



**Southwestern Community College  
District**

**2017/2018 Scheduled  
Maintenance/Special Repair Plan**

**Detail of Plan Submitted in FUSION**

**December 2017**

**2016/2017 Southwestern Community College FUSION 5-Year Scheduled Maintenance Plan - Years 2017 through 2021**

<b>Building System</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>Grand Total</b>
Exterior	92,000				125,000	217,000
Mechanical		302,230	188,186	3,654,466		4,144,882
Other		550,014	406,614	41,837	475,000	1,473,465
Roof	10,000	259,130	544,344	557,874	1,000,000	2,371,348
Utility		673,906	552,906	1,424,290		2,651,102
<b>Grand Total</b>	<b>102,000</b>	<b>1,785,280</b>	<b>1,692,050</b>	<b>5,678,467</b>	<b>1,600,000</b>	<b>10,857,797</b>

**2016/2017 Southwestern Community College FUSION 5-Year Scheduled Maintenance Plan - Years 2017 through 2012**

\*Project List - See report starting on next page for Specific details for FY18, FY19 and FY20

<b>FY/Project</b>	<b>Total Funding</b>
<b>2017</b>	<b>102,000</b>
Automotive Building Paint	92,000
Tennis Building Roof	10,000
<b>2018</b>	<b>1,785,280</b>
Campus wide Mechanical Equipment maintenance, repairs and replacement	302,230
Campus wide repairs and maintenance	550,014
Campus Wide Roof Repairs and Replacement	259,130
Campus wide Utility maintenance, repair and replacement Phase I	350,000
Campus wide Utility maintenance, repair and replacement Phase II	323,906
<b>2019</b>	<b>1,692,050</b>
Campus wide Mechanical Equipment maintenance, repairs and replacement	188,186
Campus wide repairs and maintenance	406,614
Campus Wide Roof Repairs and Replacement	544,344
Campus wide Utility maintenance, repair and replacement	552,906
<b>2020</b>	<b>5,678,467</b>
Campus wide Mechanical Equipment maintenance, repairs and replacement Phase I	656,000
Campus wide Mechanical Equipment maintenance, repairs and replacement Phase II	656,000
Campus wide Mechanical Equipment maintenance, repairs and replacement Phase III	656,000
Campus wide Mechanical Equipment maintenance, repairs and replacement Phase IV	656,000
Campus wide Mechanical Equipment maintenance, repairs and replacement Phase V	656,000
Campus wide Mechanical Equipment maintenance, repairs and replacement Phase VI	374,466
Campus wide repairs and maintenance	41,837
Campus Wide Roof Repairs and Replacement	557,874
Campus wide Utility maintenance, repair and replacement Phase I	656,000
Campus wide Utility maintenance, repair and replacement Phase II	656,000
Campus wide Utility maintenance, repair and replacement Phase III	112,290
<b>2021</b>	<b>1,600,000</b>
Building 400 Roof Repair	250,000
Building 430 Roof Replacement	250,000
Building 460 Roof Replacement	250,000
Campus Wide Sidewalk Repairs	125,000
IT Building Roof Replacement	250,000
Main Entrance Road Grind and Overlay	350,000
Replace Flooring Building 630 (LRC)	125,000
<b>Grand Total</b>	<b>10,857,797</b>

Fusion Component/Building/Location/Problem	Estimated Cost
<b>Mechanical</b>	<b>302,230</b>
<b>610 - Student Union</b>	
Roof	
On the roof there are several pieces of mechanical equipment that appear to be deteriorating and nearing the end of their expected service life. Equipment includes two natural gas-fired make-up units, two of the four circular aluminum exhaust fans that serve grease hoods, and two more circular aluminum exhaust fans. It is recommended that this equipment be scheduled for replacement within the next 5 years.	122,978
<b>900 - Auditorium</b>	
Mechanical Room	
The hot water boiler appears to be original, which would make it 48 years old, well past its expected service life of 35 years. Maintaining the boiler going forward will be increasingly costly, and some deterioration is evident. If the college intends to keep this facility longer than another 3 to 5 years the boiler will definitely need to be replaced.  The boiler is located in the basement and any replacement boiler must either be able to pass through a standard-width doorway or would require major structural demo work to walls, which would be very costly. Utilizing the available doorway would require the replacement equipment to be multiple packaged boilers piped in parallel.	179,251
<b>Other</b>	<b>550,014</b>
<b>1100 - Warehouse</b>	
Entire parapet	
A number of places on the top of the concrete parapet exhibit spalling of concrete under where rebar is located, leaving large dimples that allow rainwater to collect. This will result in rusting of the rebar. To prevent this problem the installation of a metal parapet cap is recommended.	19,798
<b>2000 - Child Development Center</b>	
Parapet caps on roof	
The caulking in the joints of the metal parapet caps is deteriorating, providing the potential for moisture to leak into the joints and deteriorate the parapet top. Remove failing caulk and re-caulk all joints.	1,256
<b>220 - Business</b>	
Carpet throughout building	
Carpet is badly stained, very dirty, and generally deteriorating and should be replaced. Before installing new carpet, waterproof the concrete slab. Install new low pile high wear commercial grade carpet using waterproof adhesive.	71,731
<b>315 - Animal Storage</b>	
Concrete parapets on upper part of building	
The finish on the exterior wood panels is faded and generally deteriorating. Power wash and refinish panels with a clear sealer or light stain.	2,741
<b>382 - Planetarium</b>	
Throughout building	
Carpet is badly stained, very dirty, deteriorating, and should be replaced. Before installing new carpet, waterproof the concrete slab. Install new low pile high wear commercial grade carpet using waterproof adhesive.	16,448

Fusion Component/Building/Location/Problem	Estimated Cost
<b>400 - Office</b>	
Throughout building	
Carpet is badly stained and dirty and should be replaced. Before installing new carpet, waterproof the concrete slab. Install new low pile high wear commercial grade carpet using waterproof adhesive.	16,448

