CHABOT
LAS POSITAS
COMMUNITY
COLLEGE
DISTRICT

CHABOT-LAS POSITAS COMMUNITY COLLEGE DISTRICT

TOTAL COST OF OWNERSHIP PLAN

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CHABOT-LAS POSITAS COMMUNITY COLLEGE DISTRICT
TOTAL COST OF OWNERSHIP PLAN

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SECTION 1- INTRODUCTION

The Chabot-Las Positas Community College District is implementing a Total Cost of Ownership (TCO) process to provide a data driven process to assure adequate, well maintained facility assets to meet the educational mission of the District. The TCO process considers all costs associated with an asset from acquisition to demolition. TCO provides a means to evaluate initial development cost with long term operational cost and ongoing repair, renovation and upgrades. The TCO process provides data to compare District costs to operate, maintain and refurbish with state and national averages to identify areas of improvement. The TCO provides estimates of future costs to operate and maintain facilities providing information for future budgeting and funding decisions. Integral to the TCO process is assessment of custodial, maintenance and grounds staffing needed to maintain the facility to the level of care desired by the Colleges.

The implementation of the TCO program will formalize and integrate the current independent facility development and operations programs. The goals of the TCO program are:

- Establish a defined systematic methodology to evaluate life cycle costs of facility development and operation.
- Establishing custodial, maintenance and grounds staffing based on definable standards of care.
- Establishing operational cost benchmarks and goals for improvement.
- Provide a structured means to project annual costs to operate and maintain assets providing input to the annual budgeting process.
- Identify long term funding needs for repair, renovation and upgrades providing input to the Measure A Bond program funding allocations.

SECTION 2- BACKGROUND INFORMATION

With the passage of the $498M Measure B Bond in 2004, the Chabot-Las Positas Community College District embarked on a program to provide new and/or updated facilities at Las Positas College and Chabot College. The program was informed through the combination of educational program needs and sustainability guidelines. The Educational Program defined space needs from which the Facility Master Plan was developed. The Board of Trustees 2005 sustainability guidelines[1] provided clear direction to the District to integrate sustainability in the planning and operation of all District facilities. Infrastructure system improvements were developed as part of the Facilities Master Plan including upgrades and expansions to the overall campus utility systems. With the passage of the $950M Measure A Bond in 2016, the District has the opportunity to implement the updated 2012 Facilities Master Plan developed in conjunction with the updated Educational Master Plan and to continue the Board of Trustees commitment to sustainability and stewardship of the District's physical assets.

The recently adopted 2014 Accreditation Standards of the Accrediting Commission for Community and Junior Colleges- Western Association of Schools (ACCJC) instituted accreditation standards for development and long term management of a college's physical assets. The relevant standards are:

SECTION III- RESOURCES[2]

B. Physical Resources

1. The institution assures safe and sufficient physical resources at all locations where it offers courses, programs, and learning support services. They are constructed and maintained to assure access, safety, security, and a healthful learning and working environment.

2. The institution plans, acquires or builds, maintains, and upgrades or replaces its physical resources, including facilities, equipment, land, and other assets, in a manner that assures effective utilization and the continuing quality necessary to support its programs and services and achieve its mission.

3. To assure the feasibility and effectiveness of physical resources in supporting institutional programs and services, the institution plans and evaluates its facilities and equipment on a regular basis, taking utilization and other relevant data into account.

4. Long-range capital plans support institutional improvement goals and reflect projections of the total cost of ownership of new facilities and equipment.

Throughout the implementation of Measure B, the District has demonstrated full compliance with these new standards. The District is implementing a Total Cost of Ownership program to formalize the process

[1] Appendix 1-Board of Trustee 2005 Sustainability Guidelines
[2] ACCJC 2014 Accreditation Standards

of planning and managing the development and long term operation costs of the District's physical assets.

The District has adopted a Board Policy BP 3250[3] and Administrative Procedure _____[4] outlining the Total Cost of Ownership program to provide a structured data driven approach to funding the development, operation and long term refurbishment of District assets. A comprehensive Total Cost of Ownership process includes the cost of a facility from initial planning and construction, through operation and refurbishment to final replacement or disposal. The District has funded new facility development from local and state bond sources. Annual operating expense including maintenance and operations staff and expenses and utilities are funded from annual General Fund allocations. Major repairs, renovations and updates have been funded from state programs and Measure B bond funds. Regardless of funding source, all investment in District assets are accounted through the District Fund Budgets. This centralized accounting system provides means to transparently identify, track and report on total investment in District facilities.

[3] Appendix 3-
[4]

SECTION 3- TOTAL COST OF OWNERSHIP DEFINITIONS

The Total Cost of Ownership (TCO) process considers all costs associated with an asset from acquisition to demolition. TCO provides a means to evaluate initial development cost with long term operational cost and ongoing repair, renovation and upgrades. The TCO process provides data to compare District costs to operate, maintain and refurbish with state and national averages to identify areas of improvement. The TCO provides estimates of future costs to operate and maintain facilities providing information for future budgeting and funding decisions. Integral to the TCO process is assessment of custodial, maintenance and grounds staffing needed to maintain the facility to the level of care desired by the Colleges.

The Total Cost of Ownership process provides a structured means to measure the effectiveness of the programs implemented and chart program improvements. The Total Cost of Ownership program focuses on three primary facility ownership phases:

- Facility Development- Planning, Design, Construction, Commissioning
- Annual Operations – Maintenance and Operations staffing, building utilities, maintenance costs, repairs.
- Long Term Management- Scheduled and Deferred Maintenance, Renovation, Updating and Reuse.

The APPA (formally the Association of Physical Plant Administrators) has developed a number of Key Performance Factors that can be evaluated and tracked to judge performance against local and national performance of peer organizations. Some of these Key Performance Factors are:

Facility Planning

- Building Utilization Capacity/Load Ratio
- Project Development Cost per Square Foot

Annual Operations

- Custodial Staff per Building Gross Square Foot
- Maintenance staff Per Building Gross Square Foot
- Grounds Staff per Acre
- Electrical- Cost and Use per Gross Square Feet
- Natural Gas- Cost and Use per Gross Square Feet
- Energy Use Intensity- Total Energy Use per Gross Square Feet
- Total Utility Cost per Gross Square Feet
- Annual expense for maintenance and custodial materials, supplies and vendors

Long Term Management

- Facility Condition- Facility Condition Index
- Facility Condition- Amount of Deferred Maintenance
- Average investment for Renovation, Upgrades, Repurpose

DEFINITIONS

The facilities management industry has developed some standardized terms and definitions relating the Total Cost of Ownership. A partnership including the APPA (previously Association of Physical Plant Administrators) published a Glossary and Definitions of Terms associated with the Total Cost of Ownership Management[5]. In addition, the California State Community College Chancellor's Office have defined terms relating to the ownership and operation of community college facilities. Some of the key terms are:

Total Cost of Ownership (TCO)-Lifecycle Cost Management

Total Cost of Ownership (TCO) is a dollar per gross square foot value ($/GSF) associated with a facility. It is a calculation of all facilities-specific costs (not including furnishings or non-facility specific equipment) divided by estimated lifespan of the building (30 to 50 years), and the total gross area.
Facilities specific costs include all construction, preservation, maintenance, and operations costs. TCO is a strategic asset management practice that considers all costs of operations and maintenance, and other costs, in addition to acquisition costs. TCO, therefore includes the representation of the sum total of the present value of all direct, indirect, recurring and non-recurring costs incurred or estimated to be incurred in the design, development, production, operation, maintenance of a facility/structure/asset over its anticipated lifespan. (Inclusive of site/utilities, new construction, deferred maintenance, preventive/routine maintenance, renovation, compliance, capital renewal, and occupancy costs.) Land values are specifically excluded.

[5] Appendix 3- Asset Lifecycle Model for Total Cost of Ownership Management, Framework, Glossary and Definitions

Utilization Rate-Capacity/Load Ratio

The utilization rate is an indicator used to determine how efficiently available space is being used. The California Community College Chancellor's Office's (CCCCO) FUSION system lists the Capacity Load Ratio five key space types for each college in the State. The Cap Load Ratio compares the amount educational space required to support college enrollment measured by weekly student contact hours (WSCH) with the CCCCO's established utilization factor for lecture, laboratory, office, library and Audio/Visual spaces on the college campus. The calculations are based on assignable square feet, which is a measure of the space within a building that can be used for instruction. It does not include hallways, mechanical spaces or other non-educational space. A 100% Cap Load Ratio indicates that the available space matches the needs of the student classroom hours. A Cap Load Ratio exceeding 100% indicates more available space than needed to support the calculated need.

$$\text{Capacity Ratio} = \frac{\text{Actual Assignable Square Footage}}{\text{Calculated Required Square Footage (based on student population)}}$$

Lifecycle Cost Analysis

An estimating procedure used to determine the cost of facility system/component renewal based on the average useful life of an individual component. This procedure is typically based upon visual observations, via a facilities conditions assessment/audit, to determine the remaining useful life of a system and the development of cost models for the facility. This process enables multi-year modeling of future replacement costs and timing

Facility Operating Cost per Gross Square Foot (GSF)

An asset management practice that considers the yearly costs of facilities operations and maintenance as compared to the APPA Facility Operating Gross Square Foot Performance Indicator.

- Custodial Costs per GSF: The yearly costs of custodial labor
- Grounds Keeping Costs per GSF: The yearly costs of grounds labor
- Maintenance Costs per GSF: the yearly cost of maintenance labor
- Energy Use per square foot: The yearly Use of gas and electricity
- Utility Costs per square foot: the yearly costs of utilities including gas, electrical, water, sewer. (services for telecommunications, data and other electronic services is not included)
- Facility Maintenance Expenses: the yearly costs of materials, equipment, service providers to maintain the facilities

Energy Usage

This performance indicator is expressed as a ratio of British Thermal Units (BTUs) for each Gross Square Foot (GSF) of facility, group of facilities, site or portfolio. This indicator represents a universal energy consumption metric that is commonly considered a worldwide standard. This energy usage metric can be tracked over a given period of time to measure changes and variances of energy usage. Major factors that affect BTU per gross square foot are outside ambient temperature, building load changes, and building envelope and equipment efficiencies. The total energy usage includes the amount of energy it takes for heating, cooling, lighting and equipment operation per gross square foot. The indicator is traditionally represented as total energy consumed annually or monthly. All fuels and electricity are converted to their respective heat, or BTU content, for the purpose of totaling all energy consumed.

Energy Usage = British Thermal Units = BTUs
Gross Area = GSF

Energy Terms
Terms used when listing energy usage include:
MBTU- Thousand BTU
MMBTU- Million BTU
kW- Kilo Watts- Thousand watts) (electrical power)
MW-Mega Watt (Million watts)
kWh- Kilo Watt hours (electrical energy usage)
MWH-Mega Watt (million watt) Hours (electrical energy usage)

Normal/Routine Maintenance and Minor Repairs
Cyclical, planned work activities funded through the annual budget cycle, done to continue or achieve either the originally anticipated life of a fixed asset (i.e., buildings and fixed equipment), or an established suitable level of performance. Normal/routine maintenance is performed on capital assets such as buildings and fixed equipment to help them reach their originally anticipated life. Deficiency items are typically low in cost to correct and are normally accomplished as part of the annual operation and maintenance (O&M) funds. Normal/routine maintenance excludes activities that expand the capacity of an asset, or otherwise upgrade the asset to serve needs greater than, or different from those originally intended.

Repair(s)
Work that is performed to return equipment to service after a failure, or to make its operation more efficient. The restoration of a facility or component thereof to such condition that it may be effectively utilized for its designated purposes by overhaul, reprocessing, or replacement of constituent parts or materials that have deteriorated by action of the elements or usage and have not been corrected through maintenance.

Preventive Maintenance
Preventive Maintenance (PM) consists of a series of maintenance requirements that provide a basis for planning, scheduling, and executing scheduled maintenance, which is planned versus corrective in nature. The purpose of PM is improving equipment life, to avoiding any unplanned maintenance activity and minimize equipment breakdowns. These PM activities can be defined through a Maintenance Plan (MP). The purpose of a Maintenance Plan is to describe the best means to maximize equipment operational availability, while minimizing equipment downtime. Once developed, the MP will typically identify PM task descriptions and schedules, troubleshooting, corrective maintenance (repair) task descriptions, and spare parts identification, stock (quantity), and any unique storage requirements. This information will be incorporated in the manual, both as tabular data and text.

