

Facility Life Cycle Cost Report

Life Cycle Cost Study

*Prepared by Kitchell
For*

MiraCosta Community College



October 5, 2016

FINAL REPORT



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I. STUDY

A. Overview

As part of the MiraCosta Community College District's continued growth, an updated master plan was developed by the college in March of 2016 with the goal of identifying a series of potential projects. The projects including a combination of new buildings, renovation of existing buildings, and site infrastructure at the Oceanside, San Elijo and the Community Learning Center campuses.

As part of the master plan, the college seeks to understand the estimated total life cycle cost of the identified projects in order to plan for future capital needs. The major areas of focus include the project's total replacement cost, annual maintenance & repair costs, and annual operational cost over life of the buildings.

The Mira Costa Community College District contracted with Kitchell to develop a system that would allow the college to estimate the potential life cycle cost of the projects in order to assist in planning for the future capital needs. The following is a summary of the Life Cycle Cost Study.

B. Purpose

The Purpose of the MiraCosta Community College Life Cost Study was to identify existing and future facilities as part of the master plan project and develop a forecasting system that would allow the college to predict the total life cycle cost of maintaining and operating the facilities. The study consisted of analyzing eighty four buildings and developing functional templates that would allow the college to predict each buildings estimated operational and maintenance life cycle cost. The study factored in the following major components:

- Total Replacement Costs: Including construction contingencies.
- Total Maintenance & Replacement Costs: Including preventative maintenance & minor repair, unscheduled maintenance, and repair & replacement.
- Total Operational Costs: Including custodial services, energy, grounds, maintenance and repair, pest control, refuse, road, security, telecommunication, and water & sewer.

The study included the following building:

Oceanside Campus Buildings	
4900 Biology Classroom	B4000 - Biotech
Lower Green House Shed	B4000 Auto Technology A
Tuff Shed	B52 Hort Sml Shade Struc
B2300 Art/Music	B53 Hort Propagation Hse
B2400 Concert Hall	B17 Hort Field Office
B63Central Chiller Plant	B55 Hort Old Greenhouse
B2200 Creative Arts Repl	B57 Hort Shade Sales Hse
B3700 Career Tran & Coun	B58 Old Hort Butler
B61 New Hort Grnhouse	B2100 Art
B62 New Hort Butler	B4200 Facilities
B7000 Horticulture	B4300 Maintenance
B54 Hort Stor Lwr Vinyar	B1000 Administration
B1200 Library Info HUB	B3000 Student Services
B8000 Child Dev Center	B3100 Classrooms/Offices
B4500 Science	B3200 Burshars/Classroom
B4600 Classrooms/Ass. Fa	B3300 Admissions and Rec
B4700 Office of Instr	B3500A - Classrooms
B6100 Rcvg/Wharehouse	B3500B - Classrooms
B4100 Wellness Center	B3600A Classrooms/Office
B3400 Student Center	B3600B Classroom
B1100 Campus Police	B4800 Business
T310 Offices	B5000/5100/5200 PE
T410 Classroom/Offices	Art/Music Storage
T420 Offices	Theatre/Dance Building
T430 Offices/Classroom	Student Services Building
B2000 Theatre	Gym Complex
T600 Purchasing	Aliied Health Building
B28 Tennis Storage	Science Building
T300 Office/Classroom	Arts/Media Building
B4000 Auto Technology B	Campus Police Building
B4400 - Allied Health	Resource Center Building
T400 Classrooms	Purchasing Building
Athletic Field Restroom/Support	Greenhouse

San Elijo Campus Buildings

B1000 Science Building 1 - Campus Police B500 - Language/Soc Sci. B600 - Classrooms B100 - LRC B200 - Fine Art/Music B300 - Classrooms B400 - Bio/Life Science B700 - Maintenance B800 - Administration B900 - Student Center Student Services / Administration
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Community Learning Center Buildings
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Building C- CLC Small Bus Devel Center Building A - CLC Building B - CLC Student Resources Building

Technology Career Institute Buildings
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TCI Building

C. References

The study was performed using several independent industry sources including Whitestone Facility Operation Cost Reference, Whitestone Facility Maintenance and Repair Reference, ASHRAE Standards, and the Kitchell Facility Management and Cost Estimate Data Base.

D. Assumptions

The following assumptions were made for the study:

- The estimated replacement costs per square foot and replacement costs are based on a typical buildings with assumed types and occupancies.
- Costs are to mid-point of year period.
- Costs include mark-up and contingency factors consisting of the following: estimating contingencies, general conditions, overhead/profit, insurance bonds, construction contingencies, architect engineering fees, construction management, permit, and client.
- Costs do not include escalation.
- Preventative maintenance (PM) and minor repair include regular checks that prolongs a components life.
- Unscheduled Maintenance consist of emergency replacement or repairs that are not anticipated.
- Repair and Replacement will consist of scheduled replacement of components near the end of the components life cycle.
- Custodial services consist of cleaning all occupied rooms and removal of trash
- Energy consist of expenses of producing, purchasing distributing, and storing energy. Utilities maintenance or supervision are not included.
- Grounds includes any landscaped land. It will not include street cleaning, snow removal, or sweeping. Also clearing of parking lot will not be included or any signage repairs.
- Maintenance and Repair (M&R) includes business services for campus building, IT support, project management, services planning & engineering.
- Pest Control includes insect and rodent control for both indoors and outdoors.
- Refuse includes recycling and trash collection services. Removal of Hazardous materials in not included.
- Road Clearance includes snow removal, street cleaning, and sweeping of debris from any paved areas.
- Security includes patrol services, monitoring equipment, and physical security assets.
- Telecommunications includes voice includes phone service an equipment. Also included in is data services and equipment.