Fusion Component/Building/Location/Problem	Estimated Cost
<b>410 - English</b>	
Room of mechanical room bump out	
The wood parapets on top of the mechanical room bump out are badly deteriorated. Wood appear cracked and split and paint is peeling extensively. Replace the parapets.	1,980
<b>540 - Electronics</b>	
Perimeter of roof	
The parapet cap joint sealant is slowly deteriorating. Deteriorated sealant will allow moisture to enter cap joints, penetrating to parapet below. Existing sealant should be removed and new sealant installed.	343
<b>640 - Journalism</b>	
Roof	
The wood boards on the HVAC equipment enclosure, including the top and bottom rails and the 4x4 posts, are badly weathered and cracked/checked. All of the wood on the enclosure should be replaced. It is recommended that 5/4 Trex boards be used to replace the 1x8s. The new top/bottom 2x4 rails and 4x4 posts should be treated lumber and primed and painted after installation.	15,382
<b>650 - Resource TR</b>	
Roof	
The wood boards on the HVAC equipment enclosure, including the top and bottom rails and the 4x4 posts, are badly weathered and cracked/checked. All of the wood on the enclosure should be replaced. It is recommended that 5/4 Trex boards be used to replace the 1x8s. The new top/bottom 2x4 rails and 4x4 posts should be treated lumber and primed and painted after installation.	20,103
<b>660 - Community Service</b>	
Roof	
The wood boards on the HVAC equipment enclosure, including the top and bottom rails and the 4x4 posts, are badly weathered and cracked/checked. All of the wood on the enclosure should be replaced. It is recommended that 5/4 Trex boards be used to replace the 1x8s. The new top/bottom 2x4 rails and 4x4 posts should be treated lumber and primed and painted after installation.	20,103
<b>900 - Auditorium</b>	
Entire parapet on upper, middle, and lower roofs	
A number of places on the top of the concrete parapets on the upper, middle and lower roofs exhibit spalling of concrete, which can potentially allow water to penetrate the concrete, causing further deterioration. All spalling concrete should be removed and the affected areas power brushed to remove all debris. To prevent future damage a metal parapet cap should be installed on all three roofs.	57,872
Front of building	
The glass entry doors at the front of the building appear to be original. The finish is badly weathered, the closers and panic bars no longer operate properly and are of an age where repairs are no longer cost-effective. Weatherstripping is poor and glazing is not energy efficient.  Replace the doors with anodized aluminum and glass doors with 1/2" thick tempered insulating glass, narrow stiles and jambs, hardware weatherstripping, panic hardware and closers.	59,395
<b>9000 - Crown Point Aquatic Center</b>	
Main building, warehouse/shop and CPR Office perimeter	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>The metal flashing at the base of the cement/stucco wall panels on both buildings at the site is rusting extensively due to the salt environment. Replacement alternatives include either stainless steel flashing or a metal flashing that has been primed with a rust-inhibiting primer and finished with 2 coats of an epoxy-based industrial enamel. Cost provided is for replacement.</p>	<p>23,910</p>

Fusion Component/Building/Location/Problem	Estimated Cost
<b>ST - Site</b>	
Lot H	
<p>The asphalt paving in this lot exhibits random cracking, but is otherwise in generally good condition. Cracks range in width from 1/8" to 1/2" wide. All cracks should be swept out and cleaned, then sealed. The entire lot should then be seal-coated with 2 coats of a petroleum resistant emulsion and restriped.</p>	36,399
Lot J	
<p>The asphalt paving in this lot is in reasonably good condition, exhibiting only minor random surface wear. It is recommended that the entire lot be seal-coated with 2 coats of a petroleum resistant emulsion and restriped.</p>	144,376
Lot L	
<p>The asphalt paving in this lot is in reasonably good condition, exhibiting only minor random surface wear. It is recommended that the entire lot be seal-coated with 2 coats of a petroleum resistant emulsion and restriped.</p>	41,729
<b>Roof</b>	<b>259,130</b>
<b>1100 - Warehouse</b>	
Entire roof	
<p>The single-ply membrane on this building contains minor amounts of debris, and some surface dirt. Increasing accumulations can make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. An examination of the membrane indicated no apparent deficiencies. However, a thorough cleaning of the membrane surface is recommended in about three years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	3,960
<b>1600 - Classroom-Modular</b>	
Entire roof	
<p>The single-ply membrane on this building contains minor amounts of debris, and some dirt. However, the overall condition of the membrane appears good, with no apparent deficiencies identified. Increasing accumulations of debris and dirt will make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about three years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	2,284



Fusion Component/Building/Location/Problem	Estimated Cost
<b>1650 - Classroom-Modular</b>	
Entire roof	
<p>The single-ply membrane on this building contains minor amounts of leaf and other debris, and some dirty areas on the membrane. No apparent deficiencies were identified. However, increasing accumulations of debris and dirt can make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	3,655
<b>210 - Administration</b>	
Entire roof	
<p>The single-ply membrane on this building currently appears debris-free, but there is some surface dirt. As debris and dirt accumulate, it will make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in three to four years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	8,224
<b>220 - Business</b>	
Entire roof	
<p>The single-ply membrane on this building is currently debris-free, but there is some surface dirt. As debris and more dirt accumulate it will make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in 2 to 3 years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	5,635
<b>400 - Office</b>	
Entire roof	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>The single-ply membrane on this building is currently debris-free. An inspection of the surfaces indicated no apparent deficiencies. However, as debris and dirt accumulate, it will make it more difficult to ascertain the condition of the roof, and can hasten membrane wear. A thorough cleaning of the membrane surface is recommended in about three years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	1,980

Fusion Component/Building/Location/Problem	Estimated Cost
<b>4000 - Otay Mesa Higher Ed Center</b>	
Entire roof of Bldg 4100	
<p>The single-ply membrane on the building contains no leaves or other debris, and the membrane is relatively clean. However, as debris and dirt accumulate going forward it can make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	6,244
Entire roof of Bldg 4200	
<p>The single-ply membrane on the building contains no leaves or other debris, and the membrane is relatively clean. However, as debris and dirt accumulate going forward it can make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	3,274
Entire roof of Bldg 4300	
<p>The single-ply membrane on the building contains no leaves or other debris, and the membrane is relatively clean. However, as debris and dirt accumulate going forward it can make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	5,178
Entire roof of Bldg 4400	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>The single-ply membrane on the building contains no leaves or other debris, and the membrane is relatively clean. However, as debris and dirt accumulate going forward it can make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	8,376

Fusion Component/Building/Location/Problem	Estimated Cost
<p data-bbox="155 170 428 195">Entire roof of Bldg 4500</p> <p data-bbox="196 205 1263 380">The single-ply membrane on the building contains no leaves or other debris, and the membrane is relatively clean. However, as debris and dirt accumulate going forward it can make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years.</p> <p data-bbox="196 426 1243 562">Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p data-bbox="196 609 1146 634">Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	<p data-bbox="1516 609 1581 634">2,513</p>
<b>440 - Language</b>	
<p data-bbox="155 684 280 709">Entire roof</p> <p data-bbox="196 756 1263 930">The single-ply membrane on this building is currently debris-free. However, as debris and dirt accumulate, it will become difficult in the future to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. An examination of the membrane indicates no apparent deficiencies. A thorough cleaning of the membrane surface is recommended as a preventive measure in about 3 years.</p> <p data-bbox="196 976 1243 1113">Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p data-bbox="196 1159 1146 1184">Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	<p data-bbox="1516 1159 1581 1184">3,655</p>
<b>510 - Classroom</b>	
<p data-bbox="155 1234 280 1260">Entire roof</p> <p data-bbox="196 1270 1263 1407">There is roof work underway on this building -- apparently a membrane replacement. Dirt and debris should not be allowed to accumulated extensively on the new membrane, as it can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years.</p> <p data-bbox="196 1453 1243 1589">Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p data-bbox="196 1635 1146 1661">Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	<p data-bbox="1516 1635 1581 1661">3,655</p>
<b>550 - Tech/Human Services</b>	
<p data-bbox="155 1713 280 1738">Entire roof</p>	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>The single-ply membrane on this building is debris-free, and there is only minor dirt on a few areas of the membrane. If debris and dirt are allowed to accumulate, however, it can make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. An assessment of the membrane indicated no apparent deficiencies. Thorough cleaning of the membrane surface is recommended in about 3 years.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	5,178

