

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP): COVER SHEET

AGENCY NUMBER: H51 NAME: Medical University of South Carolina (MUSC)

1. CPIP SUBMISSION AUTHORIZATION ON AVAILABILITY OF FUNDS

This submission presents this agency's Comprehensive Permanent Improvement Plan (CPIP) for fiscal years 2015-16, 2016-17, and for the following three fiscal years (2017-18, 2018-19, 2019-20). The plan includes all permanent improvements (as defined in the Budget and Control Board's Part I Manual and in Code Section 2-47-50) which are projected and proposed for those years by this agency as of the date this document is signed.

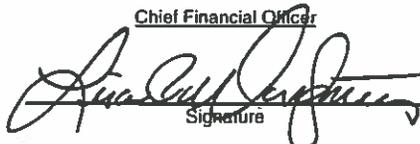
The submission of this Comprehensive Plan is authorized by the undersigned who certifies that the information presented is true and correct.

Signature 
 Typed Name Gregory W. Weigle
 Title Chief Facilities Officer
 Date March 13, 2015

2. CERTIFICATION THAT ALL FUNDS AVAILABLE HAVE BEEN APPLIED IN PLAN

We certify that all funds available to this agency from its own sources or capabilities for financing permanent improvements have been applied to projects proposed in this Plan. For 2015-16, we certify that the funds projected for expenditure are, or with reasonable certainty will be, available to this agency.


 Agency Head
 Signature
David Cole, MD, FACS
 President


 Chief Financial Officer
 Signature
Lisa P. Montgomery, MHA
 Executive Vice President, Finance & Administration

3. AGENCY CONTACT PERSON(S) ON THIS CPIP ARE:

Name: Gregory W. Weigle Phone: 843-792-7526
 Name: _____ Phone: _____

2014 CPIP: TABLE OF CONTENTS

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3. B&CB Form C2, Listing of Projects Proposed for 2015-16	<u>4</u>
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PART II Supporting Documentation:

- 10. N/A
- 11. _____
- 12. _____
- 13. _____

SUBMIT ORIGINAL (UNBOUND) TO:

CAPITAL BUDGETING UNIT
 EXECUTIVE BUDGET OFFICE
 1205 PENDLETON STREET, SUITE 529
 COLUMBIA, SOUTH CAROLINA 29201

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP): NARRATIVE SUMMARY OF THE FIVE-YEAR PLAN

AGENCY NUMBER: H51 NAME: Medical University of South Carolina (MUSC)

<p>1. What is the condition and adequacy of your existing facilities? Demand trends? What is the total amount of your agency's maintenance needs?</p> <p>The value of the University facilities and their condition and age suggest that a \$16 million annual stewardship capital re-investment is needed to maintain the facility at a status quo position. Our Engineering & Facilities Unit, in 2014, conducted a review of our planned renewal program for major building equipment and systems. This work, conducted by Sightlines, is ongoing as we try to refine the priorities of our program. However, at this time, it is not possible at the institution level, without supplemental funding, to allocate sufficient funds necessary to address the University's stewardship capital re-investment needs.</p>	<p>2. What is your approach to maintaining existing facilities in acceptable condition? How are maintenance needs addressed? If your agency has an account dedicated to maintenance needs, what is the name of that account and what is its uncommitted balance?</p> <p>Our Engineering & Facilities Unit manages a preventive maintenance (PM) program. This program is robust with more than 15,000 pieces of equipment contained in our inventory. This program has been benchmarked to show higher PM investments than our peers. Our Engineering & Facilities Unit, using information from the PM program and daily observations, develops annual budgets to conduct its PM program and keep our equipment operating at an acceptable level of reliability. The University's ability to maintain these requirements is dependent to a large degree on available funds for re-investment. The University is striving to strike an appropriate balance between addressing capital re-investment (stewardship) and pursuing the modernization of space critical to the continuing development of the University.</p>
<p>3. What are your facility replacement and addition needs?</p> <p>Presently, the University is not in an expansion position. In order to ensure that existing space is properly utilized, we need to focus on capital re-investment in these buildings to ensure that their infrastructure is capable of supporting their occupants to minimize the addition of new construction. We are currently working on developing building portfolios to assist us in this effort.</p>	<p>4. What is the theme of your five-year CPIP? How does it address these questions?</p> <p>Our theme is to balance the need to stay competitive in the Southeast and nationally, and to address our deferred maintenance/critical renewal needs.</p>

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP): FINANCIAL SUMMARY OF THE FIVE-YEAR PLAN

AGENCY NUMBER: H51 NAME: Medical University of South Carolina (MUSC)		Page					3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	Plan Year 1 2015-16	Plan Year 2 2016-17	Plan Year 3 2017-18	Plan Year 4 2018-19	Plan Year 5 2019-20	Grand Total Years 1-5	
1. NUMBER OF PROPOSED PROJECTS (from Forms C2)	3.00	2.00	1.00	1.00	1.00	8	
2. ESTIMATED COSTS AND PROPOSED FUND SOURCES							
0 Capital Improvement Bonds							
1 Departmental CIB							
2 Institution (Tuition) Bonds							
3 Revenue Bonds							
4 Excess Debt Service							
5 Capital Reserve Fund							
6 Appropriated State							
7 Federal							
8 Athletic							
9 Other (University General, Parking Revenue, Provost Office)	10,550,000.00	8,000,000.00	4,000,000.00	4,000,000.00	4,000,000.00	30,550,000.00	
TOTAL	10,550,000.00	8,000,000.00	4,000,000.00	4,000,000.00	4,000,000.00	30,550,000.00	

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

AGENCY NUMBER: **H51** NAME: **Medical University of South Carolina (MUSC)** Page **4**

PROJECT PROPOSED FOR PLAN YEAR (Check One):

1: 2015-16 __x__	2: 2016-17 ____	3: 2017-18 ____	4: 2018-19 ____	5: 2019-20 ____
------------------	-----------------	-----------------	-----------------	-----------------

PRIORITY NUMBER	PROJECT NAME	ESTIMATED COST	PROPOSED SOURCE(S) OF FUNDS
1	Capital Renewal Projects 2015-2016	\$4,000,000.00	University General Funds
2	Jonathan Lucas St. Garage (PG1) Waterproofing & Masonry Repair - (Total cost for three phases performed over multiple years.)	2,550,000.00	Parking Revenue
3	University Center at Ft. Johnson	4,000,000.00	University General Funds
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
TOTAL		10,550,000.00	

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

Agency Number: H51 Name: Medical University of South Carolina (MUSC)

PROJECT PROPOSED FOR PLAN YEAR (Check One):

1: 2015-16 x 2: 2016-17

1. Project Name: Capital Renewal Projects 2015-2016

3. Project Type: Repair/Renovate Existing Facilities/Systems 50 %
 Replace Existing Facilities/Systems 50 %
 4. Facility Type: Program/Academic/Research 80 %
 Healthcare/Medical 20 %

2. Project Priority: 1 of 3 in Plan Year

5. What is the project?

Below is a list of our Capital Renewal projects for 2015-2016:

- Replace Deaerator tank in Thurmond Gazes Building - \$300,000
- Replace/Repair Roofs on Psychiatric Hospital - \$825,000
- Repair Replace Roof at Harper Student Center, Wellness Center, Alumni House, Hazardous and Radiological Waste Storage Buildings - \$325,000
- Misc. Projects from Sightlines Report (each project , \$1,000,000) - \$2,550,000

The total projected cost of this project is \$ 4,000,000 .