Deferred Maintenance:
The total dollar amount of existing maintenance repairs and required replacements (capital renewal), not accomplished when they should have been, not funded in the current fiscal year or otherwise

delayed to the future. Typically quantified by a comprehensive facilities condition assessment/audit of buildings, grounds, fixed equipment and infrastructure. These needs have not been scheduled to be accomplished in the current budget cycle and thereby are postponed until future funding budget cycles. For calculation of facility condition index (FCI) values, deferred maintenance does not include code generated renovation or renovation for a new use.

Facility Condition Assessment (FCA)/Audit

The structured development of a profile of existing facilities conditions, typically placed in an electronic database format, and populated with detailed facility condition inspection information. A detailed facility condition assessment (FCA) typically involves an assessment team of three professionals (architect, mechanical engineer, electrical engineer). The assessment team depends upon robust, scalable methodologies to assure accurate and consistent information. It is recommended that a FCA be done on a regular basis, approximately every three years, or conduct a portion of the overall portfolio annually. The FCA identifies existing deficient conditions (requirements), in a logical grouping, with priorities, and associated recommended corrections and corrective costs. Costs are generally based upon industry standard cost databases (e.g., Building News, Craftsman Book Company, Richardson General Construction Estimating Standards, RSMeans).

Facility Condition Index (FCI)

A comparative industry indicator/benchmark used to indicate the relative physical condition of a facility, group of buildings. The facility condition index (FCI) is expressed as a ratio of the cost of remedying existing deficiencies (Deferred Maintenance, DM) and capital renewal (CR) requirements to the current replacement value (CRV) (i.e., FCI= (DM+CR)/CRV). The FCI provides a corresponding rule of thumb for the annual reinvestment rate or reserve account to prevent further accumulation of deferred maintenance deficiencies. The FCI value is a snapshot in time, calculated on a periodic basis. The FCI is represented on a scale 0% to 100%, with higher FCI values, representing poorer facility's condition. A “fair to good facility” is generally expressed as having an FCI of less than 10-15%.

Facilities Deterioration Rate:

Each element in a facility has an effective useful life. The replacement of these elements over time may be expressed as a percentage of current total building replacement value per year. A benchmark deterioration rate for a reasonably well maintained facility is approximately 2.5% of the total building replacement value per annum.

Current Replacement Value (CRV)

The total expenditure in current dollars required to replace any facility at the institution, inclusive of construction costs, design costs, project management costs and project administrative costs. Construction costs are calculated as replacement in function vs. in-kind. The value of design (10%), project management (5%), and administrative costs (5%) can be estimated at 20% of the construction cost.

Recapitalization/Reinvestment Rate

A facility, system, or component with existing deficiencies will deteriorate at a faster rate than a component that is in good condition. The level of annual funding for facility renewal and deferred maintenance expressed as a percentage of facility replacement values. Altering the recapitalization/reinvestment rate has direct impact upon the facility condition index (FCI) and associated deferred maintenance levels over time.

Adaptation/Renovation/Modernization

The improvement, addition or expansion of facilities by work performed to change the interior alignment of space or the physical characteristics of an existing facility so it can be used more effectively, be adapted for new use, or comply with existing codes. Includes the total amount of expenditures required to meet evolving technological, programmatic or regulatory demands.

APPA Maintenance, Custodial and Grounds Level of Care Standards

The APPA defined standards[6] for five levels of care for the maintenance of facilities and grounds in conjunction with their Key Performance Indicators. The standards can be used by institutions to develop staffing levels based on the institutions desired level of care for each of the three areas of maintenance. The standards are described as follows:

Element	Level 1	Level 2	Level 3	Level 4	Level 5
Maintenance	Showpiece Facility	Comprehensive Stewardship	Managed Care	Reactive Management	Crisis Response
Custodial	Orderly Spotlessness	Ordinary Tidiness	Casual Inattention	Moderate Dinginess	Unkempt Neglect
Grounds	Well-Manicured Landscape	High Level of Maintenance	Moderate Level of Maintenance	Moderately Low Level of Maintenance	Minimum Level of Maintenance

[6] Appendix XX APPA Maintenance, Custodial and Grounds Standards of Care

SECTION 4- TOTAL COST OF OWNERSHIP PROGRAM

The District's adoption of a Total Cost of Ownership (TCO) program recognizes the need to formalize and integrate a number of current independent facility development and operations initiatives and programs. The Total Cost of Ownership Program provides a number of benefits to the District including:

- Providing a structured approach to the stewardship of the District's assets
- Providing Benchmarks to measure facility operations performance against Goals and identify opportunities for improvement
- Creating a proactive rather than reactive approach to project development and facility operation
- An objective means to set custodial, maintenance and grounds staffing using national standards of care.
- Develop performance Information to establish facility operating budgets
- Identify long term funding needs, and sources to support a structured facility renovation and replacement program

The District's Total Cost of Operation program is divided into three major elements:

- **Facility Development Cost**- the cost of planning, designing, constructing, furnishing and commissioning new facilities.
- **Annual Operating Costs**- the cost of staff, utilities and maintenance and operations expenses to maintain the facilities in operating condition with buildings and grounds clean and maintained.
- **Long Term Management Costs** – the costs of scheduled and deferred Maintenance, renovation and replacement and facility repurpose and upgrades.

SECTION 4.1-FACILITY DEVELOPMENT COST

The Total Cost of Ownership process begins with the initial planning of a new facility or renovation of existing facilities. While the Facility Development Cost typically only represents 10%-15% of the Total Cost of Ownership, the cost must be well managed to assure long term value of the facility.

The District uses an integrated master planning approach that aligns the Educational Master Plan with the Facility Master Plan. The Educational Master Plan is developed from educational program reviews that articulate needed and desired facility attributes to support the projected educational program. Facility projects define how space needs will be meet; through new facilities or renovation of existing space. The Facility Master Plan combines facility projects with supporting infrastructure improvements adding deferred maintenance needs, upgrades required by code or technology and management.

Once a project is approved by the Board of Trustees, a project team is assembled to define the project. The project team includes user groups, designers, facility development management, college management and operations and maintenance staff. The project definition includes educational

programs' unique space requirements and special needs, cost budget, schedule and specialized operation and maintenance requirements.

Facility Development Process

The process to plan, design, construct, commission and open a new facility includes:

- Develop the facility space program to meet the Educational Plan- define space needs by assessing anticipated student enrollment usage (WSCH), special space needs, equipment and furnishings requirements and other functional characteristics.
- Evaluate the impact of the new facility on the Cap Load Ratio[7]- calculate the Cap Load Ratio when the space will be available for use.
- Evaluate the impact of the new facility on the campus infrastructure—include the cost to expand or modify campus utilities or services to support the new or remodeled facility.
- Evaluate options to integrate renovation, upgrades or deferred maintenance projects- include planned or identified adjacent renovation or deferred maintenance projects or required upgrades in the new space project.
- Define the project including specific use, cost budget, schedule and quality—develop budget and schedule based on the space program, develop level of quality based on District and Campus standards.
- Develop and evaluate Life Cycle Cost Model[8]- evaluate options for development using long term life cycle cost including operations cost rather than first cost only.
- Integrate District standards of materials and systems into the design-direct the design team to use District standardized equipment, materials and systems to reduce maintenance and operations training and spare parts inventory[9]
- Perform Value Engineering as systems are selected, update Life Cycle cost analysis as necessary- evaluate major systems for performance against cost to select the best value, not just the lowest initial cost.
- Use national sustainability guidelines such as LEED and California Building Code-CAL Green during the design and construction-identify goals and integrate path to certification choices in the planning and design process.
- Manage the design process- perform detailed reviews at each design milestone to confirm compliance with program, design basis and project budget. Reviews include representatives from user groups, M&O, Safety, Information Technology and college administration.
- Construction Contracting- select the appropriate contracting method and comply with all public contracting regulations to select building general contractor.
- Inspect the construction work to ensure compliance with design and codes, test and document- maintain structured inspection process with comprehensive testing.
- Commission building systems to ensure performance of integrated systems—employ expanding commissioning involving the commissioning agent throughout the design and construction to provide another long term operations perspective in the development process.

[7] Appendix 4- FUSION Project Report Las Positas Building 2100
[8] Appendix 5-Life Cycle Cost Analysis- prepared for the new Academic Building 100- Las Positas
[9] District and Campus Building Standards http://www.clpccd.org/facilities/

- Collect, organize As-Built documents, warranties, operations manuals spare parts—collect and organize maintenance and operations records as the facility is being constructed.
- Develop operations plan that includes custodial and maintenance staffing as well as specialized service contractors--Develop staffing budgets to adjust staff to maintain levels of maintenance acceptable to the College.
- Establish preventative maintenance and scheduled maintenance scope, timing and budget-involve maintenance and operations staff in the design and construction process for training and operations planning.

Capacity to Load Ratios

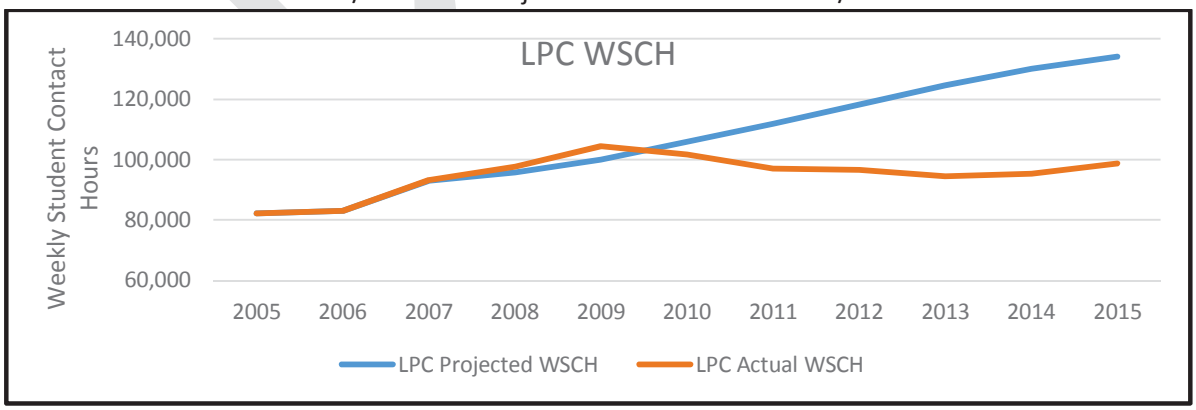
Part of the new space or renovation decision is an evaluation of the effective use of existing facility assets. The California Community College System has established the Capacity to Load Ratio (Cap Load Ratio) as the state standard for effective space utilization on community college campuses. The Cap Load Ratio compares space required to support student enrollment using Weekly Student Contact Hours (WSCH) with the reasonable use of the available space. A Cap Load Ratio of 100% indicates the effective use of available space. Either new or remodeled space solutions should result in a Cap Load Ratio at project completion approaching 100% within five years of completion.

The Capacity to Load Ratio is a key Performance Metric. The implementation of the 2004 Facility Master Plan could be evaluated by the changes in the Cap Load Ratio from (FY 2005/06)[10], and after (FY 2015/16)[11] implementation of the building program. However, the Cap Load Ratio forecast in 2005 proved to be significantly overstated as a result of the financial recession resulting in lowered enrollments, causing some areas to be overbuilt by 2015/16.

Las Positas Cap Load Ratio

The Las Positas program primarily focused on development of new space to support new programs and a growing student population at the College. As State funding and student enrollment dipped during difficult economic times, some new programs grew slower with corresponding lowered student enrollment than projected resulting in an excess of lecture or classroom space.