Fusion Component/Building/Location/Problem	Estimated Cost
<b>610 - Student Union</b>	
Entire roof	
<p>The single-ply membrane on this building contains moderate amounts of leaf and other debris, and the surface is dirty in some areas. An assessment of the membrane does not indicate any apparent deficiencies. However, as debris continues to accumulate it can make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	14,011
<b>640 - Journalism</b>	
Entire roof	
<p>The single-ply membrane on this building contains minor amounts of leaves and other debris, and some dirt on membrane surface. If more debris and dirt accumulate it will make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years. An assessment of clean areas of the membrane indicated no apparent deficiencies.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	2,856
<b>650 - Resource TR</b>	
Entire roof	
<p>The single-ply membrane on this building contains minor amounts of debris. However, as more debris and dirt collect it will make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years. An assessment of the membrane indicated no apparent deficiencies.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	3,046

Fusion Component/Building/Location/Problem	Estimated Cost
<b>660 - Communty Service</b>	
Entire roof	
<p>The single-ply membrane on this building contains minor amounts of debris, and some surface dirt. As more debris and dirt accumulate it will make very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years. An assessment of the membrane indicated no apparent deficiencies.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	4,074
<b>700 - Art</b>	
Roof	
<p>College records provided to the consultant indicate the single-ply roof membrane, which appears to be hypalon, is 15 years old. There is only a small amount of debris on the roof and the membrane is only dirty in a few spots.</p> <p>The assessment conducted focused on membrane seams and fasteners and determining the condition of the surface relative to chalking and crazing of the surface, which are indicators of deterioration. Many areas of the seams appear frayed and there are a number of fasteners that are "lifting" under the membrane. Given the age of the membrane, its apparent lack of maintenance, and its apparent condition, it is recommended that the membrane be programmed for replacement in 3 years.</p> <p>A complete removal of the existing membrane, flashings and any insulation board are recommended. The roof deck should be evaluated to determine its condition and whether any repairs are required. Replacement should include installation of a new vapor barrier, polystyrene or similar insulation board of at least 2" thickness and R-10 rated along with tapered insulation for proper drainage, a new 60 mil mechanically attached PVC membrane, and metal parapet cap flashing. Roof drain inlets will also have to be reset.</p> <p>Note: The cost estimate does not include deck repairs needed, if any, or HVAC equipment removal/reset.</p>	153,057
<b>800 - Music</b>	
Entire roof	



Fusion Component/Building/Location/Problem	Estimated Cost
<p>The single-ply membrane on this building appears to be fairly new. There does not appear to be any debris on the surface, and the membrane is relatively clean. However, as debris and dirt accumulate, it will make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years. An assessment of the membrane revealed no apparent deficiencies.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	6,244

Fusion Component/Building/Location/Problem	Estimated Cost
<b>900 - Auditorium</b>	
Entire roof	
<p>The single-ply membrane on this building contains minor amounts of leaf and other debris, and the surface has some dirty areas. As more debris and dirt accumulate, it will make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in about 3 years. An assessment of relatively clean areas of the membrane revealed no apparent deficiencies.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	12,031
<b>Utility</b>	<b>673,906</b>
<b>1250 - Auto Maintenance</b>	
Interior	
<p>The circuit breaker panelboards are original to the building and are now approximately 44 years old. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p>	47,516
<b>220 - Business</b>	
Electrical Room and various locations	
<p>The circuit breaker panelboards are original to the building and are now approximately 49 years old. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p> <p>This building also houses a 600 amp distribution switchgear fed from building 200 that serves building 220. This equipment is of a similar age and condition, with similar parts and reliability concerns. Replacement of this equipment is also recommended.</p>	169,657
<b>500 - Graphics</b>	
Light fixtures throughout building	
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	13,326
<b>510 - Classroom</b>	
Light fixtures throughout building	

Fusion Component/Building/Location/Problem	Estimated Cost
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	5,330
<b>540 - Electronics</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	12,336
<b>550 - Tech/Human Services</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	16,981
<b>560 - General Classroom</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	18,732
<b>570 - Photography Lab</b>	
Fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	8,681
<b>600 - ASO</b>	
Fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	9,747
<b>610 - Student Union</b>	
Fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	25,586
<b>620 - Learning Resource Center</b>	
Fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	113,308
<b>630 - Bookstore</b>	
Fixtures throughout building	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	12,717
<b>640 - Journalism</b>	
<p>Fixtures throughout building</p>	
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	3,731
<b>650 - Resource TR</b>	
<p>Fixtures throughout building</p>	
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	3,807

Fusion Component/Building/Location/Problem	Estimated Cost
<b>660 - Community Service</b>	
Fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	4,797
<b>700 - Art</b>	
Fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	17,438
<b>7000 - National City Higher Education Center</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	49,953
<b>710 - Art Gallery</b>	
Fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	21,626
<b>750 - Art</b>	
Fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	16,296
<b>800 - Music</b>	
Fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	11,727
<b>850 - Music</b>	
Fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	11,422
<b>ST - Site</b>	
Behind Building 900 Theater	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>A distribution switchboard that serves Buildings 700, 710, 800, and 810 appears to be original and is thought to be approximately 50 years old. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p>	79,193
<b>Grand Total</b>	<b>1,785,279</b>

Fusion Component/Building/Location/Problem	Estimated Cost
<b>Mechanical</b>	<b>188,186</b>
<b>1400 - Cesar Chavez-Administration</b>	
Roof	
Two packaged roof top air conditioners appear to have been replaced in 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.  One natural gas unit heater and one window air conditioner are also deteriorating and should be replaced at the same time. In addition, the hot water heating equipment and steel support frames on the roof are badly oxidized and should be re-finished.	154,417
<b>1600 - Classroom-Modular</b>	
Ceiling throughout building	
HVAC supply perforated ceiling diffuser(s) are stained and rusty. Install new ceiling diffuser(s).	1,744
<b>540 - Electronics</b>	
Roof	
The hot water heating piping insulation and exposed aluminum jacket on the roof has deteriorated and is recommended to be replaced to reduce energy usage. Two hundred feet of one inch diameter piping was determined to require replacement of its insulation and aluminum jacket.	14,586
<b>550 - Tech/Human Services</b>	
Roof	
The hot water heating piping insulation and exposed aluminum jacket on the roof has deteriorated and is recommended to be replaced to reduce energy usage. Three hundred feet of one inch diameter piping was determined to require replacement of its insulation and aluminum jacket.	17,439
<b>Other</b>	<b>406,613</b>
<b>4000 - Otay Mesa Higher Ed Center</b>	
Parapet caps on roof of Bldg. 4100	
The caulking in the joints of the metal parapet caps is deteriorating, providing the potential for moisture to leak into the joints and deteriorate the parapet top. Remove failing caulk and re-caulk all joints.	1,110
Parapet caps on roof of east and west wings of Bldg 4300	
The caulking in the joints of the metal parapet caps is deteriorating, providing the potential for moisture to leak into the joints and deteriorate the parapet top. Remove failing caulk and re-caulk all joints.	1,308
Parapet caps on roof of east wing and separate center classroom of Bldg 4400	
The caulking in the joints of the metal parapet caps is deteriorating, providing the potential for moisture to leak into the joints and deteriorate the parapet top. Remove failing caulk and re-caulk all joints.	1,189
<b>7000 - National City Higher Education Center</b>	
Perimeter of roof	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>The joint caulking on the metal caps is starting to deteriorate in several places due to weathering. Though it is still in reasonable condition, it will likely be necessary to replace the caulking in four to five years. The existing caulk will have to be cut-out, the joints cleaned and new calk installed.</p>	<p>1,585</p>