Attach Form C4 for additional annual operating costs or savings for each proposed new project.

8. Total estimated project cost:

- | | | |
|---|--------------------------------------|---|
| 1. <u> </u> Land Purchase | Land | <u> </u> Acres |
| 2. <u> </u> Building Purchase | Floor Space: | <u> </u> Gross Square Feet |
| 3. <u> 480,000.00 </u> Professional Services Fees | | |
| 4. <u> </u> Equipment and/or Materials | Information Technology | \$ <u> </u> |
| 5. <u> </u> Site Development | | |
| 6. <u> </u> New Construction | Floor Space: | <u> </u> Gross Square Feet |
| 7. <u> </u> Renovations - Building Interior | Floor Space: | <u> </u> Gross Square Feet |
| 8. <u> </u> Renovations - Utilities | | |
| 9. <u> </u> Roofing | <u> </u> Roof Age | |
| 10. <u> </u> Renovations - Building Exterior | | |
| 11. <u> 3,040,000.00 </u> Other Permanent Improvements | | |
| 12. <u> </u> Landscaping | | |
| 13. <u> </u> Builders Risk Insurance | | |
| 14. <u> </u> Other Capital Outlay | | |
| 15. <u> </u> Labor Costs | | |
| 16. <u> </u> Bond Issue Costs | | |
| 17. <u> 80,000.00 </u> Other | | |
| 18. <u> 400,000.00 </u> Contingency | | |
| \$ <u> 4,000,000.00 </u> TOTAL PROJECT BUDGET | | |

6. Why is the project needed?

This is a capital project that will consist of several projects to address basic critical facility renewal needs required to maintain an acceptable working environment within existing facilities for our students, faculty, staff, patients and visitors.

7. What alternatives to this project were considered?

The alternative is to allow capital re-investment to accrue which is detrimental to reliability and capital planning.

9. Proposed Source of Funds

- | | |
|--|--|
| 0. <u> </u> Capital Improvement Bonds | |
| 1. <u> </u> Departmental CIB | |
| 2. <u> </u> Institution (Tuition) Bonds | |
| 3. <u> </u> Revenue Bonds | |
| 4. <u> </u> Excess Debt Service* () | |
| 5. <u> </u> Capital Reserve Fund | |
| 6. <u> </u> Appropriated State | |
| 7. <u> </u> Federal | |
| 8. <u> </u> Athletic | |
| 9. <u> 4,000,000.00 </u> Other* () | |
| \$ <u> 4,000,000.00 </u> TOTAL | |

* Specify Type

10. Project Schedule (for 2015-16 only)

- | | |
|---------------------------------|--|
| A. Estimated Start Date: | <u> October 2015 </u> |
| B. Estimated Completion Date: | <u> December 2016 </u> |
| C. Estimated Total Expenditures | |
| (1) In 2015-2016 Year | \$ <u> 1,000,000.00 </u> |
| (2) After 2015-2016 Year | \$ <u> 3,000,000.00 </u> |
| (3) Total Project Cost | \$ <u> 4,000,000.00 </u> |

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

**ADDITIONAL ANNUAL OPERATING COSTS/SAVINGS
RESULTING FROM PERMANENT IMPROVEMENT PROJECT**

1. AGENCY
Code: **H51** Name **Medical University of South Carolina (MUSC)**

2. PRIORITY
No. **1** Name **Capital Renewal Projects 2015-2016**

PROJECT PROPOSED FOR PLAN YEAR (Check One) 1: 2015-16 2: 2016-17

3. ADDITIONAL ANNUAL OPERATING COSTS/SAVINGS.
(Check whether reporting cost or savings.)
 COSTS SAVINGS NO CHANGE

4. These savings are intuitive, but difficult to quantify until projects are designed.

TOTAL ADDITIONAL OPERATING COSTS/SAVINGS Projected Financing Sources				
(1)	(2)	(3)	(4)	(5)
Fiscal Year	General Funds	Federal	Other	Total
1)				\$
2)				\$
3)				\$

5. If "Other" sources are reported in Column 4 above, itemize and specify what the other sources are (revenue, fees, etc.).

6. Will the additional costs be absorbed into your existing budget? If no, how will additional funds be provided? YES NO

7. Itemize below the cost factors that contribute to the total costs or savings reported in Column 5 for the first fiscal year.

<u>COST FACTORS</u>	<u>AMOUNT</u>
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
TOTAL	_____

8. If personal services costs or savings are reported in 7 above, please indicate the number of additional positions required or positions saved. _____

9. Submitted By:

Signature of Authorized Official and Title Date

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

Agency Number: H51 Name: Medical University of South Carolina (MUSC)

PROJECT PROPOSED FOR PLAN YEAR (Check One):

1: 2015-16 x 2: 2016-17

1. Project Name: Jonathan Lucas St. Garage (PG1) Waterproofing & Masonry Repair

3. Project Type: Repair/Renovate Existing Facilities/Systems 100 %

2. Project Priority: 2 of 3 in Plan Year

4. Facility Type: Parking Garage 100 %

5. What is the project?

Repairs include waterproofing to stem water migration throughout the structure and protect it from further damage; extensive concrete floor slab repairs; replacement of some concrete and brick masonry. The masonry walls at the roof and precast facade panels along the perimeter are potential safety issues.

8. Total estimated project cost:

- 1. Land Purchase Land Acres
 - 2. Building Purchase Floor Space: Gross Square Feet
 - 3. 255,000.00 Professional Services Fees
 - 4. Equipment and/or Materials Information Technology \$
 - 5. Site Development
 - 6. New Construction Floor Space: Gross Square Feet
 - 7. Renovations - Building Interior Floor Space: Gross Square Feet
 - 8. Renovations - Utilities
 - 9. Roofing Roof Age
 - 10. Renovations - Building Exterior
 - 11. 0.00 Other Permanent Improvements
 - 12. Landscaping
 - 13. Builders Risk Insurance
 - 14. Other Capital Outlay
 - 15. Labor Costs
 - 16. Bond Issue Costs
 - 17. 2,040,000.00 Other
 - 18. 255,000.00 Contingency
- \$ 2,550,000.00 **TOTAL PROJECT BUDGET**

The total projected cost of this project is \$ 2,550,000 .

Attach Form C4 for additional annual operating costs or savings for each proposed new project.

6. Why is the project needed?

Due to the age (1974) and environmental exposure major repairs are required to this 364 space structure. The project will be performed in three phases over a 3 year period.