Chart 4.1.A- Las Positas FY 05/06 WSCH Projection and Actual to FY 15/16

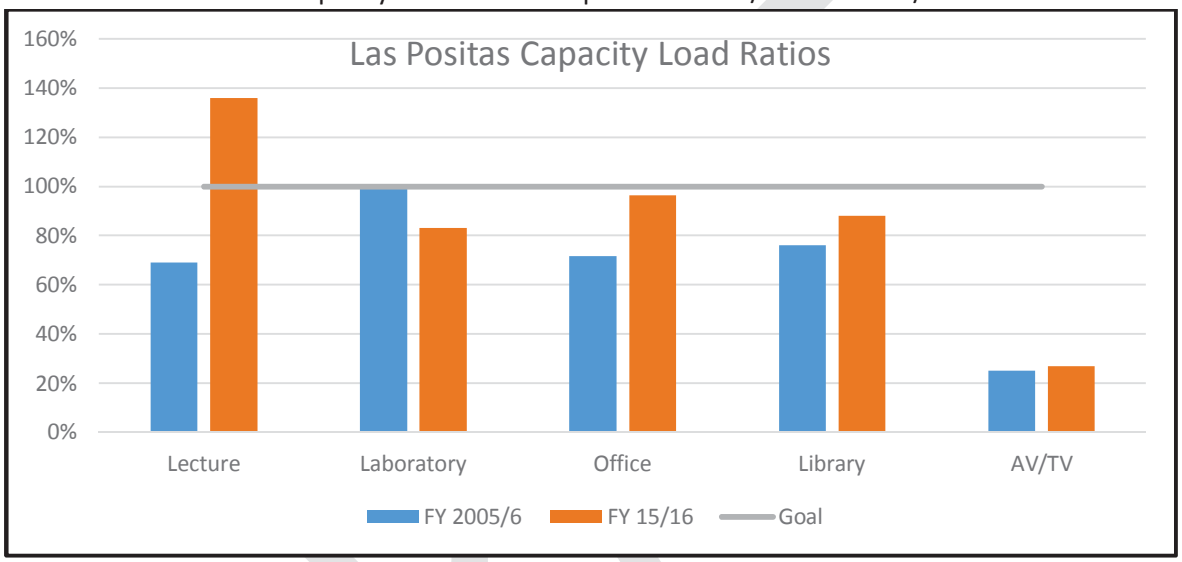


[10] Appendix 6- FUSION FY2005/06 Las Positas and Chabot Campus Capacity Load Ratios
[11] Appendix 6- FUSION FY2015/16 Las Positas and Chabot Campus Capacity Load Ratios

Table 4.1.B Las Positas College Capacity Load Ratio FY 05/06 and FY 15/16

	Las Positas 2005/06	Las Positas 2015/16
Lecture	67%	136%
Laboratory	100%	84%
Office	72%	96%
Library	76%	88%
Audio Visual/TV	25%	27%

Chart 4.1.C- Las Positas Capacity Ratio Load Comparison- FY 05/06 and FY 15/16



Chabot Cap Load Ratios

The Chabot College program focused on renovation or replacement of existing space with limited additional new space. The Educational Plan anticipated that the high cap load would gradually reduce with increased student enrollment. The high cap load lecture space in FY 2005/06 anticipated growth through 2015/16 which did not occur resulting in a continuing overbuilt condition in 2015/16.

Chart 4.1.D- Chabot FY 05/06 WSCH Projection and Actual to FY 15/16

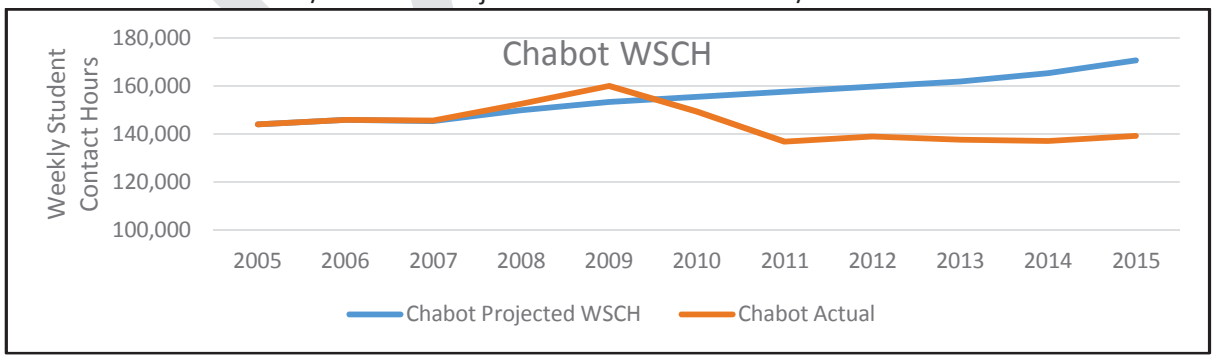
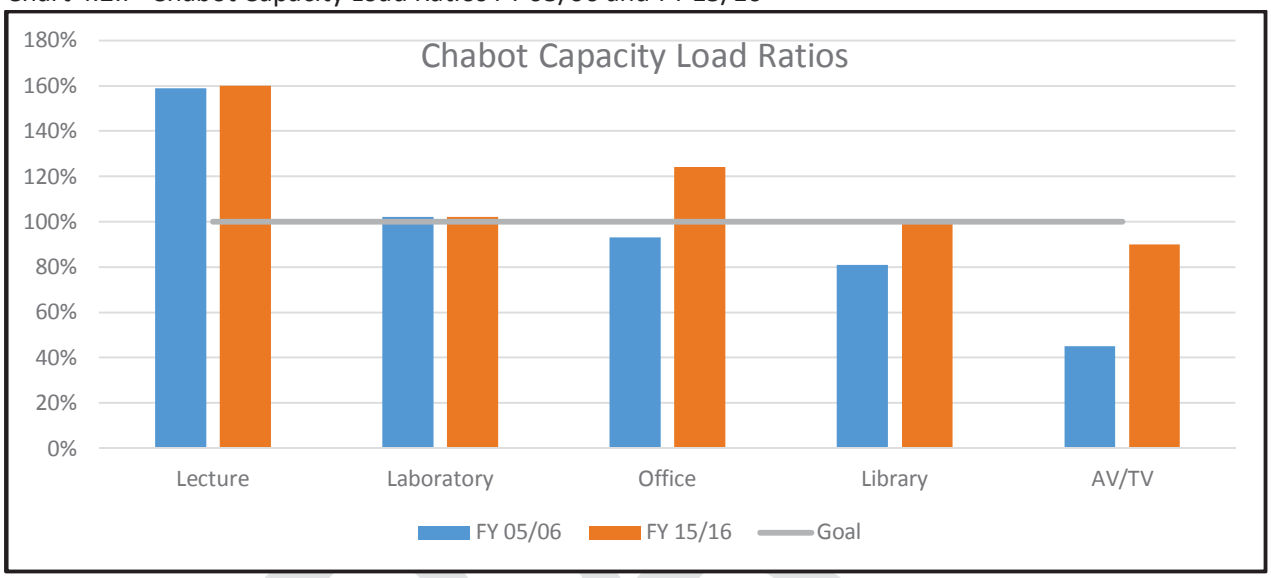


Table 4.1.E- Chabot College Capacity Load Ratio FY 05/06 and FY 15/16

	Chabot 2005/06	Chabot 2015/16
Lecture	159%	160%
Laboratory	102%	104%
Office	93%	123%
Library	81%	101%
Audio Visual/TV	45%	90%

Chart 4.2.F- Chabot Capacity Load Ratios FY 05/06 and FY 15/16



SECTION 4.2- ANNUAL OPERATIONS COST

The Annual Operations Cost includes

- Maintenance and operations staff wages including maintenance, custodial, grounds and management staff,
- Utilities including gas, electrical, water and sewer
- Facilities maintenance expenses including materials, parts and service vendors

These annual costs will fluctuate due to weather, degree of repairs and changes in building use; but do show trends over time.

SECTION 4.2.1-MAINTENANCE AND OPERATIONS STAFFING

The Maintenance and Operations staff are a District resource. The Director of Maintenance and Operations allocates staff resources to the colleges. Each college has dedicated resources with a full time campus M&O manager. Key trade technicians including electrician and locksmith are shared between the colleges as needed. The M&O staff also includes part time/on-call custodial and grounds staff to respond to work load changes and backfill full time employees due to vacation and sick leave. The following tables show the Full Time Equivalent (FTE) staffing levels for the past six years based on

M&O organization charts including management and administration staff. The 2015/16 M&O organization[12] defines the structure and staffing.

The Association of Physical Plant Administrators (APPA) has developed staffing guidelines for maintenance, custodial and grounds staff based on building configuration and use. The guidelines suggest staffing levels for APPA's five defined levels of performance or Standards of Care. The five levels range from Level 1- excellent to Level 5- marginal or poor[13]. APPA and others have developed calculators that calculate suggested staffing based on a building configuration and use.

One tool used by the District to estimate custodial staffing levels is the DabbleFox program providing a detailed room by room assessment of custodial requirements, using assignable square feet and specific flooring materials. The DabbleFox program allows the establishment of an APPA level for each room. The District model is based on a desired Level 2 for restrooms and cafeterias, level 4 for non-student areas such as storage and utility area. The remaining spaces are set at Level 3[14]. The DabbleFox Building summary lists the suggested work hours required to achieve the desired level of custodial maintenance.[15]

TABLE 4.2.1.A- DabbleFox Calculated Custodial Staffing levels, Las Positas and Chabot

	Level 3	Level 4	**GSF- FY15/16**	**GSF/Custodian**
Las Positas	**16.0**	12.0	468,206	**29,262**
Chabot	**25.0**	20.0	721,614	**28,864**
Total	**41.0**	32.0		

Note: This does not include supervisors

For comparison, the District used a high level calculation model developed by Goshen College using APPA recommended performance factors. Their spreadsheet calculates staffing for all five APPA levels for maintenance, custodial and grounds staff. Input to the model includes campus wide assignable square footage for each type of space based on the educational use category, areas of lobbies, corridors and other non-assignable space. The model adds adjustments for areas of heavy use, various flooring types and age of the facilities[16]. The staffing difference between the models is due to the fact that Goshen model includes supervisors in the staffing count while DabbleFox includes supervisors in a management category. Each College has two custodial supervisors which have been added to the DabbleFox model which correlates with the Goshen staffing model.

TABLE 4.2.1B- Goshen College Model Calculated Custodial Staffing levels

	Level 1	Level 2	**Level 3**	Level 4	Level 5
Las Positas	44.5	24.5	**18.0***	14.5	13
Chabot	73.0	38.0	**28.0***	22.5	20.0
Total	113.5	62.5	**46.0***	37.0	33.0

*includes 2 supervisors per campus and one manager not in the DabbleFox model

[12] Appendix 8-Maintenance and Operations Organization FY 2015/16
[13] Appendix 9-APPA Level of Quality Definitions for Custodial, Maintenance and Grounds maintenance
[14] DabbleFox typical Room Custodial evaluation
[15] DabbleFox Custodial Staffing Summary
[16] Goshen College Model- Las Positas College and Chabot College

Custodial Staffing per Gross Square Feet

A key performance indicator is the total building Gross Square Feet divided by the number of custodial staff. The higher the gross square feet per staff the lower the level of attention. The combination of adding new buildings and reducing staff due to budget restrictions during the past few years has increased the work load of the custodial staff. The current staffing is below the goal of the APPA Standard Level 3 level of attention as calculated from the DabbleFox application. From 2007 to 2015, the Las Positas custodial staff was reduced while new buildings were completed increasing GSF by over 60% resulting in an overall increase of 77% in the amount of GSF/custodian. At Chabot the building GSF has increased only 13%, the custodial staff was reduced resulting in an overall increase of 40% in the amount of GSF/custodian. The metric is based on custodial workers not including supervisors or managers.