Fusion Component/Building/Location/Problem	Estimated Cost
<b>9000 - Crown Cove Aquatic Center</b>	
Main building	
<p>Carpet is badly stained and dirty and is no longer cost-effective to maintain. It should be replaced. The vinyl flooring in the restrooms is also deteriorating and should be replaced. Before installing new carpet, waterproof the concrete slab. Install new low-pile high-wear commercial grade carpet using waterproof adhesive. Note that the cost estimate provide an option to install non-slip tile in lieu of carpet.</p>	35,988
<b>ST - Site</b>	
Lot B	
<p>The asphalt paving in this lot is in reasonably good condition, exhibiting only minor random surface wear. It is recommended that the entire lot be seal-coated with 2 coats of a petroleum resistant emulsion and restriped.</p>	54,379
Lot G	
<p>The asphalt paving in this lot exhibits random hairline cracking, but is otherwise in generally good condition. Cracks range in width from 1/8" to 1/4". All cracks should be swept out and cleaned, then sealed. The entire lot should then be seal-coated with 2 coats of a petroleum resistant emulsion and restriped.</p>	123,978
Lot I	
<p>The asphalt paving in this lot exhibits random cracking, but is otherwise in generally good condition. Cracks range in width from 1/8" to 1/2" wide. All cracks should be swept out and cleaned, then sealed. The entire lot should then be seal-coated with 2 coats of a petroleum resistant emulsion and restriped.</p>	9,512
<b>Tennis court complex</b>	
<p>The 14 tennis courts all have generalized cracking of the playing surface. Many of these cracks appear to also be present in the underlying asphalt/concrete. The four south tennis courts are the most problematic and the two bleacher courts are in the best condition. This deficiency addresses the 8 remaining courts.</p> <p>The courts should first be cleaned with a pressure washer. After the court has dried all cracks should be cleaned, filled and smoothed using a polymer modified cement with silica sand to fill all cracks. The next step would be to apply a base coat acrylic resurfacer, followed by two coats of acrylic color. Finally, the court should be re-striped.</p> <p>NOTE: Cost estimate does NOT include repair of "bird baths" or low spots, as this will require a more thorough assessment by a court repair professional.</p>	177,564

Fusion Component/Building/Location/Problem	Estimated Cost
<b>Roof</b>	<b>544,344</b>
<b>100 - Administration</b>	
At each roof drain	
<p>The roof drains were damaged when the hypalon membrane was installed on the roof and they no longer can be kept properly fastened to the drain line. They should be replaced. This should be done when the roof membrane is next replaced.</p> <p>The roof drains also currently drain down through the building and under the slab. Maintenance personnel have identified deterioration in the drain piping inside some buildings in the past and suspect additional deterioration may be occurring. It is recommended that the vertical drain lines be abandoned and new lines installed to flow horizontally from below the drains to the exterior. This should be done when the roof membrane is next replaced.</p>	15,933
Roof	
<p>College records provided to the consultant indicate the single-ply roof membrane, which appears to be hypalon, is 15 years old. There is a significant amount of debris on the roof and the membrane surface is extremely dirty, making an assessment of condition very difficult. It is apparent that maintenance has been badly lacking in recent times.</p> <p>The assessment conducted focused on membrane seams and fasteners and determining the condition of the surface relative to chalking and crazing of the surface, which are indicators of deterioration. Many areas of the seams appear frayed and there are a number of fasteners that are "lifting" under the membrane. Given the age of the membrane, its apparent lack of maintenance, and its apparent condition, it is recommended that the membrane be programmed for replacement in 4 to 5 years.</p> <p>A complete removal of the existing membrane, flashings and any insulation board are recommended. The roof deck should be evaluated to determine its condition and whether any repairs are required. Replacement should include installation of a new vapor barrier, polystyrene or similar insulation board of at least 2" thickness and R-10 rated along with tapered insulation for proper drainage, a new 60 mil mechanically attached PVC membrane, and metal parapet cap flashing. Roof drain inlets will also have to be reset.</p> <p>Note: The cost estimate does not include deck repairs needed, if any, or HVAC equipment removal/reset.</p>	115,337
<b>102 - Staff Lounge</b>	
At each roof drain	
<p>The roof drains were damaged when the hypalon membrane was installed on the roof and they no longer can be kept properly fastened to the drain line. They should be replaced.</p> <p>The roof drains also currently drain down through the building and under the slab. Maintenance personnel have identified deterioration in the drain piping inside some buildings in the past and suspect additional deterioration may be occurring. It is recommended that the vertical drain lines be abandoned and new lines installed to flow horizontally from below the drains to the exterior</p>	7,927

Fusion Component/Building/Location/Problem	Estimated Cost
<p data-bbox="154 168 211 199">Roof</p> <p data-bbox="194 304 1266 451">College records provided to the consultant indicate the single-ply roof membrane, which appears to be hypalon, is 15 years old. There is a significant amount of debris on the roof and the membrane surface is extremely dirty, making an assessment of condition very difficult. It is apparent that maintenance has been badly lacking in recent times.</p> <p data-bbox="194 493 1266 703">The assessment conducted focused on membrane seams and fasteners and determining the condition of the surface relative to chalking and crazing of the surface, which are indicators of deterioration. Many areas of the seams appear frayed and there are a number of fasteners that are "lifting" under the membrane. Given the age of the membrane, its apparent lack of maintenance, and its apparent condition, it is recommended that the membrane be programmed for replacement in 4 to 5 years.</p> <p data-bbox="194 745 1266 966">A complete removal of the existing membrane, flashings and any insulation board are recommended. The roof deck should be evaluated to determine its condition and whether any repairs are required. Replacement should include installation of a new vapor barrier, polystyrene or similar insulation board of at least 2" thickness and R-10 rated along with tapered insulation for proper drainage, a new 60 mil mechanically attached PVC membrane, and metal parapet cap flashing. Roof drain inlets will also have to be reset.</p> <p data-bbox="194 1008 1266 1071">Note: The cost estimate does not include deck repairs needed, if any, or HVAC equipment removal/reset.</p>	<p data-bbox="1502 1039 1575 1071">58,025</p>
<p data-bbox="73 1081 267 1113"><b>103 - Classroom</b></p>	
<p data-bbox="154 1123 365 1155">At each roof drain</p>	
<p data-bbox="194 1186 1266 1260">The roof drains were damaged when the hypalon membrane was installed on the roof and they no longer can be kept properly fastened to the drain line. They should be replaced.</p> <p data-bbox="194 1302 1266 1470">The roof drains also currently drain down through the building and under the slab. Maintenance personnel have identified deterioration in the drain piping inside some buildings in the past and suspect additional deterioration may be occurring. It is recommended that the vertical drain lines be abandoned and new lines installed to flow horizontally from below the drains to the exterior</p>	<p data-bbox="1502 1449 1575 1480">15,854</p>

