inch underground conduits from existing manhole CMH#41. (See Exhibit EC11-C.) • Install 100 pair copper building entrance cable from MDF C building. In manhole CMH#41, splice the new entrance cable to 100 spare cable pairs in the 1200 pair cable from MDF C. (See Exhibit EC12-C.) • Install fiber cable with 12 singlemode optics and 6 multimode optics in the existing and new ductbank from MDF C. (See Exhibit EC13-C.) 	\$45,000
Satellite Dining Facility (Lot 15)	-	<ul style="list-style-type: none"> • (4) 4 inch underground conduits from existing manhole CMH#61. (See Exhibit EC11-B.) • 300 pair copper building entrance cable from MDF B. (See Exhibit EC12-B.) • Install fiber cable consisting of 24 singlemode and 12 multimode optics in the existing and new ductbank from MDF B. (See Exhibit EC13-B.) 	\$130,000