Chart 4.2.1.C- Las Positas GSF/ Custodian Historical data

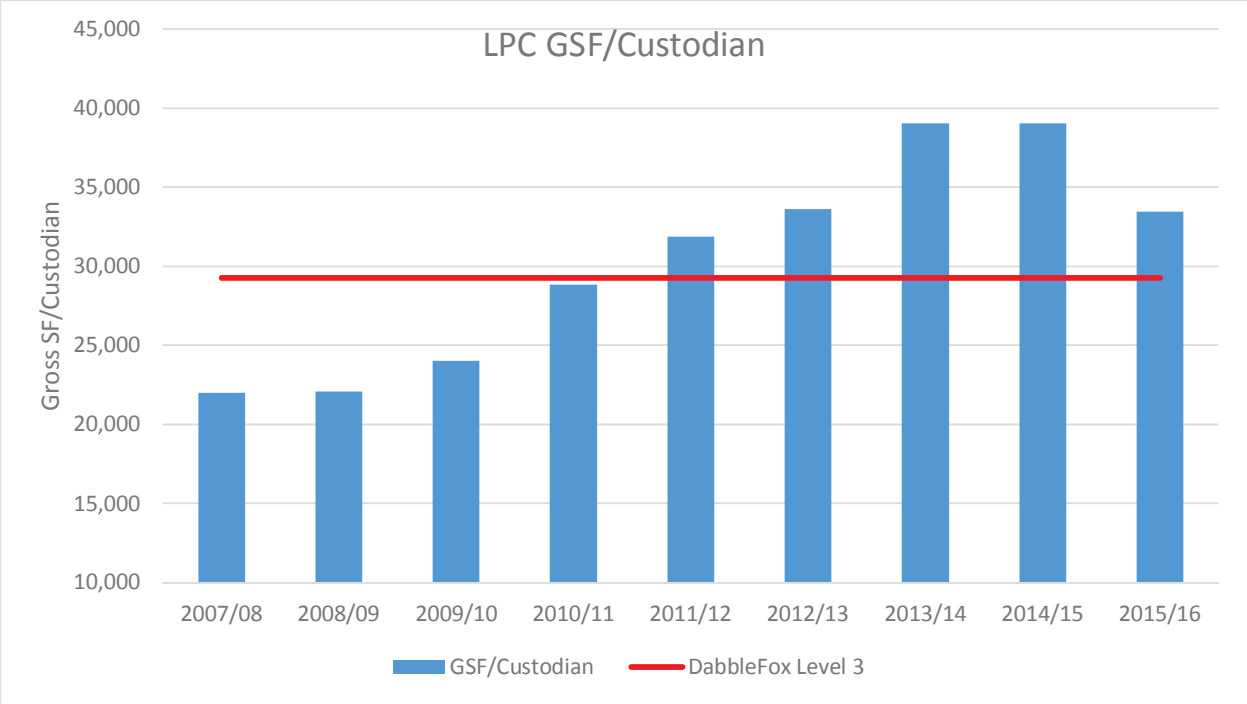


Table 4.2.1.D- Las Positas Gross Square Feet Per Custodian Historical data

Las Positas	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Gross SF	286,056	309,184	312,448	374,780	382,281	403,070	468,206	468,206	468,206
Custodial	13	14	13	12	12	11	11	12	14
Supervision	2	2	2	2	2	2	2	2	2
GSF/Custodial	22,004	22,085	24,034	28,829	31,857	33,589	39,017	39,017	33,443

Chart 4.2.1.E- Chabot College GSF/ Custodian Historical Data

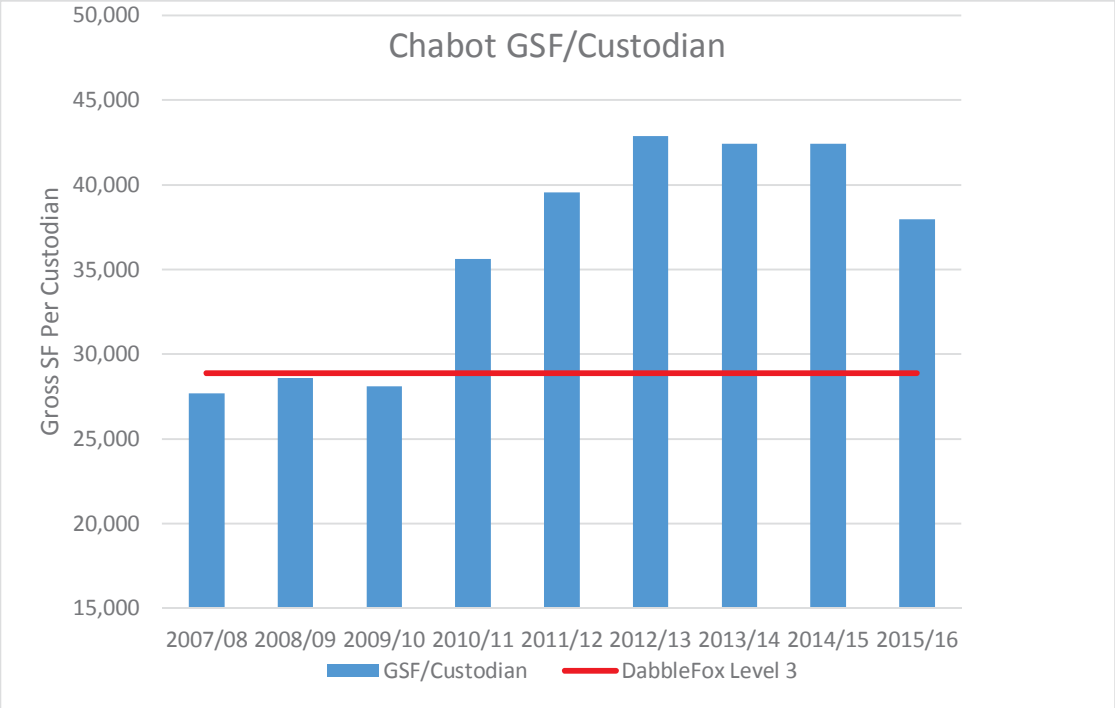


Table 4.2.1.F- Chabot Gross Square Feet per Custodial Staff Historical Data

Chabot	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Gross SF	636,856	629,133	629,133	712,080	712,080	728,642	720,967	720,967	721,614
Custodial	24	23	24	20	18	17	17	18	20
Supervision	2	2	2	2	2	2	2	2	2
GSF/Cust	26,436	27,580	26,012	35,604	39,560	42,861	42,410	40,054	36,081

Maintenance Staffing Per Gross Square Feet

Maintenance staff are a joint resource between the campuses. Skilled trade (such as electrician or locksmith) time is allocated 60% to Chabot and 40% to Las Positas. The Goshen model was used for suggested staffing at a Level 3 level of attention. The key performance indicator of building Gross Square Feet per maintenance staff is based on maintenance workers not including supervisors or managers. The District M&O maintenance staff includes a full time vehicle mechanic to service district vehicles in addition one manager at each college. The key performance evaluation for maintenance staff considers the total combined gross square feet of both campuses. As with custodial staff, the combination of new space and constrained budgets caused staffing coverage to drop below the goal of APPA Level 3 level of attention.

Table 4.2.1.G Goshen Model Calculated Maintenance Staffing

Maintenance	Level 1	Level 2	**Level 3**	Level 4	Level 5	**Actual 15/16**
Las Positas	10.5	7.5	**6.0**	4.0	3.0	**6.0**
Chabot	17.5	13.5	**10.0**	6.5	4.0	**7.0**
Combined	28.0	21.0	**16.0**	10.5	7.0	**13.0**

Chart 4.2.1.H- Combined GSF per Maintenance staff Historical data

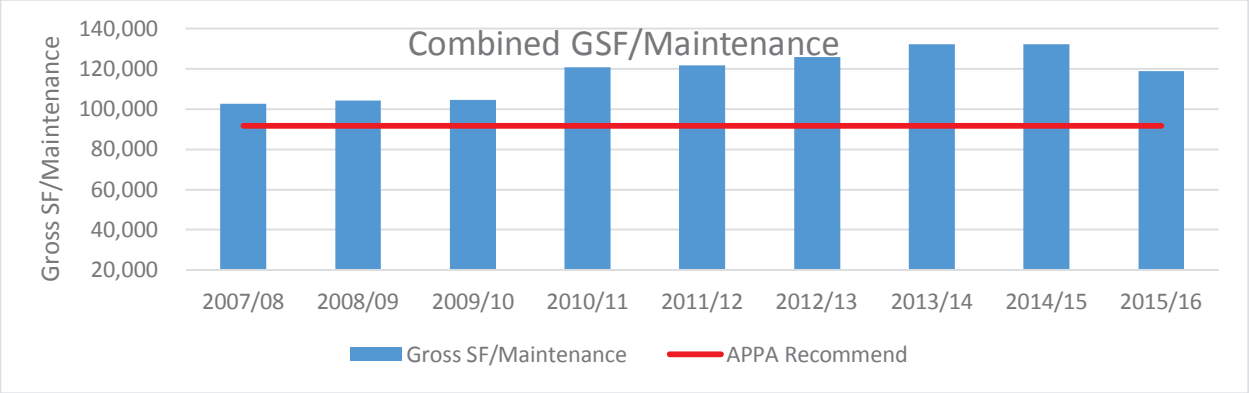


Table 4.2.1.I Combined Gross SF per Maintenance staff

	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Gross SF	941,581	1,086,860	1,094,361	1,131,712	1,189,173	1,189,173	1,189,173
Maint Staff	9	9	9	9	9	9	10
Supervisor*	3	3	3	3	3	3	3
GSF/Maint	104,620	120,762	121,596	125,746	132,130	132,130	118,982

- Supervisor group includes full vehicle maintenance mechanic not assigned to building maintenance.

Grounds Staffing Levels

The grounds staff maintains the exterior grounds landscaping including lawn, shrubs, trees and flowering plants. The Las Positas campus is 145 acres and the Chabot campus is 95 acres. They are also responsible for the maintenance of the athletic fields. The athletic field maintenance includes mowing, irrigation, striping and repairs after athletic events. The colleges have multiple athletic fields. Las Positas added an artificial turf soccer field and a natural turf football/track field and over 30 acres of new development. Chabot's athletic fields were upgraded but not expanded converting to an artificial turf football field with upgraded natural turf soccer, baseball and softball fields.[17] Grounds staff do share some time between campuses as needed. The Goshen model was used for suggested staffing levels to meet a Level 3 level of attention. Recommended staffing at a Level 3 are based on the type of landscaping. Level 3 coverage per person ranges from 16,000 SF/grounds staff for flower beds to 6 acres/grounds staff for football fields. Grounds staff work load increased as new buildings with upgraded landscaping and new athletic fields were added during the Measure B program without corresponding increases in Grounds staff.

Table 4.2.1.J—Goshen Model Calculated Grounds Staffing

Grounds Staff	Level 1	Level 2	**Level 3**	Level 4	Level 5	**Actual 15/16**
Las Positas	15.5	11.5	**5.5**	4.5	2	**4.0**
Chabot	16.0	10.0	**7.5**	6.0	2.5	**6.0**
Total Grounds	31.5	21.5	**13.0**	10.5	4.5	**10.0**

[17] Appendix 17 Las Positas and Chabot Campus Maps

Chart 4.2.1.K- Combined Grounds Staffing Historical Data

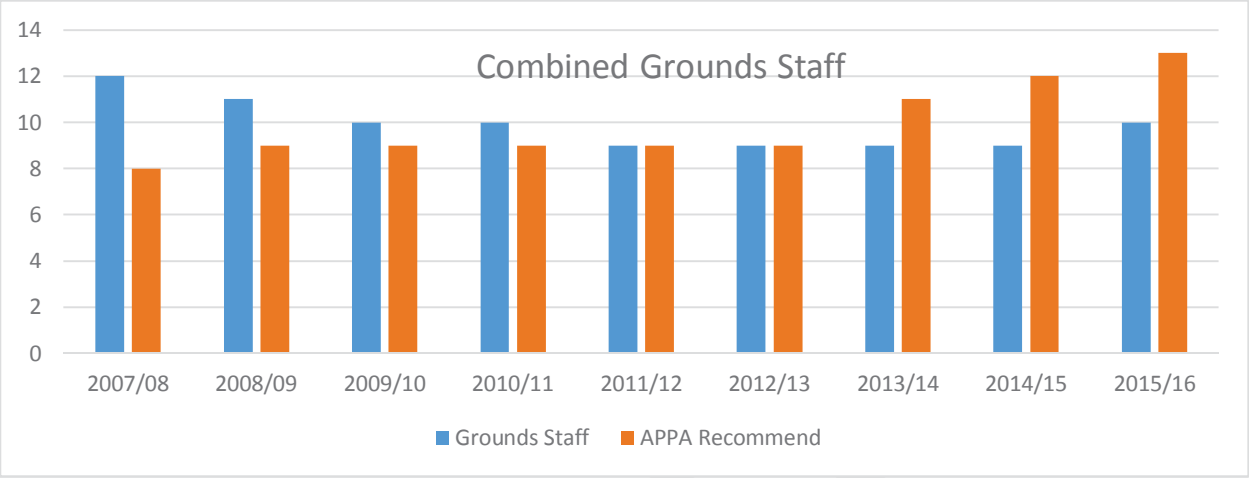


Table 4.2.1.L- Combined Grounds Staffing Historical Data

Grounds	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
APPA Est	9	9	9	9	9	11	12	13
Total	11	10	10	9	9	9	9	10

Calculated Combined Colleges M&O Staffing Levels

The following table summarizes the suggested staffing levels combining the DabbleFox and Goshen models for custodial, maintenance and grounds. The last column contains the actual Las Positas and Chabot M&O staffing for FY 2015/16. The staffing numbers are Full Time Equivalent (FTE) positions. These M&O staffing numbers include managers and supervisors but do not include the M&O Director nor administrative support staff.