9. Proposed Source of Funds

- 0. Capital Improvement Bonds
 - 1. Departmental CIB
 - 2. Institution (Tuition) Bonds
 - 3. Revenue Bonds
 - 4. Excess Debt Service* ()
 - 5. Capital Reserve Fund
 - 6. 0.00 Appropriated State
 - 7. Federal
 - 8. Athletic
 - 9. 2,550,000.00 Other* (Parking Revenue)
- \$ 2,550,000.00 **TOTAL**

**10. Project Schedule
(for 2015-16 only)**

- A. Estimated Start Date:
 October 2015
- B. Estimated Completion Date:
 June 2018
- C. Estimated Total Expenditures
- (1) In 2015-2016 Year
 \$ 850,000.00
- (2) After 2015-2016 Year
 \$ 1,700,000.00
- (3) Total Project Cost
 \$ 2,550,000.00

* Specify Type

7. What alternatives to this project were considered?

Replacement is estimated at \$5.5 million and not economical.

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

**ADDITIONAL ANNUAL OPERATING COSTS/SAVINGS
RESULTING FROM PERMANENT IMPROVEMENT PROJECT**

1. AGENCY
Code: **H51** Name **Medical University of South Carolina (MUSC)**

2. PRIORITY
No. **2** Name **Jonathan Lucas St. Garage (PG1) Waterproofing & Masonry Repair - (Total cost for three phases performed over multiple years.)**

PROJECT PROPOSED FOR PLAN YEAR (Check One) 1: 2015-16 2: 2016-17

3. ADDITIONAL ANNUAL OPERATING COSTS/SAVINGS.
(Check whether reporting cost or savings.)
 COSTS SAVINGS NO CHANGE

4. These savings are intuitive, but difficult to quantify until projects are designed.

TOTAL ADDITIONAL OPERATING COSTS/SAVINGS Projected Financing Sources				
(1)	(2)	(3)	(4)	(5)
Fiscal Year	General Funds	Federal	Other	Total
1)				\$
2)				\$
3)				\$

5. If "Other" sources are reported in Column 4 above, itemize and specify what the other sources are (revenue, fees, etc.).

6. Will the additional costs be absorbed into your existing budget? If no, how will additional funds be provided? YES NO

7. Itemize below the cost factors that contribute to the total costs or savings reported in Column 5 for the first fiscal year.

<u>COST FACTORS</u>	<u>AMOUNT</u>
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
TOTAL	_____

8. If personal services costs or savings are reported in 7 above, please indicate the number of additional positions required or positions saved. _____

9. Submitted By:

Signature of Authorized Official and Title Date

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

Agency Number: H51 Name: Medical University of South Carolina (MUSC)

PROJECT PROPOSED FOR PLAN YEAR (Check One):

1: 2015-16 x 2: 2016-17

1. Project Name: University Center at Ft Johnson

3. Project Type: New facility on existing site 100 %

2. Project Priority: 3 of 3 in Plan Year

4. Facility Type: Academic Program 100 %

5. What is the project?

Create a space for education and research events, university meetings, departmental conferences and retreats. Existing structures on Ft Johnson site are deteriorated and not useful to the University. This repurposes the land asset to meet a need that is currently lacking on the campus.

8. Total estimated project cost:

- 1. _____ Land Purchase Land _____ Acres
 - 2. _____ Building Purchase Floor Space: _____ Gross Square Feet
 - 3. 400,000.00 Professional Services Fees
 - 4. _____ Equipment and/or Materials Information Technology \$ _____
 - 5. _____ Site Development
 - 6. _____ New Construction Floor Space: _____ Gross Square Feet
 - 7. _____ Renovations - Building Interior Floor Space: _____ Gross Square Feet
 - 8. _____ Renovations - Utilities
 - 9. _____ Roofing _____ Roof Age
 - 10. _____ Renovations - Building Exterior
 - 11. 3,200,000.00 Other Permanent Improvements
 - 12. _____ Landscaping
 - 13. _____ Builders Risk Insurance
 - 14. _____ Other Capital Outlay
 - 15. _____ Labor Costs
 - 16. _____ Bond Issue Costs
 - 17. 0.00 Other
 - 18. 400,000.00 Contingency
- \$ 4,000,000.00 **TOTAL PROJECT BUDGET**

The total projected cost of this project is \$ 3,000,000 .

Attach Form C4 for additional annual operating costs or savings for each proposed new project.

6. Why is the project needed?

The University has need to rent spaces in the community for the aforementioned events.

9. Proposed Source of Funds

- 0. _____ Capital Improvement Bonds
 - 1. _____ Departmental CIB
 - 2. _____ Institution (Tuition) Bonds
 - 3. _____ Revenue Bonds
 - 4. _____ Excess Debt Service* ()
 - 5. _____ Capital Reserve Fund
 - 6. 0.00 Appropriated State
 - 7. _____ Federal
 - 8. _____ Athletic
 - 9. 3,000,000.00 Other* (University General Fund)
- \$ 3,000,000.00 **TOTAL**

10. Project Schedule (for 2015-16 only)

- A. Estimated Start Date: October 2015
- B. Estimated Completion Date: December 2016
- C. Estimated Total Expenditures
- (1) In 2015-2016 Year \$ 1,000,000.00
- (2) After 2015-2016 Year \$ 3,000,000.00
- (3) Total Project Cost \$ 4,000,000.00

7. What alternatives to this project were considered?

Rental of spaces in community.

* Specify Type

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

AGENCY NUMBER: **H51** NAME: **Medical University of South Carolina (MUSC)** Page **11**

PROJECT PROPOSED FOR PLAN YEAR (Check One): 1: 2015-16 ___ 2: 2016-17 x 3: 2017-18 ___ 4: 2018-19 ___ 5: 2019-20 ___

PRIORITY NUMBER	PROJECT NAME	ESTIMATED COST	PROPOSED SOURCE(S) OF FUNDS
1	Capital Renewal Projects 2016-2017	\$4,000,000.00	University General Funds
2	Animal Facilities Renovations & Replacement of Support Equipment	4,000,000.00	University General Funds
3			
4			
5			
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8			
9			
10			
11			
12			
13			
14			
15			
TOTAL		8,000,000.00	

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

Agency Number: H51 Name: Medical University of South Carolina (MUSC)

PROJECT PROPOSED FOR PLAN YEAR (Check One):

1: 2015-16 ___ 2: 2016-17 x

1. Project Name: Capital Renewal Projects 2016-2017

3. Project Type: Repair/Renovate Existing Facilities/Systems 50 %

 Replace Existing Facilities/Systems 50 %

2. Project Priority: 1 of 2 in Plan Year

4. Facility Type: Program/Academic/Research 80 %

 Healthcare/Medical 20 %

5. What is the project?

Capital Renewal projects for 2016-2017:
Misc. Projects from Sightlines Report (attached) - \$4,000,000

The total projected cost of this project is \$ 4,000,000 .

Attach Form C4 for additional annual operating costs or savings for each proposed new project.