- Water and Sewer includes sewage service, potable water, and irrigation water.
- Size is the total area within the asset area.

E. Forecasting Systems

As part of the Life Cycle Cost Study, Kitchell developed an integrated forecasting system to predict the total life cycle cost of the facilities. The following are examples of the templates created as part of the forecasting system along with the system summary:

 Mira Costa Community College District	
Life Cycle Cost Study - 4900 Biology Classroom	
Construction Start Year	2013
Construction Duration	1
Construction End Year	2013
Maintenance Start Year	2014
Gross Square Feet:	3,360
Occupancy:	30
Replacement Cost per SQFT	\$ 440
Replacement Cost:	\$ 1,477,493
Mark up and Contingency (Start Up)	1.25
Mark up and Contingency Factor (Operational)	1.3
Mark up and Contingency Factor (M&R)	1.3
Total Replacement Cost with Contingencies	\$ 1,846,866
Annual Construction Cost during Construction Duration	\$ 1,846,866
Notes: The life cycle cost study assumes the following conditions	
1 The study was performed using several independent industry sources including Whitestone Facility Operation Cost Reference, Whitestone Facility Maintenance and Repair Reference, and ASHRAE.	
2 The estimated replacement cost per square foot and replacement cost are based on a typical building of similar type and occupancy as described in note 3.	
3 Building used for experimentation, research, or training specific to agriculture Typically found in a campus setting.	
4 Costs are to mid-point of year period.	
5 Costs include mark-up and contingency factors consisting of the following: estimating contingencies, general conditions, overhead/profit, insurance bonds, construction contingencies, architect engineering fees, construction management, permit, and client.	
6 Costs do not include escalation.	

Table 1. Project and Construction Cost System Template.

Annual M&R Cost Summary		
Task Type	Annual Cost per SQFT	Total Cost with Mark up and Contingency
PM & Minor Repair	\$ 5.34	\$ 17,935
Unscheduled Maintenance	\$ 4.87	\$ 16,354
Major Repair & Replacement	\$ 17.13	\$ 57,570
Total	\$ 27.34	\$ 91,859
Definitions		
Preventative maintenance (PM) and minor repair include regular checks that prolongs a components life.		
Unscheduled Maintenance consist of emergency replacement or repairs that are not anticipated.		
Repair and Replacement will consist of scheduled replacement of components near the end of the components life cycle.		
Costs represent the average annual cost over a 50 year life cycle period. Refer to the 50 year maintenance and repair cost over the course of 50 years table for actual anticipated annual costs.		
Comments: The annual costs assume the following conditions.		
1 Replace Main Switchgear, MV, >1,200Amp.		
2 Replace Chiller, Reciprocal Air Cooled Hermetic, 100 Ton		
3 Replace Membrane, Single-Ply Modified Bituminous/Thermoplastic Roof		
4 Replace Generator, Diesel, 500 kw		
5 Replace Walk-In Freezer/Cooler, Commercial		
6 Replace Valve, Non- Drain, 2"		
7 Maintain Chiller, Reciprocal Air Cooled Hermetic, 100 Ton		
8 Replace Direct Digital Controls, Systems Points		
9 Replace Air Handler, Single Zone, 20,000 Cfm		
10 Lubricate, Repack Gland, Valve, Non Drain, 2"		
11 Replace Power Panel Board, 208 Y/120V, 200 Amp.		
12 Replace Variable Frequency Drive, <600V		
13 Repair Chiller, Reciprocal Air Cooled Hermetic, 100 Ton		
14 Replace Valve, Non-Drain, 4"		
15 Repair Single-Ply Modified Bituminous/Thermoplastic Roof		
16 Replace Carpet, Nylon 20 oz., Low Traffic		

Table 2. Annual M&R Cost Summary Template.