TABLE 4.21.M- Las Positas Total M&O APPA Recommended Staffing levels

Las Positas	Level 1	Level 2	**Level 3**	Level 4	Level 5	**Actual 15/16**
Maintenance	10.5	7.5	**6.0**	4.0	3.0	**5.5**
Custodial	48.0	28.5	**18.0**	15.0	14.0	**16.0**
Grounds	17.5	11.5	**5.5**	4.5	2	**4.0**

Table 4.2.1.N- Chabot Total M&O APPA Recommended Staffing Levels

Chabot	Level 1	Level 2	**Level 3**	Level 4	Level 5	**Actual 15/16**
Maintenance	17.5	13.3	**10.0**	6.5	4.0	**7.5**
Custodial	83.0	49.0	**28.0**	24.0	20.5	**22.0**
Grounds	23.0	15.0	**8.5**	6.0	2.5	**6.0**

Comparing the actual FY 2015/16 staffing with the DabbleFox and Goshen College APPA based staffing, indicates that staff additions are necessary to provide the desired APPA level 3 level of attention at both colleges.

SECTION 4.2.2- MAINTENANCE AND OPERATIONS STAFFING COSTS

Total Maintenance and Operations Staff Cost

The total cost of Maintenance and Operations staff is a key performance indicator. The following staff cost budgets include salary, fringe benefits, overtime for regular classified staff, supervisors, managers and hourly staff for the past two budget years (FY 2014/15 and FY 2015/16) and the current budget year FY 20116/17[18]. Actual cost for FY 2014/15 and FY 2015/16 vary slightly from budgets due to staffing changes throughout the year. Annual budgets are used to allow evaluation of projected staff salary and benefits with planned staffing.

Table 4.2.2.A- Total Las Positas M&O Staff Budgets

Las Positas	FY 14/15	FY 15/16	FY 16/17	Staffing 16/17
Gross SF	468,206	468,206	459,758	459,758
Maintenance	631,380	658,913	716,957	6.5
Custodial	1,128,915	1,305,585	1,403,550	16
Grounds	359,087	368,659	332,620	4
Management	175,722	173,786	225,796	2
Total	2,295,104	2,506,943	2,678,923	28.5
Cost/GSF	$ 4.90	$ 5.35	$ 5.83	

Table 4.2.2.B- Total Chabot M&O Staff Budgets

Chabot	FY 14/15	FY 15/16	FY 16/17	Staff FY 16/17
Gross SF	720,967	721,614	721,614	721,614
Maintenance	822,326	894,983	948,922	7.5
Custodial	1,830,666	1,764,734	1,915,520	22
Grounds	559,517	567,790	611,761	6
Management	175,722	173,786	225,796	2
Total	3,388,231	3,401,293	3,701,999	37.5
Cost/GSF	$ 4.70	$ 4.71	$ 5.13	

Table 4.2.2.C-Combined Total M&O Staff Budgets

Chabot	FY 14/15	Staff	FY 15/16	Staff	FY 16/17	Staff
Gross SF	1,189,820		1,189,820		1,181,820	
Maintenance	$ 1,453,706	12	$ 1,553,896	13	$ 1,665,879	14
Custodial	$ 2,959,581	33	$ 3,070,319	34	$ 3,319,069	38
Grounds	$ 918,604	9	$ 936,449	10	$ 944,381	10
Management	$ 351,444	3	$ 347,572	3.5	$ 451,593	4
Total	$ 5,683,335	57	$ 5,908,236	60.5	$ 6,380,922	66
Cost/GSF	$4.78		$4.97		$ 5.40	

[18] Appendix 13-Account Codes XXXXX –XXXX FY 2015/16

Projected Annual Staffing, Staff Wages and Staff Cost per GSF- FY 17/18- to FY 21/22

The following five year staff budgets are based on desired APPA Level 3 level of attention staffing recommendations adjusted for the planned changes in building Gross Square Feet resulting from implementation of the Measure A bond program[19]. The approved FY 16/17 budget and staffing is the starting point. The FY 17/18 projected budget incorporates additional staff to achieve Level 3 level of attention for custodial, maintenance and grounds staff. Note the five percent cost per GSF increase at LPC during FY 19/20 is based on adding new sports fields without any additional new buildings.

Table 4.2.2-D- Las Positas 5 Year Projected M&O Staffing and Costs

Las Positas	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	FY 21/22
Gross SF	459,757	459,758	496,339	496,339	536,092	562,503
Maintenance	6.5	7.5	7.5	7.5	8.5	8.5
Custodial	16	18.0	20.0	20.0	21.0	22.0
Grounds	4	5.0	5.0	7.0	7.0	7.0
Management	2	2.0	2.0	2.0	2.0	2.0
Total Staff	28.5	32.5	34.5	36.5	38.5	39.5
Est Staff Cost	$2,685,388	$3,018,026	$3,176,422	$3,347,273	$3,580,582	$3,703,292
Est Cost/GSF	$5.84	$6.56	$6.40	$6.74	$6.68	$6.58

Table 4.2.2.E- Chabot 5 Year Projected M&O Staffing and Costs

Chabot	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	FY 21/22
Gross SF	721,614	721,614	727,530	728,794	739,606	762,606
Maintenance	7.5	8.5	9.5	9.5	9.5	10.5
Custodial	22	28.0	28.0	28.0	29.0	30.0
Grounds	6	8.0	9.0	10.0	10.0	10.0
Management	2	2.0	2.0	2.0	2.0	2.0
Total	37.5	46.5	48.5	49.5	50.5	52.5
Est Staff Cost	$ 3,577,276	$4,188,906	S4,399,585	$4,518,288	$4,668,078	$4,930,498
Est Cost/GSF	$ 4.96	$5.80	$6.05	$6.20	$6.31	$6.47

Table 4.2.2.F Combined 5 Year Projected M&O Staffing and Costs

Chabot	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	FY 21/22
Gross SF	1,181,372	1,181,372	1,223,869	1,225,133	1,275,698	1,325,109
Maintenance	14	16	17	17	18	19
Custodial	38	46	48	48	50	52
Grounds	10	13	14	17	17	17
Management	4	4	4	4	4	4
Total	66	79	83	86	89	92
Est Staff Cost	$6,262,664	$7,206,932	$7,576,007	$7,865,561	$8,248,660	$8,633,790
Est Cost/GSF	$5.30	$6.10	$6.19	$6.42	$6.47	$6.52

[19] Appendix 14-Projected Projects with GSF adjustments

SECTION 4.2.3- UTILITY USAGE AND COSTS

Energy Sources Overview

Each college obtains energy from both on-site and utility sources. Las Positas has 2.3 MW of on-site solar generating over 50% of the campus electrical energy use. Chabot has 1.0 MW of solar and 300 kW of natural gas driven co-generation engines which combined generate 30% of the campus electrical energy use. The hot exhaust gases from the co-generation engines are used to heat the swimming pool and campus heating loop. The campuses purchase electrical energy from Pacific Gas and Electric and purchase natural gas through SPURR (School Project for Utility Rate Reduction) a Joint Powers Authority that provides access to the wholesale gas market to California educational institutions.

Las Positas Energy Source and Use

Las Positas exports electrical energy most days. The table below shows the annual amount of energy exported. The exported energy amount is deducted from the sum of energy purchased from PG&E and the energy produced on site to calculate the total energy used by the College. The PG&E grid acts as a battery, accepting over generation and returning that energy at night. The college benefits financially as they sell over generation at daytime peak rates and purchase evening energy at off-peak or part-peak evening rates.

Table 4.2.3-A- Las Positas Historical Energy Source and Use

Las Positas	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross SF	374,780	382,281	403,070	468,206	468,206	468,206
PGE MWh	4,529	4,632	3,573	3,406	3,263	3,798
PV MWh- Total	1,797	1,891	3,025	4,021	3,688	1,170
PV MWh-Export	0	(750)	(1,344)	(1,245)	(1,183)	(495)
Elect-MWh Total	6,326	5,773	5,255	6,186	5,767	5,908
Gas MTherms	176	231	253	241	233	262

Chabot Energy Source and Use

Chabot does not export electrical energy. The co-generation system operates continuously, providing electrical energy plus heat from the engine exhaust. The exhaust heat is used primarily to heat the swimming pools with any surplus added to the campus building hot water heating loop. The natural gas usage is approximately 50% gas to power the co-gen units and 50% gas for building heating.

Table 4.2.3.B- Chabot Energy Source and Use

Chabot	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross SF	712,080	728,642	720,967	720,967	721,614	721,614
PGE MWh	3,367	3,270	3,087	3,151	3,151	3,580
PV MWh	1,464	1,567	1,514	1,479	1,463	1,291
Co Gen MWh	2,410	1,363	2,094	2,068	1,717	2,202
Elec MWh Total	7,232	6,200	6,693	6,700	6,332	7,073
Gas MTherm	567	571	523	488	481	514

Energy Use Intensity

Energy Use Intensity (EUI) is a key performance benchmark. EUI is calculated as the total energy use in Million British Thermal Units (MMBTU) divided by Building Gross Square Feet. The EUI difference between the two colleges can be ascribed to the warmer inland climate at Las Positas requiring more air conditioning energy than the coastal climate at Chabot. The APPA national EUI average is 130[20]; indicating the Colleges are significantly more energy efficient than the APPA national averages. The District's participation in the Statewide Community College Energy Star Program indicated that Las Positas is 25% more efficient and Chabot 45% more efficient than the Energy Star national portfolio of comparable educational institutions[21].

Table 4.2.3-C- Las Positas Historic Energy Use Intensity

Las Positas	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross SF	374,780	382,281	403,070	468,206	468,206	468,206
Elect MMBTU	19,883	19,703	17,936	21,114	19,684	20,166
Gas MMBTU	17,568	23,139	25,337	24,136	23,283	26,210
Total MMBTU	37,451	42,842	43,273	45,251	42,968	46,376
EUI	98.27	112.07	107.36	96.65	91.77	99.05

Chart 4.2.3-D Energy Use Intensity Comparison

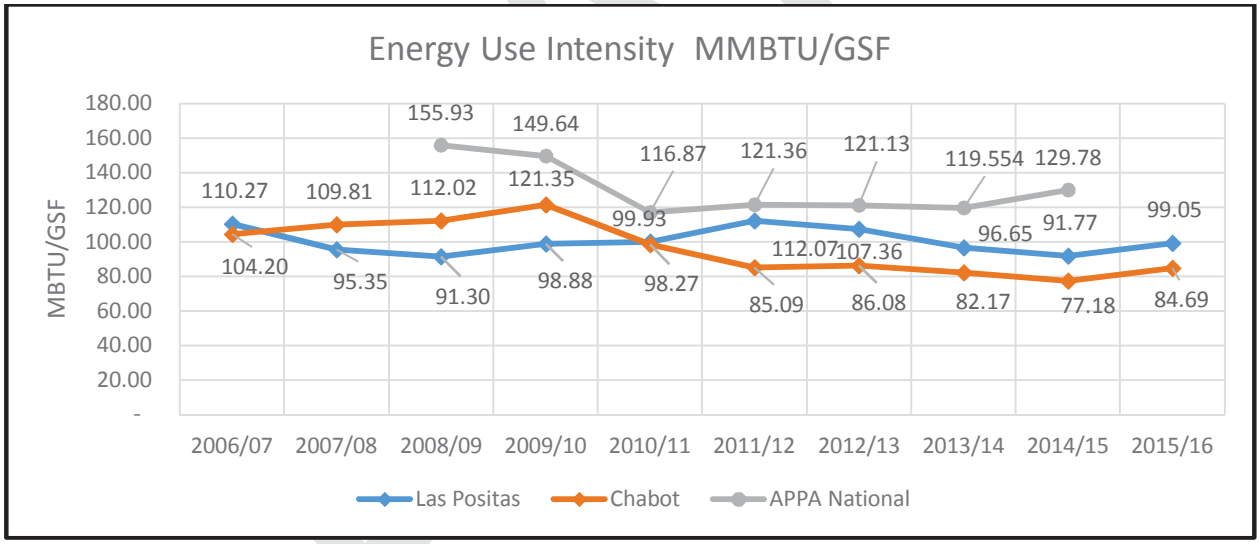


Table 4.2.3-E—Chabot College- Energy Use Intensity

Chabot	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross SF	712,080	728,642	720,967	720,967	721,614	721,614
Elect MMBTU	24,683	24,701	23,890	23,998	23,943	24,140
Gas MMBTU	45,294	39,430	39,878	36,376	34,031	36,974
Total MMBTU	69,977	60,593	62,722	59,242	55,643	61,115
EUI	98.27	85.09	86.08	82.17	77.18	84.69

[20] Appendix 15-APPA National Averages

[21] Appendix 16-Energy Star Reports 2014/15 Las Positas and Chabot College

While energy use intensity has declined over time, the cost of energy per square foot has increased over time, due to the changing utility rate structure. As customers installed on-site generation and were able to sell excess generation back to the utilities, the utility company income from energy consumption decreased significantly. The utility companies modified their rate structure reducing consumption or usage rates but increasing peak demand rates. In response to the utility rate structure changes, Las Positas is installing a large scale battery to reduce energy peak demands. The charts below show the initial drop in electrical energy costs in 2011 and 2012 as the new solar arrays begin producing. Then costs begin to rise as the rate structures changed.