8. Total estimated project cost:

- 1. _____ Land Purchase Land _____ Acres
 - 2. _____ Building Purchase Floor Space: _____ Gross Square Feet
 - 3. 480,000.00 Professional Services Fees
 - 4. _____ Equipment and/or Materials Information Technology \$ _____
 - 5. _____ Site Development
 - 6. _____ New Construction Floor Space: _____ Gross Square Feet
 - 7. _____ Renovations - Building Interior Floor Space: _____ Gross Square Feet
 - 8. _____ Renovations - Utilities
 - 9. _____ Roofing _____ Roof Age
 - 10. _____ Renovations - Building Exterior
 - 11. 3,040,000.00 Other Permanent Improvements
 - 12. _____ Landscaping
 - 13. _____ Builders Risk Insurance
 - 14. _____ Other Capital Outlay
 - 15. _____ Labor Costs
 - 16. _____ Bond Issue Costs
 - 17. 80,000.00 Other
 - 18. 400,000.00 Contingency
- \$ 4,000,000.00 **TOTAL PROJECT BUDGET**

6. Why is the project needed?

This is a capital project that will consist of several projects to address basic critical facility renewal needs required to maintain an acceptable working environment within existing facilities for our students, faculty, staff, patients and visitors.

7. What alternatives to this project were considered?

The alternative is to allow capital re-investment to accrue which is detrimental to reliability and capital planning.

9. Proposed Source of Funds

- 0. _____ Capital Improvement Bonds
 - 1. _____ Departmental CIB
 - 2. _____ Institution (Tuition) Bonds
 - 3. _____ Revenue Bonds
 - 4. _____ Excess Debt Service* (_____)
 - 5. _____ Capital Reserve Fund
 - 6. _____ Appropriated State
 - 7. _____ Federal
 - 8. _____ Athletic
 - 9. 4,000,000.00 Other* (_____)
- \$ 4,000,000.00 **TOTAL**

* Specify Type

10. Project Schedule

- A. Estimated Start Date:
 October 2016
- B. Estimated Completion Date:
 December 2017
- C. Estimated Total Expenditures
- (1) In 2016-2017 Year
\$ 1,000,000.00
- (2) After 2016-2017 Year
\$ 3,000,000.00
- (3) Total Project Cost
\$ 4,000,000.00

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

**ADDITIONAL ANNUAL OPERATING COSTS/SAVINGS
RESULTING FROM PERMANENT IMPROVEMENT PROJECT**

1. AGENCY
Code: **H51** Name **Medical University of South Carolina (MUSC)**

2. PRIORITY
No. **1** Name **Capital Renewal Projects 2016-2017**

PROJECT PROPOSED FOR PLAN YEAR (Check One) 1: 2015-16 2: 2016-17

3. ADDITIONAL ANNUAL OPERATING COSTS/SAVINGS.
(Check whether reporting cost or savings.)
 COSTS SAVINGS NO CHANGE

4. These savings are intuitive, but difficult to quantify until projects are designed.

TOTAL ADDITIONAL OPERATING COSTS/SAVINGS Projected Financing Sources				
(1)	(2)	(3)	(4)	(5)
Fiscal Year	General Funds	Federal	Other	Total
1)				\$
2)				\$
3)				\$

5. If "Other" sources are reported in Column 4 above, itemize and specify what the other sources are (revenue, fees, etc.).

6. Will the additional costs be absorbed into your existing budget? If no, how will additional funds be provided? YES NO

7. Itemize below the cost factors that contribute to the total costs or savings reported in Column 5 for the first fiscal year.

<u>COST FACTORS</u>	<u>AMOUNT</u>
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
TOTAL	_____

8. If personal services costs or savings are reported in 7 above, please indicate the number of additional positions required or positions saved. _____

9. Submitted By:

Signature of Authorized Official and Title Date

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

Agency Number: H51 Name: Medical University of South Carolina (MUSC)

PROJECT PROPOSED FOR PLAN YEAR (Check One):

1: 2015-16 ___ 2: 2016-17 x

1. Project Name: Animal Facilities Renovations and Replacement of Support Equipment

3. Project Type: Repair/Renovate Existing Facilities/Systems 100 %
 _____ %

2. Project Priority: 2 of 2 in Plan Year

4. Facility Type: Academic/Program/Research 100 %
 _____ %

5. What is the project?

The animal facilities are an important piece of the research program and need capital re-investment to support our investigators. Several years ago the animal facilities were studied for these needs and it was determined that re-investment was needed. While operational considerations will determine the phasing, it is likely that the first areas to be addressed will be Strom thurmond and Basic Sciences buildings.

8. Total estimated project cost:

- | | | | | |
|----------------------------|---------------------------------|-----------------------------|----------|-------------------|
| 1. _____ | Land Purchase | Land | _____ | Acres |
| 2. _____ | Building Purchase | Floor Space: | _____ | Gross Square Feet |
| 3. <u> 400,000.00 </u> | Professional Services Fees | | | |
| 4. _____ | Equipment and/or Materials | Information Technology | \$ _____ | |
| 5. _____ | Site Development | | | |
| 6. _____ | New Construction | Floor Space: | _____ | Gross Square Feet |
| 7. <u> 2,200,000.00 </u> | Renovations - Building Interior | Floor Space: | _____ | Gross Square Feet |
| 8. <u> 1,000,000.00 </u> | Renovations - Utilities | | | |
| 9. _____ | Roofing | _____ | Roof Age | |
| 10. _____ | Renovations - Building Exterior | | | |
| 11. <u> 0.00 </u> | Other Permanent Improvements | | | |
| 12. _____ | Landscaping | | | |
| 13. _____ | Builders Risk Insurance | | | |
| 14. _____ | Other Capital Outlay | | | |
| 15. _____ | Labor Costs | | | |
| 16. _____ | Bond Issue Costs | | | |
| 17. <u> 0.00 </u> | Other | | | |
| 18. <u> 400,000.00 </u> | Contingency | | | |
| | <u> \$ 4,000,000.00 </u> | TOTAL PROJECT BUDGET | | |

The total projected cost of this project is \$ 4,000,000 .

Attach Form C4 for additional annual operating costs or savings for each proposed new project.

6. Why is the project needed?

Maintain infrastructure for the Institutions Research program.

9. Proposed Source of Funds

- | | | |
|----------------------------|-----------------------------|--------------|
| 0. _____ | Capital Improvement Bonds | |
| 1. _____ | Departmental CIB | |
| 2. _____ | Institution (Tuition) Bonds | |
| 3. _____ | Revenue Bonds | |
| 4. _____ | Excess Debt Service* () | |
| 5. _____ | Capital Reserve Fund | |
| 6. <u> 0.00 </u> | Appropriated State | |
| 7. _____ | Federal | |
| 8. _____ | Athletic | |
| 9. <u> 4,000,000.00 </u> | Other* (Provost Office) | |
| | <u> \$ 4,000,000.00 </u> | TOTAL |

10. Project Schedule

- | | |
|---------------------------------|----------------------------|
| A. Estimated Start Date: | <u> October 2016 </u> |
| B. Estimated Completion Date: | <u> December 2017 </u> |
| C. Estimated Total Expenditures | |
| (1) In 2016-2017 Year | \$ <u> 1,000,000.00 </u> |
| (2) After 2016-2017 Year | \$ <u> 3,000,000.00 </u> |
| (3) Total Project Cost | \$ <u> 4,000,000.00 </u> |

7. What alternatives to this project were considered?

None.