Fusion Component/Building/Location/Problem	Estimated Cost
<p data-bbox="155 170 212 195">Roof</p> <p data-bbox="196 317 1263 453">College records provided to the consultant indicate the single-ply roof membrane, which appears to be hypalon, is 15 years old. There is a significant amount of debris on the roof and the membrane surface is very dirty, making an assessment of condition very difficult. It is apparent that maintenance has been badly lacking in recent times.</p> <p data-bbox="196 499 1263 709">The assessment conducted focused on membrane seams and fasteners and determining the condition of the surface relative to chalking and crazing of the surface, which are indicators of deterioration. Many areas of the seams appear frayed and there are a number of fasteners that are "lifting" under the membrane. Given the age of the membrane, its apparent lack of maintenance, and its apparent condition, it is recommended that the membrane be programmed for replacement in 4 to 5 years.</p> <p data-bbox="196 756 1263 966">A complete removal of the existing membrane, flashings and any insulation board are recommended. The roof deck should be evaluated to determine its condition and whether any repairs are required. Replacement should include installation of a new vapor barrier, polystyrene or similar insulation board of at least 2" thickness and R-10 rated along with tapered insulation for proper drainage, a new 60 mil mechanically attached PVC membrane, and metal parapet cap flashing. Roof drain inlets will also have to be reset.</p> <p data-bbox="196 1012 1263 1073">Note: The cost estimate does not include deck repairs needed, if any, or HVAC equipment removal/reset.</p>	<p data-bbox="1500 1052 1576 1077">99,087</p>

Fusion Component/Building/Location/Problem	Estimated Cost
<p><b>104 - Academic Senate</b></p>	
<p>At each roof drain</p>	
<p>The roof drains were damaged when the hypalon membrane was installed on the roof and they no longer can be kept properly fastened to the drain line. They should be replaced.</p> <p>The roof drains also currently drain down through the building and under the slab. Maintenance personnel have identified deterioration in the drain piping inside some buildings in the past and suspect additional deterioration may be occurring. It is recommended that the vertical drain lines be abandoned and new lines installed to flow horizontally from below the drains to the exterior</p>	7,927
<p>Roof</p>	
<p>College records provided to the consultant indicate the single-ply roof membrane, which appears to be hypalon, is 15 years old. There is an extensive amount of debris on the roof and the membrane surface is very dirty, making an assessment of condition very difficult. It is apparent that maintenance has been badly lacking in recent times.</p> <p>The assessment conducted focused on membrane seams and fasteners and determining the condition of the surface relative to chalking and crazing of the surface, which are indicators of deterioration. Many areas of the seams appear frayed and there are a number of fasteners that are "lifting" under the membrane. Given the age of the membrane, its apparent lack of maintenance, and its apparent condition, it is recommended that the membrane be programmed for replacement in 4 to 5 years.</p> <p>A complete removal of the existing membrane, flashings and any insulation board are recommended. The roof deck should be evaluated to determine its condition and whether any repairs are required. Replacement should include installation of a new vapor barrier, polystyrene or similar insulation board of at least 2" thickness and R-10 rated along with tapered insulation for proper drainage, a new 60 mil mechanically attached PVC membrane, and metal parapet cap flashing. Roof drain inlets will also have to be reset.</p> <p>Note: The cost estimate does not include deck repairs needed, if any, or HVAC equipment removal/reset.</p>	55,330
<p><b>105 - Classroom</b></p>	
<p>At each roof drain</p>	
<p>The roof drains were damaged when the hypalon membrane was installed on the roof and they no longer can be kept properly fastened to the drain line. They should be replaced.</p> <p>The roof drains also currently drain down through the building and under the slab. Maintenance personnel have identified deterioration in the drain piping inside some buildings in the past and suspect additional deterioration may be occurring. It is recommended that the vertical drain lines be abandoned and new lines installed to flow horizontally from below the drains to the exterior</p>	15,854
<p><b>200 - Business</b></p>	
<p>At each roof drain</p>	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>The roof drains were damaged when the hypalon membrane was installed on the roof and they no longer can be kept properly fastened to the drain line. They should be replaced.</p> <p>The roof drains also currently drain down through the building and under the slab. Maintenance personnel have identified deterioration in the drain piping inside some buildings in the past and suspect additional deterioration may be occurring. It is recommended that the vertical drain lines be abandoned and new lines installed to flow horizontally from below the drains to the exterior</p>	15,854

Fusion Component/Building/Location/Problem	Estimated Cost
<b>340 - Physics</b>	
Roof	
<p>College records provided to the consultant indicate the single-ply roof membrane, which appears to be hypalon, is over 15 years old. There is an extensive amount of debris on the roof and the membrane is very dirty, making an assessment of condition very difficult. It is apparent that maintenance has been badly lacking in recent times.</p> <p>The assessment conducted focused on membrane seams and fasteners and determining the condition of the surface relative to chalking and crazing of the surface, which are indicators of deterioration. Many areas of the seams appear frayed and there are a number of fasteners that are "lifting" under the membrane. Given the age of the membrane, its apparent lack of maintenance, and its apparent condition, it is recommended that the membrane be programmed for replacement in 4 to 5 years.</p> <p>A complete removal of the existing membrane, flashings and any insulation board are recommended. The roof deck should be evaluated to determine its condition and whether any repairs are required. Replacement should include installation of a new vapor barrier, polystyrene or similar insulation board of at least 2" thickness and R-10 rated along with tapered insulation for proper drainage, a new 60 mil mechanically attached PVC membrane, and metal parapet cap flashing. Roof drain inlets will also have to be reset.</p> <p>Note: The cost estimate does not include deck repairs needed, if any, or HVAC equipment removal/reset, but does include removal/reset of 150 LF of ductwork.</p>	123,026
<b>400 - Office</b>	
At each roof drain	
<p>The roof drains were damaged when the hypalon membrane was installed on the roof and they no longer can be kept properly fastened to the drain line. They should be replaced.</p> <p>The roof drains also currently drain down through the building and under the slab. Maintenance personnel have identified deterioration in the drain piping inside some buildings in the past and suspect additional deterioration may be occurring. It is recommended that the vertical drain lines be abandoned and new lines installed to flow horizontally from below the drains to the exterior</p>	9,037
<b>570 - Photography Lab</b>	
Entire roof	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>The single-ply membrane on this building is fairly free of debris. However, there are a couple of areas of dirty membrane. As more dirt accumulates it can make it very difficult to ascertain the condition of the roof and identify potential problems. It also can shorten the life of the membrane. Thorough cleaning of the membrane surface is recommended in 3 to 4 years. An assessment of the membrane indicated no apparent deficiencies.</p> <p>Remove all leaves/debris from the roof and clean downspouts and sumps. Power-wash the membrane using a cleaning solution formulated for single-ply roof membranes. The surface should be cleaned at least every three to four years to maintain and prolong the life of the membrane.</p> <p>Note: Use only bonded contractor with experience cleaning single-ply membranes.</p>	5,153



Fusion Component/Building/Location/Problem	Estimated Cost
<b>Utility</b>	552,905
<b>105 - Classroom</b>	
Electrical Room and various locations	
<p>The circuit breaker panelboards are original to the building and are now approximately 44 years old. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p>	92,270
<b>1100 - Warehouse</b>	
Fixtures throughout building	
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	8,244
<b>1200 - Maintenance</b>	
Fixtures throughout building	
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	7,451
<b>1250 - Auto Maintenance</b>	
Light fixtures throughout building	
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	4,201
<b>1400 - Cesar Chavez-Administration</b>	
Light fixtures throughout building	
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	73,879
<b>1505 - Snack Bar</b>	
Light fixtures throughout building	
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	1,982
<b>1600 - Classroom-Modular</b>	
Light fixtures throughout building	
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	3,805
<b>1620 - Classroom-Modular</b>	
Light fixtures throughout building	

Fusion Component/Building/Location/Problem	Estimated Cost
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	2,933
<b>1630 - Classroom-Modular</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	2,695
<b>1650 - Classroom-Modular</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	6,421