Annual Operational Cost Summary		
Operation	Annual Cost per SQFT	Total Cost with Mark up and Contingency
Custodial	\$ 2.71	\$ 9,094
Energy	\$ 8.78	\$ 29,503
Grounds	\$ 0.45	\$ 1,517
M&R (Average)	\$ 26.61	\$ 89,415
Management	\$ 1.50	\$ 5,050
Pest Control	\$ 0.15	\$ 493
Refuse	\$ 0.14	\$ 480
Road Clearance	\$ 0.11	\$ 358
Security	\$ 0.51	\$ 1,698
Telecom	\$ 1.78	\$ 5,984
Water/Sewer	\$ 0.51	\$ 1,711
Total	\$ 43.25	\$ 145,304
Definitions		
Custodial services consist of cleaning all occupied rooms and removal of trash		
Energy consist of expenses of producing, purchasing distributing, and storing energy. Utilities maintenance or supervision are not included.		
Grounds includes any landscaped land. It will not include street cleaning, snow removal, or sweeping. Also clearing of parking lot will not be included or any signage repairs.		
Maintenance and Repair (M&R) includes business services for campus building, IT support, project management, services planning & engineering.		
Pest Control includes insect and rodent control for both indoors and outdoors.		
Refuse includes recycling and trash collection services. Removal of Hazardous materials is not included.		
Road Clearance includes snow removal, street cleaning, and sweeping of debris from any paved areas.		
Security includes patrol services, monitoring equipment, and physical security assets.		
Telecommunications includes voice includes phone service an equipment. Also included in is data services and equipment.		
Water and Sewer includes sewage service, potable water, and irrigation water.		
Size is the total area within the asset area.		
Comments: The annual costs assume the following conditions.		
1 Custodial	Office areas: Clean floors and remove trash 3 times per week, clean furniture and seating areas every 2 weeks. Complete restroom service 3 times per week.	
2 Energy	241.3 kBtu per square foot per year.	
3 Grounds	Mow once per week, fertilize every 13 weeks, clean ad trim every 2 weeks.	
4 M&R	50-year average annual cost, utilization rate between 41 and 80 hours per week.	
5 Management	Campus scale management; Including facility data, real estate, and engineering services.	
6 Pest Control	Rodent control and insect abatement procedures performed every 18 weeks, and inspections every 52 weeks.	
7 Refuse	Average annual refuse production of 0.6 lbs. per square foot.	
8 Road Clearance	Sweeping of paved areas once every 2 weeks, and snow cleaning once per snow day.	
9 Security	Access control, system monitoring, and intrusion detection systems. Daily patrol.	
10 Telecom	Local phone and data subscriptions.	
11 Water/Sewer	43 gallons of water per square foot per year.	

Table 3. Annual Operational Cost Summary Template.