* Specify Type

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

AGENCY NUMBER: **H51** NAME: **Medical University of South Carolina (MUSC)** Page **16**

PROJECT PROPOSED FOR PLAN YEAR (Check One):

1: 2015-16 ____	2: 2016-17 ____	3: 2017-18 <u>x</u>	4: 2018-19 ____	5: 2019-20 ____
-----------------	-----------------	---------------------	-----------------	-----------------

PRIORITY NUMBER	PROJECT NAME	ESTIMATED COST	PROPOSED SOURCE(S) OF FUNDS
1	Capital Renewal Projects 2017-2018	\$4,000,000.00	University General Funds
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
TOTAL		4,000,000.00	

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

AGENCY NUMBER: **H51** NAME: **Medical University of South Carolina (MUSC)** Page **17**

PROJECT PROPOSED FOR PLAN YEAR (Check One):

1: 2015-16 ____	2: 2016-17 ____	3: 2017-18 ____	4: 2018-19 <u>x</u>	5: 2019-20 ____
-----------------	-----------------	-----------------	---------------------	-----------------

PRIORITY NUMBER	PROJECT NAME	ESTIMATED COST	PROPOSED SOURCE(S) OF FUNDS
1	Capital Renewal Projects 2018-2019	\$4,000,000.00	University General Funds
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
TOTAL		4,000,000.00	

2015 COMPREHENSIVE PERMANENT IMPROVEMENT PLAN (CPIP)

AGENCY NUMBER: **H51** NAME: **Medical University of South Carolina (MUSC)** Page **18**

PROJECT PROPOSED FOR PLAN YEAR (Check One):

1: 2015-16 <input type="checkbox"/>	2: 2016-17 <input type="checkbox"/>	3: 2017-18 <input type="checkbox"/>	4: 2018-19 <input type="checkbox"/>	5: 2019-20 <input checked="" type="checkbox"/>
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PRIORITY NUMBER	PROJECT NAME	ESTIMATED COST	PROPOSED SOURCE(S) OF FUNDS
1	Capital Renewal Projects 2019-2020	\$4,000,000.00	University General Funds
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
TOTAL		4,000,000.00	

Building ID	Building Name	Structure	System	Sub-system	Sub-SubSystem	Asset Group
106	F BUILDING	Building	Cooling	Generation	Chiller - Centr	HVAC - CHI
520	BSB MECHANICAL EXPANSION BLDG	Infrastructure	Cooling	Controls	Variable Frequency Drives	
520	BSB MECHANICAL EXPANSION BLDG	Infrastructure	Cooling	Generation	Cooling Towe	HVAC - COO
520	BSB MECHANICAL EXPANSION BLDG	Infrastructure	Cooling	Generation	Cooling Towe	HVAC - COO
520	BSB MECHANICAL EXPANSION BLDG	Infrastructure	Cooling	Generation	Cooling Towe	HVAC - COO
106	F BUILDING	Building	Cooling	Generation	Cooling Towe	HVAC - COO
520	BSB MECHANICAL EXPANSION BLDG	Infrastructure	Cooling	Campus Distr	Primary Pump	PUMP - CIRC
520	BSB MECHANICAL EXPANSION BLDG	Infrastructure	Cooling	Campus Distr	Primary Pump	PUMP - CIR
520	BSB MECHANICAL EXPANSION BLDG	Infrastructure	Cooling	Campus Distr	Primary Pump	PUMP - CIRC
520	BSB MECHANICAL EXPANSION BLDG	Infrastructure	Cooling	Campus Distr	Primary Pump	PUMP - CIRC
520	BSB MECHANICAL EXPANSION BLDG	Infrastructure	Cooling	Campus Distr	Primary Pump	PUMP - CIRC
520	BSB MECHANICAL EXPANSION BLDG	Infrastructure	Cooling	Campus Distr	Primary Pump	PUMP - CIRC
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
106	F BUILDING	Building	Cooling	Building Distr	Secondary Pur	PUMP - CIRC
106	F BUILDING	Building	Cooling	Building Distr	Secondary Pur	PUMP - CIRC
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
106	F BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIF
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
107	BARUCH AUDITORIUM	Building	HVAC	Air Handling	Air Handlers	HVAC - AIF
107	BARUCH AUDITORIUM	Building	HVAC	Air Handling	Air Handlers	HVAC - AIF
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA

106	F BUILDING	Building	Cooling	Controls	Variable Frequency	VARIABLE
106	F BUILDING	Building	Cooling	Controls	Variable Frequency	VARIABLE
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
106	F BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
106	F BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
106	F BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
600	CLINICAL SCIENCES BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
105	E BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIR
105	E BUILDING	Building	Heating	Building Distribution	Steam Converter/Heat Exchanger	
105	E BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIR
105	E BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIR
105	E BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIR
105	E BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIR
105	E BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIR
105	E BUILDING	Building	HVAC	Controls	Variable Frequency	VARIABLE
105	E BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIR
105	E BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
105	E BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	ELEC - TRA
105	E BUILDING	Building	HVAC	Controls	Variable Frequency	VARIABLE
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Generation	Chiller - Central	HVAC - CHI
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Generation	Chiller - Central	HVAC - CHI
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Generation	Cooling Tower	HVAC - COO
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Generation	Cooling Tower	HVAC - COO
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Campus Distribution	Primary Pump	PUMP - CIR
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Campus Distribution	Primary Pump	PUMP - CIR
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Controls	Variable Frequency	VARIABLE
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Campus Distribution	Primary Pump	PUMP - CIR
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Campus Distribution	Primary Pump	PUMP - CIR
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Campus Distribution	Primary Pump	PUMP - CIR
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Campus Distribution	Primary Pump	PUMP - CIR
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Campus Distribution	Primary Pump	PUMP - CIR
925IFP	HOLLINGS CANCER CENTER	Infrastructure	Cooling	Campus Distribution	Primary Pump	PUMP - CIR
Infrastru	Infrastructure	Infrastructu	Heating	Campus Distribution	Steam Tunnel	
750IFP	PSYCHIATRIC INSTITUTE	Building	Cooling	Generation	Chiller - DX	HVAC - CHI
108	WALTON RESEARCH BUILDING	Building	Electrical	Building Distribution	Secondary Transformer	
108	WALTON RESEARCH BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIR
108	WALTON RESEARCH BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIR
108	WALTON RESEARCH BUILDING	Building	HVAC	Air Handling	Air Handlers	HVAC - AIR
108	WALTON RESEARCH BUILDING	Building	HVAC	Controls	Variable Frequency	VARIABLE