Fusion Component/Building/Location/Problem	Estimated Cost
<b>1660 - Classroom-Modular</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	3,884
<b>1670 - Classroom-Modular</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	3,012
<b>1800 - Horticulture</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	3,488
<b>1810 - Greenhouse</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	1,902
<b>2000 - Child Development Center</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	24,653
<b>382 - Planetarium</b>	
(blank)	
The circuit breaker panelboard is original to the building and is now approximately 48 years old. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.	42,171

Fusion Component/Building/Location/Problem	Estimated Cost
<b>4000 - Otay Mesa Higher Ed Center</b>	
Light fixtures throughout building 4100	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	26,476
Light fixtures throughout building 4200	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	8,165
Light fixtures throughout building 4300	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	19,183
Light fixtures throughout building 4400	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	42,330
Light fixtures throughout building 4500	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	3,250

Fusion Component/Building/Location/Problem	Estimated Cost
<b>5000 - San Ysidro Higher Education Center</b>	
Light fixtures throughout building	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	24,732
<b>710 - Art Gallery</b>	
Various locations	
This building has a 400 Amp distribution switchboard for electrical power distribution to circuit breaker panels. The switchboard and circuit breaker panelboards are original to the building and are approximately 46 years old. Although the equipment is still functional, it is growing obsolete, replacement parts are expensive and not readily available, and the equipment is nearing the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.	139,039
<b>9000 - Crown Cove Aquatic Center</b>	
Light fixtures throughout building. Main building, garage, CPR office	
Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.	6,738
<b>Grand Total</b>	<b>1,692,049</b>

Fusion Component/Building/Location/Problem	Estimated Cost
<b>Mechanical</b>	<b>3,654,466</b>
<b>100 - Administration</b>	
Roof	
<p>The rooftop condensing unit and packaged A/C unit appear to have been replaced in 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out. There are also three circular aluminum exhaust fans on the roof that appear to be original 1965 equipment and should be scheduled for replacement at the same time.</p> <p>Refrigerant piping insulation on the roof is also deteriorated and should be replaced when the condensing units are replaced. Sixty feet of insulation has been included in the cost estimate.</p>	82,025
<b>102 - Staff Lounge</b>	
Roof	
<p>The two packaged rooftop units appear to have been replaced in 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out. In addition, there are three circular aluminum exhaust fans on the roof that appear to be original 1965 equipment and should be scheduled for replacement at the same time.</p>	78,394
<b>104 - Academic Senate</b>	
Roof	
<p>The two condensing units on the roof appear to have been replaced in 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>Refrigerant piping insulation on the roof is also deteriorated and should be replaced when the condensing units are replaced. Seventy - five feet of insulation has been included in the cost estimate.</p>	46,376
<b>105 - Classroom</b>	
Roof	
<p>The two condensing units on the roof appear to have been replaced in 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>Refrigerant piping insulation on the roof is also deteriorated and should be replaced when the condensing units are replaced. Seventy - five feet of insulation has been included in the cost estimate.</p>	77,899
<b>1100 - Warehouse</b>	
Roof	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>The two packaged roof top air conditioning units with natural gas heat appear to have been replaced in 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out. One of two natural gas unit heaters is also inoperative and should be replaced at the same time.</p> <p>Other items on the roof that require attention include damper linkage that is rusting and should be replaced, and one circular aluminum exhaust fan that appears original and should also be replaced.</p>	111,897
<b>1200 - Maintenance</b>	
Roof and various locations inside	
<p>The two packaged roof top air conditioning units with natural gas heat appear to have been replaced in 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out. One natural gas unit heater and one window air conditioner are also deteriorating and should be replaced at the same time.</p>	85,820
<b>200 - Business</b>	
Roof	
<p>Two condensing units appear to have been replaced in 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>Refrigerant piping insulation on the roof is deteriorated and should be replaced when the condensing units are replaced. Fifty feet of insulation has been included in the cost estimate.</p>	54,298
<b>210 - Administration</b>	
Roof	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>Three packaged roof top air conditioning units dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out. There are also four circular aluminum exhaust fans on the roof that appear to be original 1965 equipment and should be scheduled for replacement at the same time.</p>	132,362
<b>340 - Physics</b>	
Roof	
<p>The two condensing units are dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. Maintenance staff has also reported that they receive complaints from faculty that the condensing units are noisy and vibrate excessively. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p>	61,725
<b>381 - Exhibit Hall</b>	
Roof	
<p>The condensing unit is estimated to date from 2001 and is now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p>	56,939
<b>382 - Planetarium</b>	
Roof	
<p>The packaged rooftop A/C units date from 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p>	77,238
<b>400 - Office</b>	
Roof	
<p>The condensing unit serving the building appears to have been installed in 2001, and is now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out. Two circular aluminum exhaust fans on the roof also appear to be deteriorating and should be replaced at the same time.</p> <p>Refrigerant piping insulation on the roof is deteriorated and should also be replaced when the condensing units are replaced. Forty feet of insulation has been included in the cost estimate.</p>	63,045
<b>410 - English</b>	
Roof and Mechanical Room	
<p>The two condensing units are dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. Maintenance staff has also reported that they receive complaints from faculty that the condensing units are noisy and vibrate excessively. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p>	61,560



Fusion Component/Building/Location/Problem	Estimated Cost
<b>430 - Classroom</b>	
Roof	
<p>A packaged roof top natural gas boiler and two circulating pumps appear to be at the end of their expected service life and are recommended to be scheduled for replacement. Pump appurtenances (triple duty valve, suction strainer, air separate) are recommended to be replaced at the same time. There is also a cooler that cools the boiler relief valve discharge before it enters a drain. This equipment should also be replaced. Support frame for the boiler and pumps are recommended to be painted. There are four aluminum circular exhaust fans and one square exhaust fan on the roof that are recommended to be replaced.</p>	153,982
<b>440 - Language</b>	
Roof	
<p>The two condensing units are dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. Maintenance staff has also reported that they receive complaints from faculty that the condensing units are noisy and vibrate excessively. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p>	64,035
<b>460 - Behavioral Science</b>	
Roof and Mechanical Room	
<p>HVAC equipment appears to have been replaced in Year 2001. The two condensing units are nearing the end of their expected service life of 20 years and it is recommended that they be scheduled for replacement within the next 5 years. There are two aluminum circular exhaust fans and one square exhaust fan on the roof that are recommended to be replaced. Refrigerant piping insulation on the roof is deteriorated and should be replaced when the condensing units are replace. Forty - five feet of insulation has been included in the cost.</p>	104,800