Mira Costa Community College District - Life Cycle Cost Study																						
Overview of Buildings Estimate						Average Annual M&R Cost Summary				Average Annual Operational Cost Summary												Average Annual
Building Type	Gross Square Feet	Replacement Cost per SQFT	Replacement Cost	Mark up and Contingency Factor	Total Replacement Cost with Contingencies	PM & Minor Repair	Unscheduled Maintenance	Major Repair & Replacement	Total	Custodial	Energy	Grounds	M&R (Average)	Management	Pest Control	Refuse	Road Clearance	Security	Telecom	Water & Sewer	Total	Total M&R & Operational Cost
4900 Biology Classroom	\$ 3,360	\$ 440	\$ 1,477,493	1.3	\$ 1,846,866	\$ 17,935	\$ 16,354	\$ 57,570	\$ 91,859	\$ 9,094	\$ 29,503	\$ 1,517	\$ 89,415	\$ 5,050	\$ 493	\$ 480	\$ 358	\$ 1,698	\$ 5,984	\$ 1,711	\$ 145,304	\$ 237,163
Lower Green House Shed	\$ 60	\$ 250	\$ 15,000	1.3	\$ 18,750	\$ 104	\$ 89	\$ 340	\$ 533	\$ 6	\$ 59	\$ 20	\$ 514	\$ 38	\$ 11	\$ 20	\$ 7	\$ 451	\$ 52	\$ 73	\$ 1,250	\$ 1,783
Tuff Shed	\$ 900	\$ 234	\$ 210,276	1.3	\$ 262,845	\$ 983	\$ 703	\$ 3,239	\$ 4,924	\$ 1,426	\$ 2,995	\$ 406	\$ 4,926	\$ 713	\$ 132	\$ 129	\$ 96	\$ 790	\$ 690	\$ 676	\$ 12,978	\$ 17,902
B2300 Art/Music	\$ 4,100	\$ 369	\$ 1,514,491	1.3	\$ 1,893,114	\$ 10,446	\$ 7,515	\$ 28,574	\$ 46,536	\$ 10,237	\$ 36,001	\$ 1,851	\$ 56,986	\$ 5,210	\$ 601	\$ 586	\$ 437	\$ 1,957	\$ 7,515	\$ 2,088	\$ 123,470	\$ 170,006
B2400 Concert Hall	\$ 12,000	\$ 192	\$ 2,304,000	1.3	\$ 2,880,000	\$ 10,764	\$ 8,892	\$ 50,794	\$ 70,450	\$ 56,526	\$ 39,928	\$ 5,419	\$ 70,533	\$ 7,870	\$ 1,760	\$ 1,716	\$ 1,278	\$ 6,571	\$ 6,864	\$ 20,748	\$ 219,211	\$ 289,661
B63Central Chiller Plant	\$ 720	\$ 192	\$ 138,240	1.3	\$ 172,800	\$ 646	\$ 534	\$ 3,048	\$ 4,227	\$ 159	\$ 110,858	\$ 325	\$ 28,245	\$ 2,036	\$ 106	\$ 103	\$ 77	\$ 783	\$ 721	\$ 425	\$ 143,838	\$ 148,065
B2200 Creative Arts Repl	\$ 26,262	\$ 369	\$ 9,700,868	1.3	\$ 12,126,085	\$ 66,912	\$ 48,138	\$ 183,028	\$ 298,078	\$ 65,572	\$ 230,601	\$ 11,859	\$ 365,013	\$ 33,370	\$ 3,852	\$ 3,755	\$ 2,796	\$ 12,536	\$ 48,138	\$ 13,376	\$ 790,870	\$ 1,088,948
B3700 Career Tran & Coun	\$ 6,083	\$ 222	\$ 1,351,947	1.3	\$ 1,757,531	\$ 4,838	\$ 2,788	\$ 18,451	\$ 26,078	\$ 16,146	\$ 10,466	\$ 2,641	\$ 26,078	\$ 21,360	\$ 891	\$ 870	\$ 648	\$ 2,477	\$ 12,890	\$ 4,240	\$ 98,705	\$ 124,783
B61 New Hort Grnhouse	\$ 3,700	\$ 250	\$ 925,000	1.3	\$ 1,156,250	\$ 6,434	\$ 5,487	\$ 20,949	\$ 32,871	\$ 385	\$ 3,608	\$ 1,251	\$ 31,698	\$ 2,331	\$ 673	\$ 1,203	\$ 433	\$ 27,802	\$ 3,223	\$ 4,473	\$ 77,078	\$ 109,949
B62 New Hort Butler	\$ 1,530	\$ 222	\$ 340,043	1.3	\$ 442,055	\$ 1,217	\$ 701	\$ 4,641	\$ 6,559	\$ 4,061	\$ 2,632	\$ 664	\$ 6,559	\$ 5,372	\$ 224	\$ 219	\$ 163	\$ 623	\$ 3,242	\$ 1,066	\$ 24,826	\$ 31,385
B7000 Horticulture	\$ 11,193	\$ 369	\$ 4,134,560	1.3	\$ 5,168,200	\$ 28,518	\$ 20,517	\$ 78,007	\$ 127,042	\$ 27,947	\$ 98,283	\$ 5,054	\$ 155,571	\$ 14,222	\$ 1,642	\$ 1,601	\$ 1,192	\$ 5,343	\$ 20,517	\$ 5,701	\$ 337,073	\$ 464,115
B54 Hort Stor Lwr Vinyar	\$ 200	\$ 234	\$ 46,728	1.3	\$ 58,410	\$ 218	\$ 156	\$ 720	\$ 1,094	\$ 317	\$ 665	\$ 90	\$ 1,095	\$ 158	\$ 29	\$ 29	\$ 21	\$ 176	\$ 153	\$ 150	\$ 2,884	\$ 3,978
B1200 Library Info HUB	\$ 48,900	\$ 253	\$ 12,369,348	1.3	\$ 15,461,685	\$ 56,693	\$ 32,961	\$ 154,258	\$ 243,912	\$ 58,483	\$ 162,706	\$ 22,082	\$ 241,934	\$ 26,725	\$ 7,173	\$ 8,900	\$ 3,776	\$ 5,206	\$ 40,850	\$ 58,331	\$ 636,167	\$ 880,078
B8000 Child Dev Center	\$ 12,654	\$ 369	\$ 4,674,236	1.3	\$ 5,842,795	\$ 32,241	\$ 23,195	\$ 88,190	\$ 143,625	\$ 31,595	\$ 111,112	\$ 5,714	\$ 175,877	\$ 16,079	\$ 1,856	\$ 1,810	\$ 1,347	\$ 6,041	\$ 23,195	\$ 6,445	\$ 381,070	\$ 524,695