500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
500	BASIC SCIENCE BUILDING	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
950	COLL OF HLTH PROF COMPLEX "A"	Building	Cooling	Generation	Chiller - DX c	HVAC - Chil
950	COLL OF HLTH PROF COMPLEX "A"	Building	Cooling	Generation	Chiller - DX c	HVAC - Chil
700	COLL OF HLTH PROF RESRCH BLDG	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
700	COLL OF HLTH PROF RESRCH BLDG	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
700	COLL OF HLTH PROF RESRCH BLDG	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
700	COLL OF HLTH PROF RESRCH BLDG	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
700	COLL OF HLTH PROF RESRCH BLDG	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
700	COLL OF HLTH PROF RESRCH BLDG	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
700	COLL OF HLTH PROF RESRCH BLDG	Building	Electrical	Building Distr	Secondary Tra	ELEC - TRA
650IFP	STORM EYE INSTITUTE	Building	HVAC	Controls	Variable Frequ	VARIABLE
770	THURMOND/GAZES RESEARCH BLDG	Building	Cooling	Generation	Chiller - Centr	HVAC - CHI
770	THURMOND/GAZES RESEARCH BLDG	Building	Cooling	Generation	Chiller - Centr	HVAC - CHI
770	THURMOND/GAZES RESEARCH BLDG	Building	Cooling	Generation	Chiller - Centr	HVAC - CHI
770	THURMOND/GAZES RESEARCH BLDG	Building	HVAC	Air Handling	Air House - C	HVAC - HUI
770	THURMOND/GAZES RESEARCH BLDG	Building	HVAC	Air Handling	Air House - C	HVAC - HUI

Asset Tag	Description	Location	Project Description	Model Predicted Next	Project Cost	Investment Criteria
106-04-10	A/C - CHILLER	QF5M1	Replace	Backlog	\$ 1,950,000	Reliability
			Replace	Backlog	\$ 120,000	Reliability
520-02-CT	A/C - COOLING	MX-RF400	Rebuild parts	Backlog	\$ 100,000	Reliability
520-02-CT	A/C - COOLING	MX-RF400	Rebuild parts	Backlog	\$ 100,000	Reliability
520-02-CT	A/C - COOLING	MX-RF400	Rebuild parts	Backlog	\$ 100,000	Reliability
106-04-14	A/C - COOLING	QF-RF400	Replace	Backlog	\$ 350,000	Reliability
520-02-SF	PUMP CIRCUL	MX1M1	Replace pump	Backlog	\$ 100,000	Reliability
520-02-SF	PUMP CIRCUL	MX1M1	Replace pump	Backlog	\$ 100,000	Reliability
520-02-SF	PUMP CIRCUL	MX1M1	Replace pump	Backlog	\$ 100,000	Reliability
520-02-PF	PUMP CIRCUL	MX1M1	Replace pump	Backlog	\$ 50,000	Reliability
520-02-PF	PUMP CIRCUL	MX1M1	Replace pump	Backlog	\$ 50,000	Reliability
520-02-PF	PUMP CIRCUL	MX1M1	Replace pump	Backlog	\$ 50,000	Reliability
600-08-TX	ELEC - TRANS	HE707	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE707	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE702	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE705	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE705A	Replace	Backlog	\$ 15,000	Reliability
600-08-13	ELEC - TRANS	HE707	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE6E1	Replace	Backlog	\$ 15,000	Reliability
106-04-10	PUMP CIRCUL	QF5M3	Replace with VFDs	Backlog	\$ 75,000	Reliability
106-04-10	PUMP CIRCUL	QF5M3	Replace with VFDs	Backlog	\$ 75,000	Reliability
600-08-TX	ELEC - TRANS	HE6E1	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE6E1	Replace	Backlog	\$ 15,000	Reliability
600-08-X2	ELEC - TRANS	HE2E1	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE12M1	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE12M1	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE12M1	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE12M1	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE12M1	Replace	Backlog	\$ 15,000	Reliability
106-04-03	A/C - A/H UNIT	QF2M1	Replace	Backlog	\$ 50,000	Reliability
600-08-TX	ELEC - TRANS	HE12M1	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE12M1	Replace	Backlog	\$ 15,000	Reliability
600-08-27	ELEC - TRANS	HE3E1	Replace	Backlog	\$ 15,000	Reliability
600-08-X3	ELEC - TRANS	HE3E2	Replace	Backlog	\$ 15,000	Reliability
600-08-27	ELEC - TRANS	HE3E1	Replace	Backlog	\$ 15,000	Reliability
107-04-10	A/C - A/H UNIT	QG-RF200	Replace	Backlog	\$ 25,000	Reliability
107-04-10	A/C - A/H UNIT	QG-RF200	Replace	Backlog	\$ 25,000	Reliability
600-08-X2	ELEC - TRANS	HE2E2	Replace	Backlog	\$ 15,000	Reliability

FREQ DRIVES		Replace with pump	Backlog	\$ 20,000	Reliability	
FREQ DRIVES		Replace with pump	Backlog	\$ 20,000	Reliability	
600-08-TX	ELEC - TRANS	HE6E2	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE4E1	Replace	Backlog	\$ 15,000	Reliability
600-08-X2	ELEC - TRANS	HE2E1	Replace	Backlog	\$ 15,000	Reliability
106-08-16	ELEC - SUB-SU	QF-RF400	Replace	Backlog	\$ 15,000	Reliability
106-08-16	ELEC - SUB-SU	QF-RF400	Replace	Backlog	\$ 15,000	Reliability
106-08-16	ELEC - TRANS	QF-RF400	Replace	Backlog	\$ 15,000	Reliability
600-08-TX	ELEC - TRANS	HE707	Replace	Backlog	\$ 5,000	Reliability
600-08-TX	ELEC - TRANS	HE7E2	Replace	Backlog	\$ 5,000	Reliability
600-08-27	ELEC - TRANS	HE1E2	Replace	Backlog	\$ 5,000	Reliability
600-08-TX	ELEC - TRANS	HE1E1	Replace	Backlog	\$ 5,000	Reliability
105-04-10	A/C - A/H UNIT	QE-RF400	Replace	Backlog	\$ 100,000	Reliability
anger	Steam converter		Replace	Backlog	\$ 80,000	Reliability
105-02-11	A/C - A/H UNIT	QE210	Replace	Backlog	\$ 50,000	Reliability
105-02-10	A/C - A/H UNIT	QE212	Replace	Backlog	\$ 50,000	Reliability
105-02-10	A/C - A/H UNIT	QE302	Replace	Backlog	\$ 50,000	Reliability
105-04-09	A/C - A/H UNIT	QE1M4	Replace	Backlog	\$ 50,000	Reliability
105-04-08	A/C - A/H UNIT	QE1M4	Replace	Backlog	\$ 50,000	Reliability
FREQ DRIVES		Replace	Backlog	\$ 40,000	Reliability	
105-04-03	A/C - A/H UNIT	QE1FL4	Replace	Backlog	\$ 21,000	Reliability
105-08-T-	ELEC - TRANS	QE4M2	Replace	Backlog	\$ 15,000	Reliability
105-08-19	ELEC - TRANS	QE4M2	Replace	Backlog	\$ 15,000	Reliability
FREQ DRIVES		Replace	Backlog	\$ 10,000	Reliability	
925-04-10	A/C - CHILLER	HO4M5	Replace	Backlog	\$ 990,000	Reliability
925-04-23	A/C - CHILLER	HO-RF400B	Replace screw chiller	Backlog	\$ 962,500	Reliability
925-04-11	A/C - COOLING	HO-RF400B	Replace	Backlog	\$ 77,000	Reliability
925-04-10	A/C - COOLING	HO-RF400B	Replace	Backlog	\$ 77,000	Reliability
925-02-12	PUMP CIRCUL	HO-RF400B	Replace	Backlog	\$ 63,000	Reliability
925-02-12	PUMP CIRCUL	HO-RF400B	Replace	Backlog	\$ 63,000	Reliability
FREQ DRIVES		Replace	Backlog	\$ 40,000	Reliability	
925-04-77	PUMP CIRCUL	HO4M5	Replace with chiller	Backlog	\$ 8,000	Reliability
925-04-78	PUMP CIRCUL	HO4M5	Replace with chiller	Backlog	\$ 8,000	Reliability
925-04-09	PUMP CIRCUL	HO4M5	Replace	Backlog	\$ 8,000	Reliability
925-04-02	PUMP CIRCUL	HO4M5	Replace	Backlog	\$ 8,000	Reliability
925-04-79	PUMP CIRCUL	HO9ST1	Replace	Backlog	\$ 8,000	Reliability
			Replace steam and co	Backlog	\$ 500,000	Reliability
750-04-10	A/C - CHILLER	BA6FL	Replace screw chiller	Backlog	\$ 750,000	Reliability
			Replace	Backlog	\$ 342,000	Reliability
108-04-01	A/C - A/H UNIT	RS1FLA	Replace old multi-zon	Backlog	\$ 100,000	Reliability
108-04-14	A/C - A/H UNIT	RS2FL	Replace	Backlog	\$ 75,000	Reliability
108-02-16	A/C - A/H UNIT	RS3FL	Replace AHU in room	Backlog	\$ 17,500	Reliability
FREQ DRIVES		Replace	Backlog	\$ 10,000	Reliability	