Table 4.2.3-F- Las Positas Historic Energy Cost per GSF

Las Positas	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross SF	374,780	382,281	403,070	468,206	468,206	468,206
Elect $$	$637,210	$608,451	$511,581	$651,967	$676,039	$844,191
Elect $$/GSF	$1.70	$1.59	$1.27	$1.39	$1.44	$1.80
Gas $$	$209,429	$156,102	$161,991	$132,624	$190,307	$234,548
Gas $$/GSF	$0.56	$0.41	$0.40	$0.28	$0.41	$0.50
Total Energy $$	$846,639	$764,553	$673,572	$784,591	$866,346	$1,078,739
Total $$/GSF	$2.26	$2.00	$1.67	$1.68	$1.85	$2.30

Table 4.2.3-G- Chabot Historic Energy Cost per GSF

Chabot	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross SF	712,080	728,642	720,967	720,967	721,614	712,080
Elect $$	$462,450	$520,835	$512,041	$564,039	$569,986	$710,133
Elect $$/GSF	$ 0.65	$ 0.77	$ 0.74	$ 0.82	$ 0.83	$ 0.98
Gas $$	$560,872	$291,715	$283,085	$286,730	$249,683	$203,159
Gas $$/GSF	$ 0.79	$ 0.41	$ 0.39	$ 0.40	$ 0.35	$ 0.28
Total Energy $$	$1,022,450	$842,610	$823,175	$875,709	$848,386	$913,292
Total $$/GSF	$ 1.44	$ 1.18	$ 1.13	$ 1.21	$ 1.18	$ 1.27

Utility Costs- Water and Sewer

The cost of water represents 20% of the utility cost for the colleges. Las Positas has access to utility provided reclaimed water which is used for irrigation, fire sprinklers and toilets. The Chabot billing is a combined water and sewer charge. The significant cost difference is source of irrigation water. Las Positas pays for reclaimed water and Chabot uses on-site well water for irrigation. The cost for the Chabot water is reflected in electrical pumping cost rather than a utility charge.

Table 4.2.3.H- Chabot Water and Sewer Cost per GSF

Chabot	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross Square Feet	712,080	712,080	728,642	720,967	720,967	721,614
Total Cost	$ 105,907	$ 110,076	$ 117,350	$ 110,233	$ 119,670	$ 125,028
Total Cost/GSF	$ 0.15	$ 0.15	$ 0.16	$ 0.15	$ 0.17	$ 0.17

Table 4.2.3-I- Las Positas Water and Sewer Cost per GSF

Las Positas	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross Square Feet	374,780	382,281	403,070	468,206	468,206	468,206
Domestic Water	20,491	21,971	28,163	31,979	46,277	40,609
Reclaimed Water	59,635	103,271	107,400	128,828	113,701	109,465
Sewerage	21,834	18,924	24,832	26,055	29,167	30,454
Total Cost	$ 101,960	$144,166	$ 160,395	$ 186,862	$ 189,145	$ 180,528
Total Cost/GSF	$ 0.27	$ 0.38	$ 0.40	$ 0.40	$ 0.40	$ 0.39

Total Utility Cost Per Gross Square Foot

The total utility cost per gross square foot is an APPA performance benchmark.

Chart 4.2.3-J- Las Positas College Historical Utility Cost Distribution

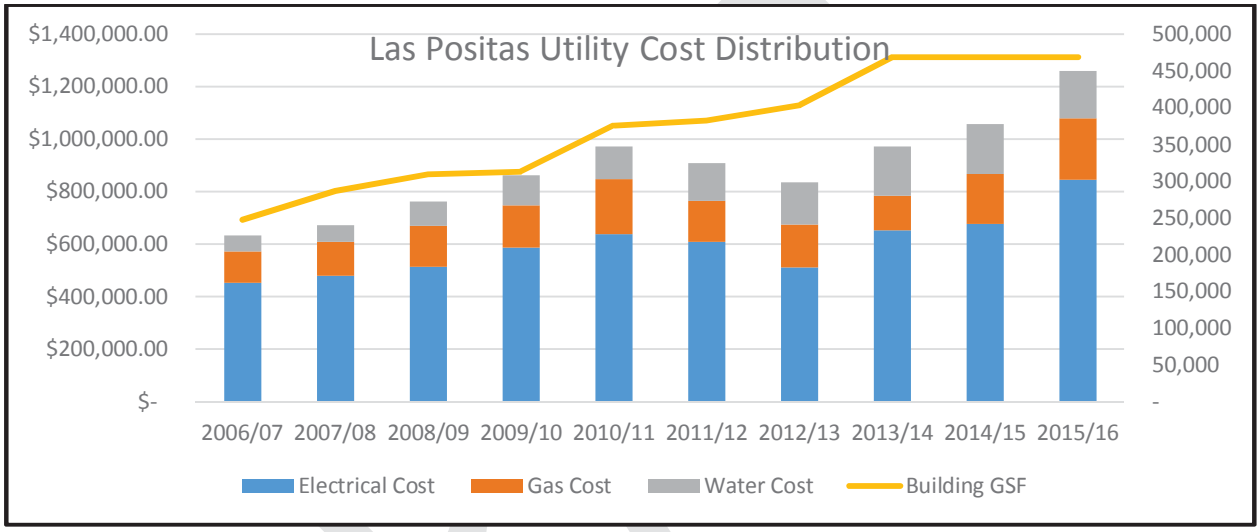


Table 4.2.3.K Las Positas Total Utility Cost per Gross Square Foot

Las Positas	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross SF	374,780	382,281	403,070	468,206	468,206	468,206
Electrical/ GSF	$ 1.70	$ 1.59	$ 1.27	$ 1.39	$ 1.44	$ 1.80
Nat Gas/GSF	$ 0.56	$ 0.41	$ 0.40	$ 0.28	$ 0.41	$ 0.50
Water/GSF	$ 0.27	$ 0.38	$ 0.40	$ 0.40	$ 0.40	$ 0.39
Total Cost/GSF	$ 2.53	$ 2.38	$ 2.07	$ 2.07	$ 2.25	$ 2.69

Chart 4.2.3.L-Chabot Historical Total Utility Cost Distribution

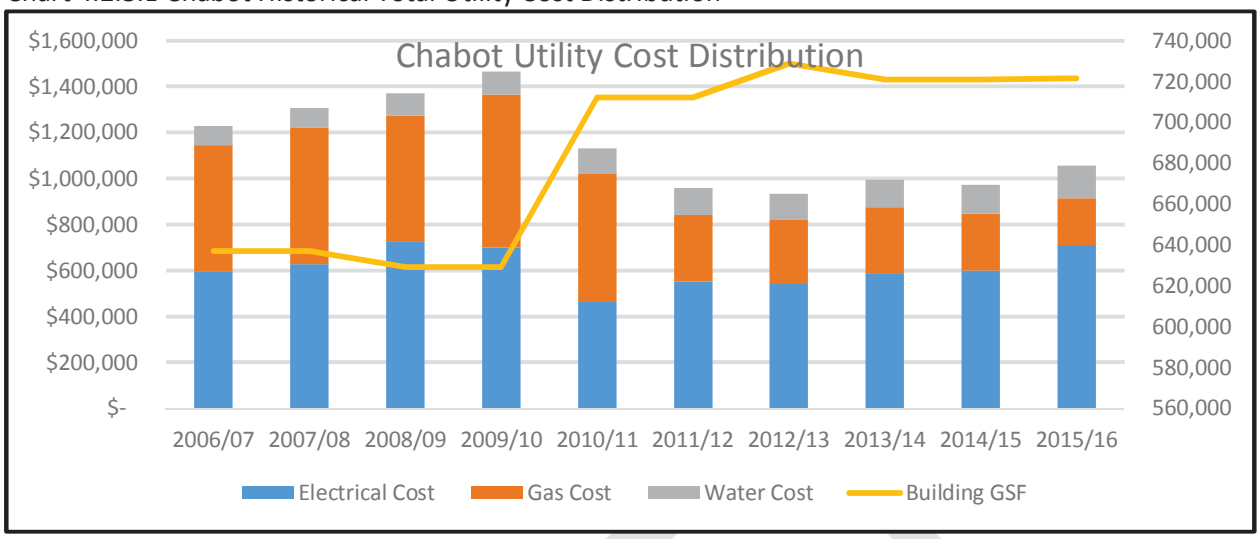


Table 4.2.3-M- Chabot Total Utility Cost per Gross Square Foot

Chabot	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross SF	712,080	712,080	728,642	720,967	720,967	721,614
Electrical/ GSF	$ 0.65	$ 0.77	$ 0.74	$ 0.82	$ 0.83	$ 0.98
Nat Gas/GSF	$ 0.79	$ 0.41	$ 0.39	$ 0.40	$ 0.35	$ 0.28
Water/GSF	$ 0.15	$ 0.16	$ 0.15	$ 0.17	$ 0.17	$ 0.20
Total Cost/GSF	$ 1.58	$ 1.35	$ 1.28	$ 1.38	$ 1.35	$ 1.46

SECTION 4.2.4- Maintenance and Operations Operating Expense

The Maintenance and Operations expense includes materials and supplies for the maintenance, custodial and grounds departments. It also includes service contracts for specialized equipment such as elevators and the automatic fire sprinkler systems and contracts for large repair projects. The expenses include each college's M&O equipment and District owned vans used for transportation to off campus events. These expenses are accumulated in a District wide account and distributed proportional to each college's gross square feet for this evaluation. The M&O expense costs dipped during the reduced District budgets and increased as District funding was restored.