B4500 Science	\$ 20,900	\$ 440	\$ 9,190,357	1.3	\$ 11,487,946	\$ 111,560	\$ 101,724	\$ 358,101	\$ 571,385	\$ 56,570	\$ 183,518	\$ 9,438	\$ 556,180	\$ 31,411	\$ 3,066	\$ 2,989	\$ 2,225	\$ 10,564	\$ 37,223	\$ 10,645	\$ 903,828	\$ 1,475,213
B4700 Office of Instr	\$ 8,399	\$ 369	\$ 3,102,490	1.3	\$ 3,878,112	\$ 21,400	\$ 15,395	\$ 58,535	\$ 95,330	\$ 20,971	\$ 73,750	\$ 3,793	\$ 116,737	\$ 10,672	\$ 1,232	\$ 1,201	\$ 894	\$ 4,009	\$ 15,395	\$ 4,278	\$ 252,933	\$ 348,263
B4600 Classrooms/Assoc. Fa	\$ 8,399	\$ 369	\$ 3,102,490	1.3	\$ 3,878,112	\$ 21,400	\$ 15,395	\$ 58,535	\$ 95,330	\$ 20,971	\$ 73,750	\$ 3,793	\$ 116,737	\$ 10,672	\$ 1,232	\$ 1,201	\$ 894	\$ 4,009	\$ 15,395	\$ 4,278	\$ 252,933	\$ 348,263
B6100 Rcvg/Wharehouse	\$ 6,600	\$ 155	\$ 1,019,832	1.3	\$ 1,274,790	\$ 8,720	\$ 5,338	\$ 39,238	\$ 53,296	\$ 831	\$ 12,764	\$ 2,980	\$ 53,385	\$ 3,517	\$ 103	\$ 172	\$ 703	\$ 7,876	\$ 3,003	\$ 973	\$ 86,307	\$ 139,603
B4100 Wellness Center	\$ 3,025	\$ 234	\$ 706,761	1.3	\$ 883,451	\$ 3,303	\$ 2,363	\$ 10,885	\$ 16,552	\$ 4,792	\$ 10,065	\$ 1,366	\$ 16,557	\$ 2,397	\$ 444	\$ 433	\$ 322	\$ 2,654	\$ 2,320	\$ 2,270	\$ 43,621	\$ 60,172
B3400 Student Center	\$ 26,815	\$ 360	\$ 9,653,400	1.3	\$ 12,066,750	\$ 36,871	\$ 31,088	\$ 136,614	\$ 204,574	\$ 157,256	\$ 221,928	\$ 12,109	\$ 207,367	\$ 25,287	\$ 4,880	\$ 73,595	\$ 285,499	\$ 15,624	\$ 47,060	\$ 67,567	\$ 1,118,174	\$ 1,322,748
B1100 Campus Police	\$ 1,140	\$ 222	\$ 253,365	1.3	\$ 329,375	\$ 907	\$ 523	\$ 3,458	\$ 4,887	\$ 3,026	\$ 1,961	\$ 495	\$ 4,887	\$ 4,003	\$ 167	\$ 163	\$ 121	\$ 464	\$ 2,416	\$ 795	\$ 18,498	\$ 23,385
T310 Offices	\$ 1,920	\$ 360	\$ 691,200	1.3	\$ 864,000	\$ 1,527	\$ 880	\$ 5,824	\$ 8,231	\$ 5,096	\$ 3,303	\$ 834	\$ 8,231	\$ 6,742	\$ 281	\$ 275	\$ 204	\$ 782	\$ 4,068	\$ 1,338	\$ 31,155	\$ 39,386
T410 Classroom/Offices	\$ 1,920	\$ 360	\$ 691,200	1.3	\$ 864,000	\$ 1,527	\$ 880	\$ 5,824	\$ 8,231	\$ 5,096	\$ 3,303	\$ 834	\$ 8,231	\$ 6,742	\$ 281	\$ 275	\$ 204	\$ 782	\$ 4,068	\$ 1,338	\$ 31,155	\$ 39,386
T420 Offices	\$ 1,920	\$ 222	\$ 426,720	1.3	\$ 554,736	\$ 1,527	\$ 880	\$ 5,824	\$ 8,231	\$ 5,096	\$ 3,303	\$ 834	\$ 8,231	\$ 6,742	\$ 281	\$ 275	\$ 204	\$ 782	\$ 4,068	\$ 1,338	\$ 31,155	\$ 39,386
T430 Offices/Classroom	\$ 1,920	\$ 360	\$ 691,200	1.3	\$ 864,000	\$ 1,527	\$ 880	\$ 5,824	\$ 8,231	\$ 5,096	\$ 3,303	\$ 834	\$ 8,231	\$ 6,742	\$ 281	\$ 275	\$ 204	\$ 782	\$ 4,068	\$ 1,338	\$ 31,155	\$ 39,386
B2000 Theatre	\$ 34,207	\$ 192	\$ 6,567,744	1.3	\$ 8,209,680	\$ 30,684	\$ 25,347	\$ 144,791	\$ 200,822	\$ 161,131	\$ 113,818	\$ 15,447	\$ 201,059	\$ 22,434	\$ 5,018	\$ 4,892	\$ 3,642	\$ 18,730	\$ 19,566	\$ 59,143	\$ 624,880	\$ 825,702
T600 Purchasing	\$ 2,130	\$ 222	\$ 473,393	1.3	\$ 615,410	\$ 1,694	\$ 976	\$ 6,461	\$ 9,131	\$ 5,653	\$ 3,665	\$ 925	\$ 9,131	\$ 7,479	\$ 312	\$ 305	\$ 227	\$ 867	\$ 4,513	\$ 1,485	\$ 34,562	\$ 43,693
B28 Tennis Storage	\$ 440	\$ 234	\$ 102,802	1.3	\$ 128,502	\$ 480	\$ 344	\$ 1,583	\$ 2,408	\$ 697	\$ 1,464	\$ 199	\$ 2,408	\$ 349	\$ 65	\$ 63	\$ 47	\$ 386	\$ 337	\$ 330	\$ 6,345	\$ 8,752
B3100 Classrooms/Offices	\$ 8,464	\$ 360	\$ 3,047,040	1.3	\$ 3,808,800	\$ 6,732	\$ 3,880	\$ 25,673	\$ 36,285	\$ 22,465	\$ 14,563	\$ 3,675	\$ 36,285	\$ 29,720	\$ 1,240	\$ 1,210	\$ 901	\$ 3,446	\$ 17,935	\$ 5,899	\$ 137,340	\$ 173,625
B3200 Burshars/Classroom	\$ 3,850	\$ 360	\$ 1,386,000	1.3	\$ 1,732,500	\$ 3,062	\$ 1,765	\$ 11,678	\$ 16,505	\$ 10,219	\$ 6,624	\$ 1,672	\$ 16,505	\$ 13,519	\$ 564	\$ 551	\$ 410	\$ 1,568	\$ 8,158	\$ 2,683	\$ 62,472	\$ 78,976
B3300 Admissions and Rec	\$ 6,960	\$ 222	\$ 1,546,860	1.3	\$ 2,010,918	\$ 5,536	\$ 3,190	\$ 21,111	\$ 29,837	\$ 18,473	\$ 11,975	\$ 3,022	\$ 29,837	\$ 24,439	\$ 1,020	\$ 995	\$ 741	\$ 2,834	\$ 14,748	\$ 4,851	\$ 112,936	\$ 142,773
B3500A - Classrooms	\$ 5,400	\$ 232	\$ 1,250,824	1.3	\$ 1,563,530	\$ 4,804	\$ 2,257	\$ 14,4														