FREQ DRIVES		Replace	Backlog	\$ 10,000	Reliability	
FREQ DRIVES		Replace	Backlog	\$ 10,000	Reliability	
500-04-10	A/C - CHILLER	BS8M1	Replace screw chiller	Backlog	\$ 1,000,000	Reliability
500-08-38	ELEC - BUSDU	BS7E1	Replace	Backlog	\$ 499,000	Reliability
500-04-14	HEAT EXCHAI	BS1M3	Replace	Backlog	\$ 101,500	Reliability
500-04-55	PUMP CIRCUL	BS8M1	Replace	Backlog	\$ 25,000	Reliability
500-08-52	ELEC - TRANS	BS6M6	Replace	Backlog	\$ 25,000	Reliability
500-08-69	ELEC - TRANS	BS3E1	Replace	Backlog	\$ 25,000	Reliability
500-08-35	ELEC - TRANS	BS112	Replace	Backlog	\$ 25,000	Reliability
500-04-54	PUMP CIRCUL	BS8M1	Replace	Backlog	\$ 25,000	Reliability
FREQ DRIVES		Replace	Backlog	\$ 20,000	Reliability	
FREQ DRIVES		Replace	Backlog	\$ 20,000	Reliability	
FREQ DRIVES		Replace	Backlog	\$ 20,000	Reliability	
500-08-88	ELEC - TRANS	BS1E3	Replace	Backlog	\$ 15,000	Reliability
500-08-81	ELEC - TRANS	BS1M5	Replace	Backlog	\$ 15,000	Reliability
500-08-73	ELEC - TRANS	BS2E1	Replace	Backlog	\$ 15,000	Reliability
500-08-82	ELEC - TRANS	BS1E2	Replace	Backlog	\$ 15,000	Reliability
500-08-70	ELEC - TRANS	BS3E2	Replace	Backlog	\$ 15,000	Reliability
500-08-85	ELEC - TRANS	BS100A	Replace	Backlog	\$ 15,000	Reliability
500-08-87	ELEC - TRANS	BS1AM1	Replace	Backlog	\$ 15,000	Reliability
500-08-86	ELEC - TRANS	BS1AM1	Replace	Backlog	\$ 15,000	Reliability
500-08-87	ELEC - TRANS	BS1AM1	Replace	Backlog	\$ 15,000	Reliability
500-08-86	ELEC - TRANS	BS1AM1	Replace	Backlog	\$ 15,000	Reliability
500-08-86	ELEC - TRANS	BS1AM1	Replace	Backlog	\$ 15,000	Reliability
500-08-62	ELEC - TRANS	BS439	Replace	Backlog	\$ 15,000	Reliability
500-08-45	ELEC - TRANS	BS9M1A	Replace	Backlog	\$ 15,000	Reliability
500-08-56	ELEC - TRANS	BS502	Replace	Backlog	\$ 15,000	Reliability
500-08-56	ELEC - TRANS	BS5E1	Replace	Backlog	\$ 15,000	Reliability
500-08-55	ELEC - TRANS	BS541	Replace	Backlog	\$ 15,000	Reliability
500-08-59	ELEC - TRANS	BS5E3	Replace	Backlog	\$ 15,000	Reliability
500-08-60	ELEC - TRANS	BS5E3	Replace	Backlog	\$ 15,000	Reliability
500-08-59	ELEC - TRANS	BS5E2	Replace	Backlog	\$ 15,000	Reliability
500-08-50	ELEC - TRANS	BS6E1	Replace	Backlog	\$ 15,000	Reliability
500-08-51	ELEC - TRANS	BS6E3	Replace	Backlog	\$ 15,000	Reliability
500-08-69	ELEC - TRANS	BS3E1	Replace	Backlog	\$ 15,000	Reliability
500-08-70	ELEC - TRANS	BS3M5	Replace	Backlog	\$ 15,000	Reliability
500-08-65	ELEC - TRANS	BS3M12	Replace	Backlog	\$ 15,000	Reliability
500-08-67	ELEC - TRANS	BS3M13	Replace	Backlog	\$ 15,000	Reliability
500-08-68	ELEC - TRANS	BS321	Replace	Backlog	\$ 15,000	Reliability
500-08-69	ELEC - TRANS	BS321	Replace	Backlog	\$ 15,000	Reliability
500-08-67	ELEC - TRANS	BS306D	Replace	Backlog	\$ 15,000	Reliability
500-08-67	ELEC - TRANS	BS302B	Replace	Backlog	\$ 15,000	Reliability
500-08-64	ELEC - TRANS	BS4M1	Replace	Backlog	\$ 15,000	Reliability