Table 4.2.4.A- Las Positas Historical M&O Operations Expenses

Las Positas	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross Sq Feet	374,780	382,281	403,070	468,206	468,206	468,206
General	$14,758	$11,530	$12,424	$8,437	$10,450	$32,671
Maintenance	$115,349	$144,354	$159,121	$169,384	$280,021	$437,903
Custodial	$100,990	$99,727	$83,063	$88,923	$89,361	$107,691
Grounds	$9,188	$7,395	$10,424	$21,278	$20,489	$68,955
District Share	$62,109	$52,964	$51,491	$43,863	$44,182	$64,457
Total M&O	$302,394	$315,971	$316,525	$331,885	$444,503	$711,677
$$/GSF	$ 0.81	$ 0.83	$ 0.78	$ 0.71	$ 0.95	$ 1.52

Chart 4.2.4.B- Las Positas Historical M&O Operations Expenses

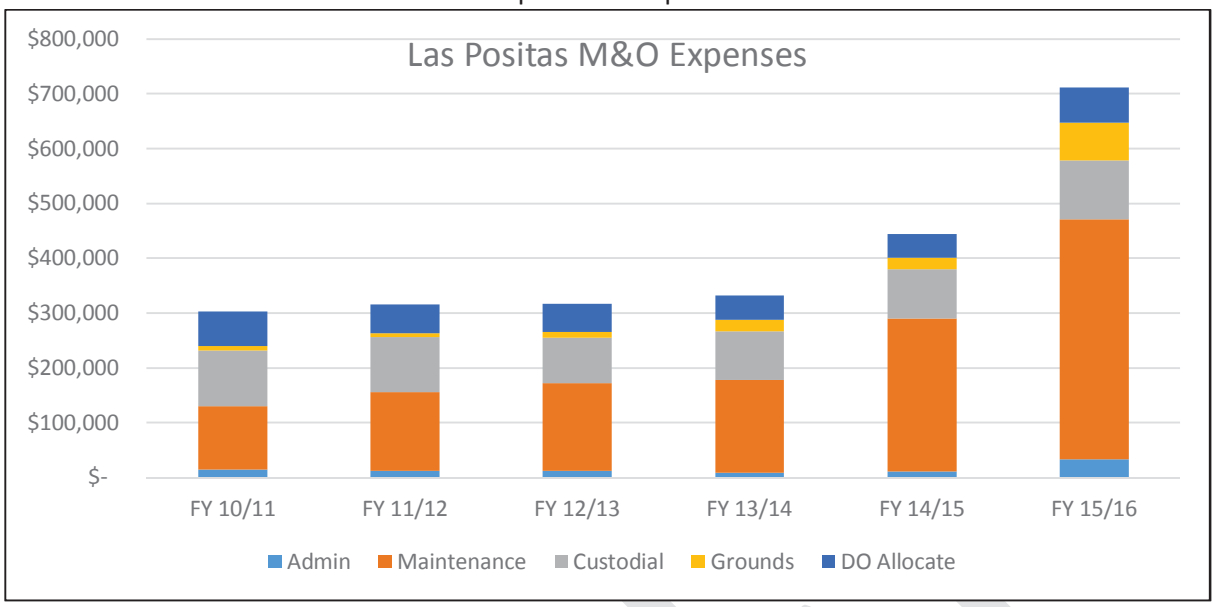
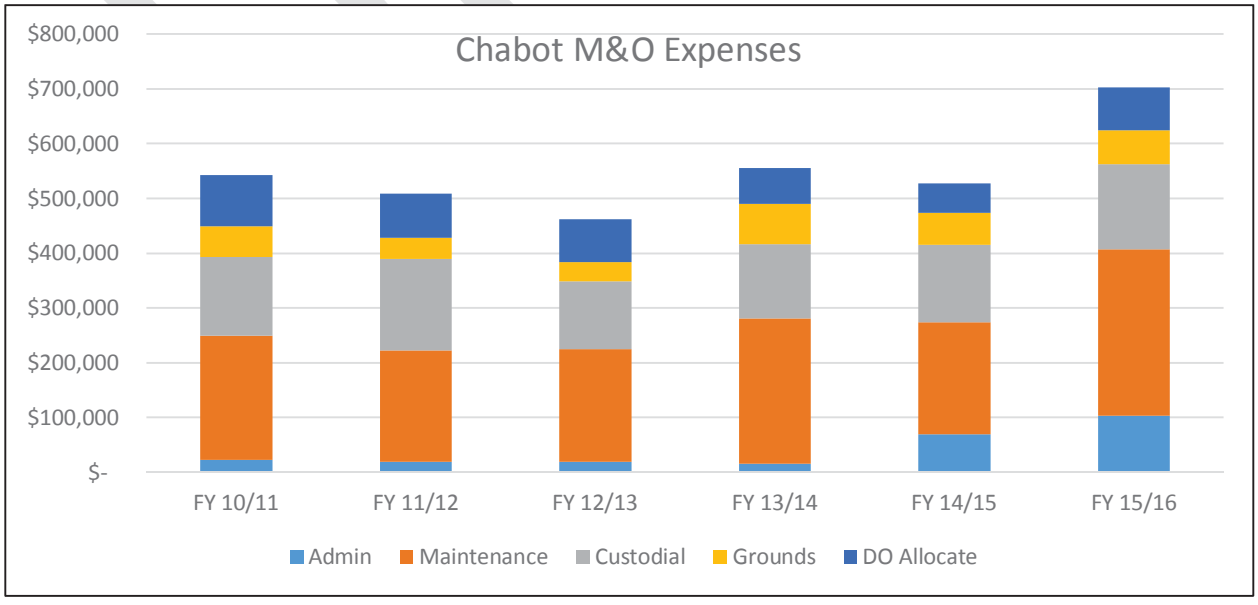


Table 4.2.4.C Chabot Historical M&O Operations Expenses

Chabot	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Gross Sq Feet	712,080	712,080	728,642	720,967	720,967	721,614
General	$23,138	$19,500	$19,199	$16,389	$69,317	$104,004
Maintenance	$226,875	$203,023	$206,088	$264,375	$204,602	$302,835
Custodial	$143,240	$167,200	$123,057	$135,461	$141,538	$155,247
Grounds	$55,616	$38,967	$35,837	$73,426	$57,857	$61,876
District Share	$93,163	$79,446	$77,237	$65,794	$54,001	$78,781
Total M&O	$542,032	$508,136	$461,419	$555,446	$527,315	$702,743
$$/GSF	$ 0.76	$ 0.71	$ 0.63	$ 0.77	$ 0.73	$ 0.97

Chart 4.2.4.D Chabot Historical M&O Operations Expenses



As part of the Total Cost of Ownership Program the District is updating their Preventative Maintenance program to systematically perform maintenance on building and campus components with 2-5 year useful life spans, such as florescent light bulbs, painting, seal coating roofs and roads. Studies have shown a structured preventative maintenance program will reduce repair costs and increase staff performance. The new School Dude software program alters the maintenance staff of an upcoming preventative maintenance task, records completion and schedules when the next inspection or action is required for each scheduled equipment or system.

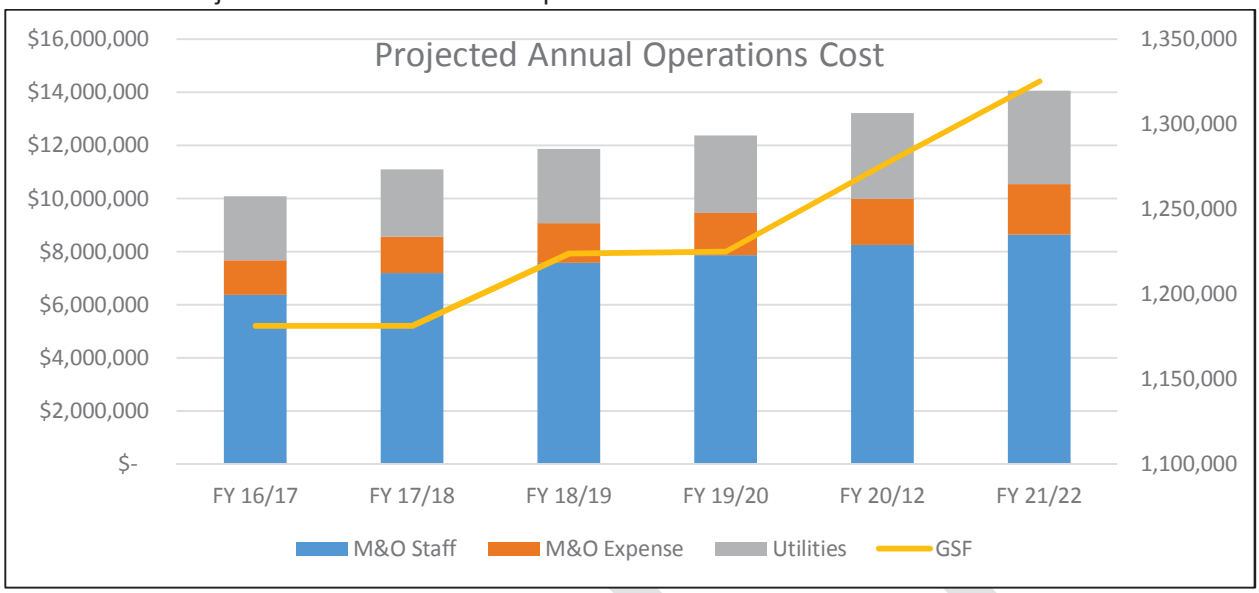
SECTION 4.2.5- Projected Total Annual Operating Costs

The projected total Annual Cost of Operations combines M&O staffing, M&O operating expenses and utility costs for a total annual cost to operation and maintain the campus facilities, grounds and utility systems. The five year projection is based on budgets and staffing from the FY16/17 budget. The FY 18/19 projected budget incorporates M&O staffing adjustments to achieve the desired APPA Level 3 level of attention. The proposed staffing for custodial, maintenance and grounds staff is based on APPA Standards and each campus' configuration as described in Section 4.2.3 of this report. The future staffing is adjusted to reflect changes in the gross square feet of buildings and grounds that will be added as the Measure A bond program is being implemented. M&O expenses and utility costs are escalated 5% annually. Staff wages are increased by step increases only for new hires.

Table 4.2.5.A- Projected Total Annual Cost of Operations

District Wide	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	FY 21/22
Gross SF	1,181,372	1,181,372	1,223,869	1,225,133	1,275,698	1,325,109
Total Staff	66.0	79.0	83.0	86.0	89.0	92.0
Maintenance	$1,665,879	$1,815,805	$1,934,889	$1,951,091	$2,109,566	$2,259,583
Custodial	$3,319,069	$3,761,022	$3,931,468	$3,969,288	$4,167,522	$4,382,012
Grounds	$944,381	$1,160,165	$1,239,710	$1,475,242	$1,501,632	$1,522,255
Management	$451,593	$469,940	$469,940	$469,940	$469,940	$469,940
Total Staff Cost	$6,380,922	$7,206,932	$7,576,007	$7,865,561	$8,248,660	$8,633,790
M&O Expense	$1,305,455	$1,370,728	$1,504,081	$1,580,565	$1,741,914	$1,904,105
Total M&O Cost	$7,686,377	$8,577,660	$9,080,088	$9,446,126	$9,990,574	$10,537,895
Utility Cost	$2,404,821	$2,525,062	$2,775,227	$2,916,232	$3,218,670	$3,519,812
Total Operations	$10,091,197	$11,102,722	$11,855,315	$12,362,358	$13,209,244	$14,057,707
Year/Year Increase	**0.0%**	**10.0%**	**6.8%**	**4.3%**	**6.9%**	**6.4%**

Chart 4.2.5.B- Projected Total M&O Annual Operations Cost



The District Budget Allocation Model funds Maintenance and Operations as a percentage of the total District Annual General funds available. For FY 2016/17, the allocation was established at 8.53% of total estimated revenue or $7,678,629. Utility expense was a separate line item budgeted at $2,500,000. The projected utility cost was adjusted downward to reflect prior year utility expenses.

The projected annual increases to operate and maintain the District assets are primarily a result of increases in building gross square footage rather than adjustments for inflation.

SECTION 4.3- LONG TERM MANAGEMENT COSTS

Section 4.3.1 Major Maintenance Costs

Major Maintenance expense includes scheduled maintenance and deferred maintenance. This work involves projects or programs to restore damaged systems or replace worn out major systems such as roofing replacement or HVAC whole equipment replacement. The magnitude of the amount Deferred Maintenance is illustrated in the 2016 Facility Condition Index (FCI) report posted in the FUSION site. Las Positas College shows $14,152, 759 and Chabot shows $135,219,114.

However, after review of the Chabot building evaluation, the District is requesting a review of the assessment report to fully evaluate the building conditions after major remodeling performed during the Measure B program. The District believes the Deferred Maintenance amount at Chabot should be approximately $63,400,000.

All buildings with deferred maintenance work at both Las Positas and Chabot will be addressed during renovations or building replacements scheduled during the 2016 Measure A bond program. In addition the State has at least temporarily restored Scheduled Maintenance funding. The District was granted $1.5 M in FY 14/15 and $2.0 in FY 15/16.

The FCI percentage is a key performance indicator. According to the 2016 FCI report, LPC is 6.14% and the adjusted Chabot index is 16.48%.[22]

Section 4.3.2 Renovation and Replacement

Maintenance programs by definition repair and maintain existing facilities over time. As the buildings age, multiple elements reach the end of their useful life and must be replaced rather than repaired through a major renovation or replacement of the entire building. Studies have determined that an institution should plan on investing 2 % of the Current Replacement Value (CRV) of the total assets per year for major renovation or replacement projects. The 2016 FCI report indicates a CRV of $230,500,618 for Las Positas and $385,058,909 for Chabot. Using 2% as a guideline, annual re-investment at Las Positas would be $4.6M and Chabot, $7.7M The District has been able to use 2004 Measure B Bond funds on an on-going program to renovate and/or replace aging facilities at both campuses. The 2016 Measure A bond program Facility Master Plan continues that process.