Table 4. Example of the System Cost Estimate Roll-Up.



Mira Costa Yearly Cost Estimate

Year	1. 4900 Biology Classroom				2. Lower Gre House Shed		9. New Hort Greenhouse				20. B4300 Student Center				82. Building B- CLC				83. Student Resources Building				84. TCI Building				Total			Total	5-Year Increment Total	Year	
	Constr. Cost	M&R Cost	Op. Cost	Total Bldg.	Constr. Cost	M&R Cost	Constr. Cost	M&R Cost	Op. Cost	Total Bldg.	Constr. Cost	M&R Cost	Op. Cost	Total Bldg.	Constr. Cost	M&R Cost	Op. Cost	Total Bldg.	Constr. Cost	M&R Cost	Op. Cost	Total Bldg.	Constr. Cost	M&R Cost	Op. Cost								
2009	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,750	\$ -	\$ -	\$ 11,544	\$ 77,078	\$ 88,622	\$ -	\$ -	\$ 70,765	\$ 1,118,174	\$ 1,188,939	\$ -	\$ 38,556	\$ 153,923	\$ 192,479	\$ -	\$ -	\$ -	\$ -	\$ 90,604	\$ 674,868	\$ 765,472	\$ 281,595	\$ 3,741,644	\$ 11,984,321	\$ 16,007,560		2009
2010	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 174	\$ -	\$ 12,073	\$ 77,078	\$ 89,152	\$ -	\$ -	\$ 67,627	\$ 1,118,174	\$ 1,185,801	\$ -	\$ 29,443	\$ 153,923	\$ 183,366	\$ -	\$ -	\$ -	\$ -	\$ 96,139	\$ 674,868	\$ 771,007	\$ -	\$ 1,609,586	\$ 11,998,549	\$ 13,608,135		2010
2011	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 187	\$ -	\$ 11,544	\$ 77,078	\$ 88,622	\$ -	\$ -	\$ 69,022	\$ 1,118,174	\$ 1,187,196	\$ -	\$ 18,577	\$ 153,923	\$ 172,500	\$ -	\$ -	\$ -	\$ -	\$ 92,352	\$ 674,868	\$ 767,220	\$ -	\$ 4,630,235	\$ 11,998,549	\$ 16,628,784	\$ 81,416,781	2011
2012	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 174	\$ -	\$ 19,432	\$ 77,078	\$ 96,511	\$ -	\$ -	\$ 593,309	\$ 1,118,174	\$ 1,711,483	\$ -	\$ 18,051	\$ 153,923	\$ 171,974	\$ -	\$ -	\$ -	\$ -	\$ 434,082	\$ 674,868	\$ 1,108,950	\$ -	\$ 3,846,465	\$ 11,998,549	\$ 15,845,014		2012
2013	\$ 1,846,866	\$ -	\$ -	\$ 1,846,866	\$ -	\$ 187	\$ -	\$ 11,977	\$ 77,078	\$ 89,055	\$ -	\$ -	\$ 69,370	\$ 1,118,174	\$ 1,187,544	\$ -	\$ 19,278	\$ 153,923	\$ 173,201	\$ -	\$ -	\$ -	\$ -	\$ 88,856	\$ 674,868	\$ 763,724	\$ 4,414,340	\$ 3,270,377	\$ 11,998,549	\$ 19,683,265		2013	
2014	\$ -	\$ 31,362	\$ 145,304	\$ 176,667	\$ -	\$ 196	\$ -	\$ 10,726	\$ 77,078	\$ 87,805	\$ -	\$ -	\$ 66,930	\$ 1,118,174	\$ 1,185,104	\$ -	\$ 240,272	\$ 153,923	\$ 394,195	\$ -	\$ -	\$ -	\$ -	\$ 108,083	\$ 674,868	\$ 782,952	\$ -	\$ 6,544,318	\$ 12,345,852	\$ 18,890,170		2014	
2015	\$ -	\$ 32,454	\$ 145,304	\$ 177,759	\$ -	\$ 187	\$ -	\$ 53,872	\$ 77,078	\$ 130,950	\$ -	\$ -	\$ 107,019	\$ 1,118,174	\$ 1,225,193	\$ -	\$ 19,804	\$ 153,923	\$ 173,727	\$ -	\$ -	\$ -	\$ -	\$ 90,021	\$ 674,868	\$ 764,889	\$ -	\$ 3,117,790	\$ 12,345,852	\$ 15,463,642		2015	
2016	\$ -	\$ 33,066	\$ 145,304	\$ 178,370	\$ -	\$ 315	\$ -	\$ 10,726	\$ 77,078	\$ 87,805	\$ -	\$ -	\$ 69,719	\$ 1,118,174	\$ 1,187,893	\$ -	\$ 18,752	\$ 153,923	\$ 172,675	\$ -	\$ -	\$ -	\$ -	\$ 93,226	\$ 674,868	\$ 768,094	\$ -	\$ 4,522,477	\$ 12,345,852	\$ 16,868,329	\$ 86,750,420	2016	
2017	\$ -	\$ 33,983	\$ 145,304	\$ 179,287	\$ -	\$ 194	\$ -	\$ 12,602	\$ 77,078	\$ 89,681	\$ -	\$ -	\$ 1,169,885	\$ 1,118,174	\$ 2,288,059	\$ -	\$ 18,752	\$ 153,923	\$ 172,675	\$ -	\$ -	\$ -	\$ -	\$ 590,817	\$ 674,868	\$ 1,265,686	\$ 386,300	\$ 5,808,744	\$ 12,345,852	\$ 18,540,896		2017	
2018	\$ -	\$ 40,404	\$ 145,304	\$ 185,708	\$ -	\$ 174	\$ -	\$ 10,726	\$ 77,078	\$ 87,805	\$ -	\$ -	\$ 64,141	\$ 1,118,174	\$ 1,182,315	\$ -	\$ 19,979	\$ 153,923	\$ 173,902	\$ -	\$ -	\$ -	\$ -	\$ 97,304	\$ 674,868	\$ 772,172	\$ 2,373,220	\$ 2,579,714	\$ 12,372,006	\$ 17,324,939		2018	