500-08-61	ELEC - TRANS	BS4E3	Replace	Backlog	\$ 15,000	Reliability
500-08-63	ELEC - TRANS	BS4M1	Replace	Backlog	\$ 15,000	Reliability
500-08-63	ELEC - TRANS	BS4M1	Replace	Backlog	\$ 15,000	Reliability
500-08-68	ELEC - TRANS	BS3E3	Replace	Backlog	\$ 15,000	Reliability
500-08-81	ELEC - TRANS	BS1E4	Replace	Backlog	\$ 15,000	Reliability
500-08-79	ELEC - TRANS	BS1E4	Replace	Backlog	\$ 15,000	Reliability
500-08-62	ELEC - TRANS	BS402B	Replace	Backlog	\$ 15,000	Reliability
500-08-63	ELEC - TRANS	BS4E1	Replace	Backlog	\$ 15,000	Reliability
500-08-72	ELEC - TRANS	BS202B	Replace	Backlog	\$ 15,000	Reliability
500-08-73	ELEC - TRANS	BS238	Replace	Backlog	\$ 15,000	Reliability
500-08-45	ELEC - TRANS	BS9M1A	Replace	Backlog	\$ 15,000	Reliability
500-08-99	ELEC - TRANS	BS1M11	Replace	Backlog	\$ 15,000	Reliability
500-08-56	ELEC - TRANS	BS541	Replace	Backlog	\$ 15,000	Reliability
500-08-51	ELEC - TRANS	BS6E2	Replace	Backlog	\$ 15,000	Reliability
500-08-44	ELEC - TRANS	BS9M1A	Replace	Backlog	\$ 15,000	Reliability
500-08-45	ELEC - TRANS	BS9M1A	Replace	Backlog	\$ 15,000	Reliability
500-08-45	ELEC - TRANS	BS9M1A	Replace	Backlog	\$ 15,000	Reliability
500-08-45	ELEC - TRANS	BS9M1A	Replace	Backlog	\$ 15,000	Reliability
500-08-42	ELEC - TRANS	BS7E2	Replace	Backlog	\$ 15,000	Reliability
500-08-40	ELEC - TRANS	BS7M1	Replace	Backlog	\$ 15,000	Reliability
500-08-40	ELEC - TRANS	BS7M1	Replace	Backlog	\$ 15,000	Reliability
500-08-42	ELEC - TRANS	BS7E2	Replace	Backlog	\$ 15,000	Reliability
500-08-39	ELEC - TRANS	BS7M1	Replace	Backlog	\$ 15,000	Reliability
500-08-43	ELEC - TRANS	BS9M1	Replace	Backlog	\$ 15,000	Reliability
500-08-42	ELEC - TRANS	BS7E2	Replace	Backlog	\$ 15,000	Reliability
500-08-40	ELEC - TRANS	BS7M1	Replace	Backlog	\$ 15,000	Reliability
500-08-39	ELEC - TRANS	BS7M1	Replace	Backlog	\$ 15,000	Reliability
500-08-41	ELEC - TRANS	BS738	Replace	Backlog	\$ 15,000	Reliability
500-08-41	ELEC - TRANS	BS738	Replace	Backlog	\$ 15,000	Reliability
500-08-39	ELEC - TRANS	BS720A	Replace	Backlog	\$ 15,000	Reliability
500-08-77	ELEC - TRANS	BS1M4	Replace	Backlog	\$ 15,000	Reliability
500-08-77	ELEC - TRANS	BS1M4	Replace	Backlog	\$ 15,000	Reliability
500-08-83	ELEC - TRANS	BS1M6	Replace	Backlog	\$ 15,000	Reliability
500-04-57	PUMP CIRCUL	BS8M1	Replace	Backlog	\$ 10,000	Reliability
500-04-56	PUMP CIRCUL	BS8M1	Replace	Backlog	\$ 10,000	Reliability
FREQ DRIVES			Replace	Backlog	\$ 10,000	Reliability
FREQ DRIVES			Replace	Backlog	\$ 10,000	Reliability
500-08-52	ELEC - TRANS	BS6M6	Replace	Backlog	\$ 10,000	Reliability
500-08-83	ELEC - TRANS	BS1T1	Replace	Backlog	\$ 10,000	Reliability
500-08-51	ELEC - TRANS	BS6E2	Replace	Backlog	\$ 10,000	Reliability
500-08-70	ELEC - TRANS	BS3E2	Replace	Backlog	\$ 10,000	Reliability
500-08-76	ELEC - TRANS	BS2E2	Replace	Backlog	\$ 10,000	Reliability
500-08-65	ELEC - TRANS	BS4E2	Replace	Backlog	\$ 10,000	Reliability

500-08-59	ELEC - TRANS	BS5E2	Replace	Backlog	\$ 10,000	Reliability
500-08-57	ELEC - TRANS	BS5M11	Replace	Backlog	\$ 10,000	Reliability
500-08-58	ELEC - TRANS	BS5M11	Replace	Backlog	\$ 10,000	Reliability
500-08-34	ELEC - TRANS	BS112	Replace	Backlog	\$ 10,000	Reliability
500-08-82	ELEC - TRANS	BS1E2	Replace	Backlog	\$ 5,000	Reliability
500-08-82	ELEC - TRANS	BS1E2	Replace	Backlog	\$ 5,000	Reliability
500-08-10	ELEC - TRANS	BS2E1	Replace	Backlog	\$ 5,000	Reliability
500-08-53	ELEC - TRANS	BS6M6	Replace	Backlog	\$ 5,000	Reliability
500-08-88	ELEC - TRANS	BS1E3	Replace	Backlog	\$ 5,000	Reliability
500-08-58	ELEC - TRANS	BS5M11	Replace	Backlog	\$ 5,000	Reliability
500-08-57	ELEC - TRANS	BS5M11	Replace	Backlog	\$ 5,000	Reliability
952-04-11	2004 trane - serv	C-RF	Replace	Backlog	\$ 360,000	Reliability
952-04-11	2004 trane - serv	C-RF	Replace	Backlog	\$ 360,000	Reliability
700-08-4T	ELEC - TRANS	C4M2	Replace	Backlog	\$ 15,000	Reliability
700-08-50	ELEC - TRANS	C4M1	Replace	Backlog	\$ 15,000	Reliability
700-08-4T	ELEC - TRANS	C4M2	Replace	Backlog	\$ 15,000	Reliability
700-08-1T	ELEC - TRANS	C1M1	Replace	Backlog	\$ 15,000	Reliability
700-08-2T	ELEC - TRANS	C2E1	Replace	Backlog	\$ 15,000	Reliability
700-08-3T	ELEC - TRANS	C3E1	Replace	Backlog	\$ 15,000	Reliability
700-08-52	ELEC - TRANS	C1M1	Replace	Backlog	\$ 5,000	Reliability
FREQ DRIVES			Replace VFDs on AH	Backlog	\$ 20,000	Reliability
770-02-48	A/C - CHILLER	BM-RF800	Replace screw chiller	Backlog	\$ 550,000	Reliability
770-02-48	A/C - CHILLER	BM-RF800	Replace screw chiller	Backlog	\$ 550,000	Reliability
770-02-49	A/C - CHILLER	BM-RF800	Replace screw chiller	Backlog	\$ 550,000	Reliability
770-04-55	A/C - HUMIDIF	BM9STW6	Replace	Backlog	\$ 50,000	Reliability
770-04-55	A/C - HUMIDIF	BM9STW6	Replace	Backlog	\$ 50,000	Reliability