Section 4.3.3 Repurpose and Upgrades

Repurpose and upgrade project funding is needed to adapt facilities to new programs, improve performance and upgrade to meet new code mandated requirements. The District has included this type of work as part of a renovation project. In addition, the District developed campus wide specialized projects. Measure B included specialized projects such as the ADA improvements or the Safety and Security projects. Repurpose projects included the renovation of Building 700 at LPC from administration use to Visual Communications and Photography programs and renovation of Building 3400 at Chabot from Printing Technology to the BMW technician training program.

Sustainability projects are another example of upgrade projects. The Board of Trustees mandated that sustainability be a major consideration in the 2005 Facility Master Plan and 2004 Measure B funded projects. Major sustainability projects included the solar PV projects a both campuses, central plants with the conversion of stand-alone building heating and cooling systems to central heating/cooling loop fed and LEED certification of all new buildings. The District has leveraged bond funds to obtain outside funding for sustainability. Outside sources include the statewide 2010 Proposition 39 Energy Reduction funds, California Energy Commission grants, Bay Area Air Quality grants, and the California Community College/Investor Owned Utility Energy Incentive program.

Section 4.3.4 Historical Long Term Investment

The Facilities Master Plan for the 2004 Measure B bond integrated Major Repair, Repurpose and Upgrade work into projects that modified existing projects. In addition the Measure B program developed campus wide upgrade projects such as new Fire/Life-Safety systems and energy improvements. The Measure B program also completed significant utility upgrade and improvements such as new central plant chilled and hot water systems, HVAC system replacements and storm water management systems.

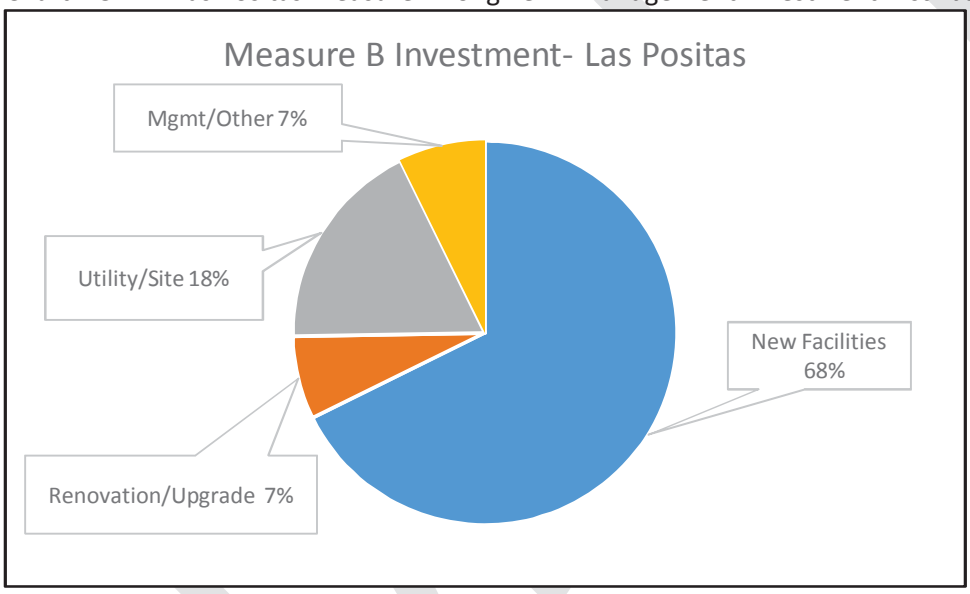
[22] Appendix-17-FUSION 2016-Facility Condition Reports

The Las Positas program focused on expansion and replacement projects. The campus added eight new building, with the ninth currently under construction and removed nine buildings. All of the remaining campus buildings were modified through a major renovation of part of a campus wide upgrade project. Combining the Renovation/Repair projects and the Utility/Site/Campuswide projects, the District invested an average of $5.5M per year or 2.4% of the Current Replacement Value of $230M over the 10 year bond program. This investment rate matches industry averages for ongoing investment to maintain facilities for effective use.

Table 4.3.4.A- Las Positas Measure B Long Term Management Investment

New Facilities	$147,618,910
Renovation/Repairs	$15,254,870
Utility/Site/Campuswide	$39,249,946
Management/Other	$15,852,443
Total Bond Investment	$217,976,169

Chart 4.3.4.B- Las Positas Measure B Long Term Management Investment Distribution

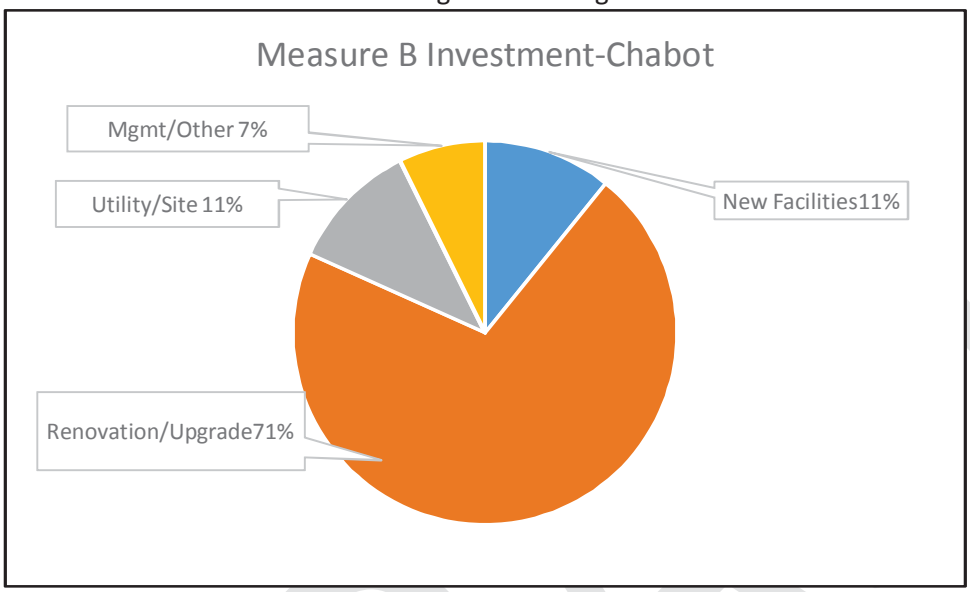


The Chabot Measure B program focused on major renovations to most of the campus buildings. There were three new buildings and a fourth currently under construction that provided expanded program space and replaced one building. Most of the remaining campus buildings underwent major renovations. Combining the Renovation/Repair projects and the Utility/Site/Campuswide projects, the District invested an average of $18.4M per year or 4.7% of the Current Replacement Value of $385MM over the 10 year bond program. This investment rate is almost double industry averages for ongoing investment to maintain facilities for effective use. The higher investment reflects the focus on eliminating most of the significant deferred maintenance and upgrading the campus buildings to current codes and technology standards.

Table 4.3.4.C- Chabot Measure B Long Term Management Investment

New Facilities	$24,306,333
Renovation/Repairs	$159,142,276
Utility/Site/Campuswide	$24,626,240
Management/Other	$16,390,543
Total Bond Investment	$224,465,392

Chart 4.3.4.D Chabot Measure B Long Term Management Investment Distribution



SECTION 5- PERFORMANCE REVIEW

Section 5.1.1 Performance Benchmarks

The District will annually evaluate its performance against key performance indicators. They will compare against year over year performance and performance against benchmarks maintained by governmental agencies and performance from statewide and national peers. The follow table lists key FY 2015/16 Las Positas College and Chabot College statistics and benchmarks outside agencies.

Table 5.1.1 A- Key Performance Indicators

Benchmark	Las Positas	Chabot	Comparison	Data Source[23]
Energy Cost/GSF	$1.85	$1.16	$2.46	APPA Average
Energy Use Intensity (MMBTU/GSF	102.6	84.7	129.8	APPA Average
GSF/ Maintenance	111,477	106,119	91,524	APPA- Level 3
GSF/ Custodial	33,443	36,081	29,000	APPA- Level 3
Acres/Grounds	36	16	18 Acres	APPA-Level 3
Facility Condition Index	6.14%	16.48%	<20%	CCCCO
Annual Re-Investment	2.4%	4.7%	2.0%	APPA
Cap Load Ratio- Lecture	141%	145%	100%	CCCCO
Cap Load Ratio- Lab	84%	104%	100%	CCCCO
Cap Load Ratio- Office	96%	123%	100%	CCCCO

Performance to Accreditation Section 3 Standards

Item 1- Develop and Maintain adequate safe and secure facilities to support the educational needs of the institution.

- The District has implemented safety and security projects to incorporate best practices for safe and secure facilities including a campus wide security system incorporating centralized lock/unlock and a campus wide video surveillance system and call boxes.
- The District planning process aligns Facilities development with the Educational Master plan and program review to provide adequate facilities

Item 2- Develop and Maintain facilities to assure effective utilization and continuing quality

- The CCCCO Capacity Load Ratio is evaluated with each project and in conjunction with the 5 year capital improvement plan to match facilities capacity with projected enrolment
- The District uses APPA recommended staffing levels for M&O staffing to achieve desired level care for facility maintenance
- The District re-invests in the facilities at or above the national recommended 2% per year.
- The District has adequate long term funding to continue that level of investment.

[23] APPA 2014 National Averages (Appendix 12) California Community College Chancellor's Office – Facilities Planning Unit

Item 3- Periodic re-evaluation to assure effectiveness of resources

- The District uses the CCCCO Facility Condition Assessment to identify deferred maintenance items.
- The development process for renovation projects requires evaluation and incorporation of code and technology updates and addressing any deferred maintenance items

Item 4- Long term capital plans using Total Cost of Ownership

- The District is implementing a Total Cost of Ownership program for all new and renovated building projects
- The District will use the APPA recommended staffing levels to establish annual M&O funding
- Every new project will complete a Life Cycle Cost Analysis to identify and plan for adequate long term operational funding.

SECTION 6- ACTION PLAN

The District is implementing a Total Cost of Ownership Program to better protect the investment in facilities. The Total Cost of Ownership establishes policy, data sources, benchmarks and goals for each of the three TCO elements.

Project Development-

Policy- The Facility Master Plan shall align with the Educational Master Plan and adjust with input from Program Reviews The CCCCO Cap Load Ratio shall be evaluated before any new facility space is developed in response to Educational Program changed space needs. Every project that adds space to a campus shall complete a Life Cycle Cost analysis. Life Cycle Cost analysis will help inform the decision to remodel or build new for new programs

Data Sources – CCCCO Cap Load Ratio, Life Cycle Cost, APPA Staffing Recommendations, APPA Key Performance Indicators

Benchmark Goals-
- Cap Ratio = 100% for Classroom, Laboratory and Office spaces
- Life Cycle Cost= EUI match or exceed campus average
- APPA Staffing Analysis=Align District Maintenance and Operations staffing and required budgets with projections of capital improvement plans
- New Facilities= LEED Silver Certification minimum
- District Standards=Expand and Update all District Standards
- District 5 year Capital Plan=Align with Facilities Plan

Annual Operating Costs

Policy—the District shall maintain M&O staffing for maintenance, custodial and grounds staff to meet or exceed APPA Level 3 performance, adjusting staffing as facility configurations change. The District will develop and maintain a Preventative Maintenance Program. The District shall continue to invest in energy savings measures to reduce energy costs.

Data Sources- APPA Staffing Analysis, Annual Utility Costs, Annual M&O department Costs, Energy Star Regional Averages

Benchmark Goals=
- M&O Staffing= Maintain APPA Level 3 staffing levels
- Energy Cost= Continue trending lower energy usage and costs per GSF
- Water Cost= Continue trending lower water usage per GSF
- M&O Expenses=Trend lower repair costs due to new preventative maintenance program
- Annual Operating Costs= Trend lower

Long Term Management

Policy—The District will identify, track and incorporate deferred maintenance projects into either a State Deferred Maintenance funded project or incorporate into a 2016 Measure A Bond funded renovation project. The District will develop and maintain a Scheduled Maintenance program. The District will assemble campus wide projects to upgrade and update building and utility systems to address code and operation changes. The District will continue to pursue outside funding sources for sustainability related upgrades and improvements.

Data Sources- FCI reports and updates, State Deferred Maintenance Project List, Measure A project List, Facility Master Plan

Benchmark Goals- FCI Report= Deferred Maintenance amounts continue to trend downward
Scheduled Maintenance=Adequately fund annually
FCI Report= Campus FCI less than 20%
Project List= Renovation & Replacement Projects listed
Measure A= Renovation and Replacement expenditures equal or greater than 2% of the Current Replacement Value of District assets