Fusion Component/Building/Location/Problem	Estimated Cost
<b>470 - Social Science</b>	
Mechanical Room	
<p>The air handling unit in the mechanical room was installed in 2001 and appears to still be in good condition. Its remaining life is estimated at 15 years. However, as the unit ages repair and maintenance requirements will become more frequent. An allowance should be budgeted for repairs/maintenance that may be required over the next 5 years in order to properly maintain the air handler and extend its life.</p>	25,746
Roof	
<p>The two condensing units are dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>There is also one circular aluminum exhaust fan on the roof that appears to be deteriorating and should be replaced.</p> <p>In addition, the bare carbon steel duct supports are oxidizing and should be re-finished to minimize rusting.</p>	111,897
<b>500 - Graphics</b>	
Roof	
<p>The two condensing units are dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out. There are also two circular aluminum roof exhaust fans that appear to be deteriorating and are recommended to be replaced.</p> <p>Refrigerant piping insulation on the roof is deteriorated as well and should be replaced when the condensing units are replaced. Fifty feet of insulation has been included in the cost estimate.</p>	95,063
<b>540 - Electronics</b>	
Roof	
<p>The two condensing units and one packaged roof top air conditioning unit are dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>Refrigerant piping insulation on the roof is deteriorated and should be replaced when the condensing units are replaced. Fifty feet of insulation has been included in the cost.</p>	134,012
<b>550 - Tech/Human Services</b>	
Roof and Mechanical Room	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>The two condensing units and one packaged roof top air conditioning unit are dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>Refrigerant piping insulation on the roof is also deteriorated and should be replaced when the condensing units are replaced. Fifty feet of insulation has been included in the cost. There is also one circular aluminum and five square exhaust fans that appear to be deteriorating and are recommended to be replaced.</p>	163,554

Fusion Component/Building/Location/Problem	Estimated Cost
<b>560 - General Classroom</b>	
Roof	
<p>The hot water heating piping insulation and exposed aluminum jacket on the roof has deteriorated and is recommended to be replaced to reduce energy usage. This hot water heating piping also appears to serve Building 570. Six hundred feet of one inch diameter piping was determined to require replacement of its insulation and aluminum jacket.</p>	52,648
<p>The two condensing units are dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>Refrigerant piping insulation on the roof is also deteriorated and should be replaced when the condensing units are replaced. Fifty feet of insulation has been included in the cost.</p>	91,762
<b>590 - Automotive-A</b>	
Roof of Lab A	
<p>The two packaged roof top air conditioning unit are dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>There is also a utility set exhaust fan on the roof that requires the deteriorating wood support to be replaced and surface rust on the unit to be removed, and the unit re-finished to protect the carbon steel surfaces from the elements. In addition, a small amount of black steel gas piping requires a surface coating to protect it from the elements.</p>	99,849
<b>590 - Automotive-B</b>	
Roof of Lab B	
<p>The HVAC equipment appears to have been replaced in 2001. The three packaged roof top air conditioning units are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>There are also eight deteriorating circular exhaust fans on the roof that appear original and should be replaced at the same time.</p>	106,945

Fusion Component/Building/Location/Problem	Estimated Cost
<b>590 - Automotive-C</b>	
Roof of Lab C	
<p>The four packaged roof top air conditioning units are dated 2001 and are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p>	125,430
<b>600 - ASO</b>	
Roof	
<p>The HVAC equipment appears to have been replaced in 2001. The eleven packaged roof top air conditioning units are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>Rusting of the sheet metal ductwork joints and transition ductwork were also observed. The cost estimate provided includes amounts to repair and or replace ductwork sections and re-seal joint to minimize rusting in the future.</p>	443,296
<b>610 - Student Union</b>	
Mechanical Room	
<p>The domestic hot water heater and storage tank are slowly deteriorating, nearing the end of their expected service life and are recommended to be replaced. Equipment includes a 510 MBH output natural gas fired boiler, a 1/2 hp, and a 520 gallon storage tank.</p>	79,879
<b>630 - Bookstore</b>	
Roof	
<p>The HVAC equipment appears to have been replaced in 2001. The three packaged roof top air conditioning units are now 14 years old, which is approximately 70% of the generally accepted 20 year service life of the equipment. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>A Restroom exhaust fan that appears to be original is also recommended to be replaced at the same time.</p>	117,838
<b>640 - Journalism</b>	
Roof	
<p>The three packaged roof top air conditioning units appear to be around 15 years old. As such they have reached approximately 70% of their generally accepted 20 year service life. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p>	92,752
<b>650 - Resource TR</b>	
Roof	
<p>The three packaged roof top air conditioning units appear to be around 15 years old. As such they have reached approximately 70% of their generally accepted 20 year service life. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p>	92,752
<b>660 - Community Service</b>	
Roof	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>The four packaged roof top air conditioning units appear to be around 15 years old. As such they have reached approximately 70% of their generally accepted 20 year service life. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p>	116,353
<b>700 - Art</b>	
Roof	
<p>The hot water heating piping insulation and exposed aluminum jacket on the roof has deteriorated and is recommended to be replaced to reduce energy usage. Three hundred and fifty feet of one inch diameter piping was determined to require replacement of its insulation and aluminum jacket.</p>	21,455
<p>The two condensing units appear to have been replaced in 2001 and are now 14 years old. As such they have reached approximately 70% of their generally accepted 20 year service life. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out. Refrigerant piping insulation on the roof is also deteriorated and should be replaced when the condensing units are replaced. Forty feet of insulation has been included in the cost estimate.</p>	84,005
<b>800 - Music</b>	
Roof	
<p>The two condensing units appear to have been replaced in 2001 and are now 14 years old. As such they have reached approximately 70% of their generally accepted 20 year service life. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered for approximately five years out.</p> <p>Refrigerant piping insulation on the roof is also deteriorated and should be replaced when the condensing units are replaced. Forty feet of insulation has been included in the cost estimate</p>	62,715
<b>900 - Auditorium</b>	
Mechanical Room	
<p>Except for the air handler that serves the main seating area, which appears to have been replaced in the recent past, the building HVAC equipment appears to be original, which would make it 48 years old. At this point, increasing maintenance and repair costs can be anticipated going forward, and replacement programming should be considered if this building will be retained by the college for longer than five years.</p> <p>Replacement would be recommended for the air handler that serves the lobby and stage areas, the return/exhaust fans that serve the seating area, lobby and stage, and one small exhaust fan.</p>	224,123

Fusion Component/Building/Location/Problem	Estimated Cost
<b>Other</b>	<b>41,837</b>
<b>ST - Site</b>	
Tennis court complex	
<p>The 14 tennis courts all have generalized cracking of the playing surface. Many of these cracks appear to also be present in the underlying asphalt/concrete. The four south tennis courts are the most problematic and the two bleacher courts are in the best condition. This deficiency addresses the 2 courts in the best shape.</p> <p>The courts should first be cleaned with a pressure washer. After the court has dried all cracks should be cleaned, filled and smoothed using a polymer modified cement with silica sand to fill all cracks. The next step would be to apply a base coat acrylic resurfacer, followed by two coats of acrylic color. Finally, the court should be re-stripped.</p> <p>NOTE: Cost estimate does NOT include repair of "bird baths" or low spots, as this will require a more thorough assessment by a court repair professional.</p>	41,837
<b>Roof</b>	<b>557,874</b>
<b>100 - Administration</b>	
Roof surface	
<p>There are significant amounts of leaves and tree debris on the roof membrane surface. This can create a scouring action across the surface and seriously clog roof drains. Once the roof membrane has been replaced, debris should be cleaned off the roof at least once per year.</p>	578
<b>102 - Staff Lounge</b>	
Roof surface	
<p>There are significant amounts of leaves and tree debris on the roof membrane surface. This can create a scouring action across the surface and seriously clog roof drains. Once the roof membrane has been replaced, debris should be cleaned off the roof at least once per year.</p>	330
<b>103 - Classroom</b>	
Roof surface	
<p>There are significant amounts of leaves and tree debris on the roof membrane surface. This can create a scouring action across the surface and seriously clog roof drains. Once the roof membrane has been replaced, debris should be cleaned off the roof at least once per year.</p>	454
<b>104 - Academic Senate</b>	
Roof surface	
<p>There are significant amounts of leaves and tree debris on the roof membrane surface. This can create a scouring action across the surface and seriously clog roof drains. Once the roof membrane has been replaced, debris should be cleaned off the roof at least once per year.</p>	330