2019	\$ -	\$ 34,201	\$ 145,304	\$ 179,506	\$ -	\$ 874	\$ -	\$ 20,250	\$ 77,078	\$ 97,329	\$ -	\$ -	\$ 68,673	\$ 1,118,174	\$ 1,186,847	\$ -	\$ 243,952	\$ 153,923	\$ 397,875	\$ 2,796,789	\$ -	\$ -	\$ 2,796,789	\$ 89,730	\$ 674,868	\$ 764,598	\$ 7,217,258	\$ 3,428,391	\$ 12,422,308	\$ 23,067,956		2019	
2020	\$ -	\$ 33,765	\$ 145,304	\$ 179,069	\$ -	\$ 174	\$ -	\$ 14,093	\$ 77,078	\$ 91,172	\$ -	\$ -	\$ 66,233	\$ 1,118,174	\$ 1,184,407	\$ -	\$ 19,278	\$ 153,923	\$ 173,201	\$ -	\$ 23,319	\$ 157,431	\$ 180,750	\$ -	\$ 171,885	\$ 674,868	\$ 846,753	\$ 6,363,895	\$ 2,836,763	\$ 12,772,472	\$ 21,973,130		2020
2021	\$ -	\$ 33,765	\$ 145,304	\$ 179,069	\$ -	\$ 204	\$ -	\$ 11,977	\$ 77,078	\$ 89,055	\$ -	\$ -	\$ 70,765	\$ 1,118,174	\$ 1,188,939	\$ -	\$ 18,577	\$ 153,923	\$ 172,500	\$ -	\$ 24,573	\$ 157,431	\$ 182,004	\$ -	\$ 90,021	\$ 674,868	\$ 764,889	\$ 11,410,144	\$ 5,759,653	\$ 12,772,472	\$ 29,942,269	\$ 110,849,191	2021
2022	\$ -	\$ 33,765	\$ 145,304	\$ 179,069	\$ -	\$ 174	\$ -	\$ 10,726	\$ 77,078	\$ 87,805	\$ -	\$ -	\$ 89,938	\$ 1,118,174	\$ 1,208,111	\$ -	\$ 28,391	\$ 153,923	\$ 182,314	\$ -	\$ 24,448	\$ 157,431	\$ 181,879	\$ -	\$ 2,031,735	\$ 674,868	\$ 2,706,604	\$ 13,853,032	\$ 3,947,885	\$ 13,435,483	\$ 31,236,400		2022
2023	\$ -	\$ 208,965	\$ 145,304	\$ 354,270	\$ -	\$ 328	\$ -	\$ 11,544	\$ 77,078	\$ 88,622	\$ -	\$ -	\$ 70,765	\$ 1,118,174	\$ 1,188,939	\$ -	\$ 19,278	\$ 153,923	\$ 173,201	\$ -	\$ 25,451	\$ 157,431	\$ 182,882	\$ -	\$ 90,895	\$ 674,868	\$ 765,763	\$ 11,425,184	\$ 3,631,776	\$ 14,284,660	\$ 29,341,620		2023
2024	\$ -	\$ 31,362	\$ 145,304	\$ 176,667	\$ -	\$ 229	\$ -	\$ 10,726	\$ 77,078	\$ 87,805	\$ -	\$ -	\$ 66,930	\$ 1,118,174	\$ 1,185,104	\$ -	\$ 261,653	\$ 153,923	\$ 415,576	\$ -	\$ 31,845	\$ 157,431	\$ 189,276	\$ -	\$ 92,352	\$ 674,868	\$ 767,220	\$ 9,355,488	\$ 6,009,774	\$ 14,945,531	\$ 30,310,794		2024
2025	\$ -	\$ 38,176	\$ 145,304	\$ 183,481	\$ -	\$ 194	\$ -	\$ 135,883	\$ 77,078	\$ 212,961	\$ -	\$ -	\$ 71,113	\$ 1,118,174	\$ 1,189,287	\$ -	\$ 16,123	\$ 153,923	\$ 170,047	\$ -	\$ 25,702	\$ 157,431	\$ 183,133	\$ -	\$ 90,895	\$ 674,868	\$ 765,763	\$ 1,000,403	\$ 4,444,710	\$ 16,355,543	\$ 21,800,656		2025
2026	\$ -	\$ 32,804	\$ 145,304	\$ 178,108	\$ -	\$ 174	\$ -	\$ 19,432	\$ 77,078	\$ 96,511	\$ -	\$ -	\$ 67,976	\$ 1,118,174	\$ 1,186,150	\$ -	\$ 16,824	\$ 153,923	\$ 170,748	\$ -	\$ 23,821	\$ 157,431	\$ 181,252	\$ -	\$ 108,375	\$ 674,868	\$ 783,243	\$ -	\$ 6,771,591	\$ 16,467,910	\$ 23,239,502	\$ 135,928,971	2026
2027	\$ -	\$ 33,634	\$ 145,304	\$ 178,938	\$ -	\$ 187	\$ -	\$ 11,544	\$ 77,078	\$ 88,622	\$ -	\$ -	\$ 530,562	\$ 1,118,174	\$ 1,648,735	\$ -	\$ 16,299	\$ 153,923	\$ 170,222	\$ -	\$ 25,702	\$ 157,431	\$ 183,133	\$ -	\$ 292,495	\$ 674,868	\$ 967,364	\$ -	\$ 6,224,654	\$ 16,467,910	\$ 22,692,564		2027
2028	\$ -	\$ 134,185	\$ 145,304	\$ 279,489	\$ -	\$ 174	\$ -	\$ 10,726	\$ 77,078	\$ 87,805	\$ -	\$ -	\$ 64,141	\$ 1,118,174	\$ 1,182,315	\$ -	\$ 18,226	\$ 153,923	\$ 172,150	\$ -	\$ 25,200	\$ 157,431	\$ 182,631	\$ -	\$ 92,643	\$ 674,868	\$ 767,511	\$ -	\$ 3,520,502	\$ 16,467,910	\$ 19,988,413		2028
2029	\$ -	\$ 35,206	\$ 145,304	\$ 180,510	\$ -	\$ 2,204	\$ -	\$ 13,035	\$ 77,078	\$ 90,114	\$ -	\$ -	\$ 110,156	\$ 1,118,174	\$ 1,228,330	\$ -	\$ 23,834	\$ 153,923	\$ 177,758	\$ -	\$ 173,767	\$ 157,431	\$ 331,198	\$ -	\$ 91,186	\$ 674,868	\$ 766,055	\$ -	\$ 4,012,302	\$ 16,467,910	\$ 20,480,212		2029
2030	\$ -	\$ 105,400	\$ 145,304	\$ 250,704	\$ -	\$ 315	\$ -	\$ 19,529	\$ 77,078	\$ 96,607	\$ -	\$ -	\$ 64,141	\$ 1,118,174	\$ 1,182,315	\$ -	\$ 17,701	\$ 153,923	\$ 171,624	\$ -	\$ 23,319	\$ 157,431	\$ 180,750	\$ -	\$ 96,139	\$ 674,868	\$ 771,007	\$ -	\$ 3,224,633	\$			