Fusion Component/Building/Location/Problem	Estimated Cost
<b>105 - Classroom</b>	
Roof	
<p>College records provided to the consultant indicate the single-ply roof membrane, which appears to be hypalon, is 15 years old. There is no debris on the roof, but the membrane is dirty in spots.</p> <p>The assessment conducted focused on membrane seams and fasteners and determining the condition of the surface relative to chalking and crazing of the surface, which are indicators of deterioration. Many areas of the seams appear frayed and there are a number of fasteners that are "lifting" under the membrane. Given the age of the membrane, its apparent lack of maintenance, and its apparent condition, it is recommended that the membrane be programmed for replacement in 4 to 5 years.</p> <p>A complete removal of the existing membrane, flashings and any insulation board are recommended. The roof deck should be evaluated to determine its condition and whether any repairs are required. Replacement should include installation of a new vapor barrier, polystyrene or similar insulation board of at least 2" thickness and R-10 rated along with tapered insulation for proper drainage, a new 60 mil mechanically attached PVC membrane, and metal parapet cap flashing. Roof drain inlets will also have to be reset.</p> <p>Note: The cost estimate does not include deck repairs needed, if any, or HVAC equipment removal/reset.</p>	155,467
<b>630 - Bookstore</b>	
Roof	
<p>College records provided to the consultant indicate the single-ply roof membrane, which appears to be hypalon, is 15 years old. There is a moderate amount of debris on the roof and the membrane is very dirty, making an assessment of condition very difficult. It is apparent that maintenance has been badly lacking in recent times.</p> <p>The assessment conducted focused on membrane seams and fasteners and determining the condition of the surface relative to chalking and crazing of the surface, which are indicators of deterioration. Many areas of the seams appear frayed and there are a number of fasteners that are "lifting" under the membrane. Given the age of the membrane, its apparent lack of maintenance, and its apparent condition, it is recommended that the membrane be programmed for replacement in 4 to 5 years.</p> <p>A complete removal of the existing membrane, flashings and any insulation board are recommended. The roof deck should be evaluated to determine its condition and whether any repairs are required. Replacement should include installation of a new vapor barrier, polystyrene or similar insulation board of at least 2" thickness and R-10 rated along with tapered insulation for proper drainage, a new 60 mil mechanically attached PVC membrane, and metal parapet cap flashing. Roof drain inlets will also have to be reset.</p> <p>Note: The cost estimate does not include deck repairs needed, if any, or HVAC equipment removal/reset.</p>	163,224



Fusion Component/Building/Location/Problem	Estimated Cost
<b>750 - Art</b>	
Roof	
<p>College records provided to the consultant indicate the single-ply roof membrane, which appears to be hypalon, is 15 years old. There is moderate debris and dirt on the membrane, making an assessment of condition somewhat difficult. It is apparent that maintenance has been lacking in recent times.</p> <p>The assessment conducted focused on membrane seams and fasteners and determining the condition of the surface relative to chalking and crazing of the surface, which are indicators of deterioration. Many areas of the seams appear frayed and there are a number of fasteners that are "lifting" under the membrane. In addition, three cuts were identified in the membrane in one area of the roof. Given the age of the membrane, its apparent lack of maintenance, and its apparent condition, it is recommended that the membrane be programmed for replacement in 5 years. This includes the storage area roof.</p> <p>A complete removal of the existing membrane, flashings and any insulation board are recommended. The roof deck should be evaluated to determine its condition and whether any repairs are required. Replacement should include installation of a new vapor barrier, polystyrene or similar insulation board of at least 2" thickness and R-10 rated along with tapered insulation for proper drainage, a new 60 mil mechanically attached PVC membrane, and metal parapet cap flashing. Roof drain inlets will also have to be reset.</p> <p>Note: The cost estimate does not include deck repairs needed, if any, or HVAC equipment removal/reset.</p>	237,492
<b>Utility</b>	<b>1,424,289</b>
<b>450 - Office</b>	
Electrical Room	
<p>The circuit breaker panelboard is original to the building and is now approximately 43 years old. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p>	57,764

Fusion Component/Building/Location/Problem	Estimated Cost
<b>460 - Behavioral Science</b>	
Electrical Room	
<p>The circuit breaker panelboard is original to the building and is now approximately 41 years old. This building also has main distribution switchgear. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p>	142,264
<b>470 - Social Science</b>	
Various locations	
<p>The circuit breaker panelboards are original to the building and are now approximately 41 years old. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p>	91,597
<b>510 - Classroom</b>	
Various locations	
<p>The circuit breaker panelboards are original to the building and are now approximately 44 years old. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p>	145,070
<b>550 - Tech/Human Services</b>	
Various locations	
<p>The circuit breaker panelboards are original to the building and are now approximately 41 years old. Although the equipment is still functional, it is growing obsolete, replacement parts are expensive and not readily available, and the equipment is nearing the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p>	149,361
<b>560 - General Classroom</b>	
Electrical Room	
<p>The circuit breaker panelboards are original to the building and are approximately 41 years old. This building also houses the main distribution switchgear for buildings 560 and 570 . Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p>	196,562
<b>590 - Automotive</b>	
Outdoors adjacent to Labs A & C	

Fusion Component/Building/Location/Problem	Estimated Cost
<p>There are two distribution switchboards that serve the 590 Automotive area. They appear original to the buildings and are approximately 45 years old. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is approaching the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced.</p>	<p>171,641</p>

Fusion Component/Building/Location/Problem	Estimated Cost
<b>590 - Automotive-A</b>	
Various locations in Lab A	
<p>Circuit breaker panelboards are original to the building and are approximately 41 years old. Although the equipment is still functional, it is growing obsolete, replacement parts are expensive and not readily available, and the equipment is nearing the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced within the next 8 to 10 years.</p>	90,277
<b>590 - Automotive-C</b>	
Various locations in Lab C	
<p>Circuit breaker panelboards are original to the building and are approximately 41 years old. Although the equipment is still functional, it is growing obsolete, replacement parts are expensive and not readily available, and the equipment is nearing the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced within the next 8 to 10 years.</p>	98,694
<b>900 - Auditorium</b>	
Light fixtures throughout building	
<p>Maintenance staff and program managers have indicated they feel the existing fluorescent lighting is not as energy efficient as LED lighting and should be replaced with LED lighting. Retrofit existing fluorescent, recessed can fixtures and suspended light fixtures with energy efficient LED lights.</p>	32,183

Fusion Component/Building/Location/Problem	Estimated Cost
Various locations	
<p>The main distribution switchboard and circuit breaker panelboards are original to the building and are approximately 48 years old. Although the equipment is still functional, it is obsolete, replacement parts are expensive and not readily available, and the equipment is at the end of its generally accepted service life. There is also a concern with the reliability of the equipment as it provides protection of the circuits connected to each breaker. It is recommended that this equipment be replaced if the college intends to retain this building beyond another 5 years.</p>	248,879
<b>Grand Total</b>	<b>5,678,466</b>