MIRA COSTA YEARLY ESTIMATE

Constr. Cost M&R Cost. Op. Cost

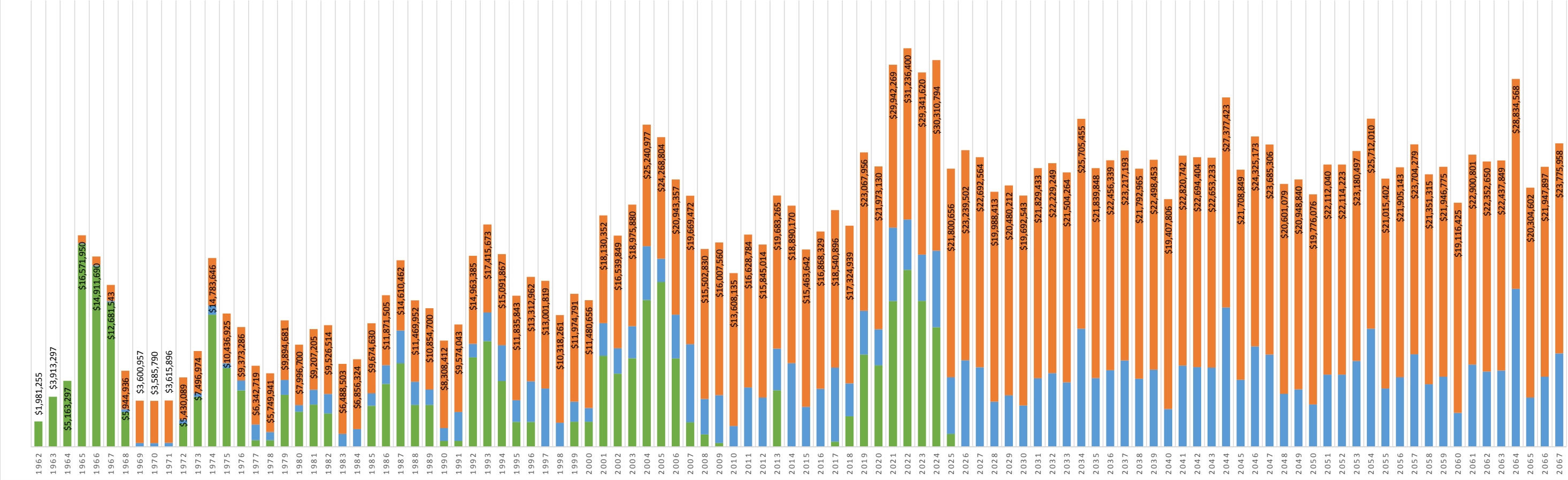


Table 6. Example of the Yearly Cost Estimate Roll-Up Graph.