

**CHIMACUM SCHOOL DISTRICT  
FACILITY CONDITION ASSESSMENT  
SUMMARY REPORT  
SEPTEMBER 20, 2017**



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## I. EXECUTIVE SUMMARY

### 1.1 Introduction

Chimacum School District engaged MENG Analysis to conduct a Facility Condition Assessment (FCA) of selected District owned educational facilities, as well as the maintenance building, transportation building and its site. The FCA did not examine portables or the district office. This report includes both summary and detailed results of the May, 2017 assessment, presented as follows:

- **Section I** – Executive Summary (overview, scope, and overall findings)
- **Section II** – Observed Deficiency (short-term maintenance, or ODs) summary
- **Section III** – Predicted Renewals (long-term cyclical cost for ongoing functionality) summary
- **Section IV** – Individual condition reports and cost data for each facility and site
- **Section V** – Opportunities for improvement
- **Section VI** – Detailed inventory of significant maintainable equipment (mostly HVAC)
- **Section VII** – Methodology, definitions, process information

The purpose of this FCA is to support District staff with proactive management of the District's facility assets, including planning and budgeting for short-term correction of Observed Deficiencies (ODs), and long-term major maintenance, referred to in this report as Predicted Renewals (PRs). The projected costs in this report outline the financial needs to keep the facilities functioning in their current configuration for the next 20 years. In addition, selected opportunities noted by surveyors to improve performance of certain systems are also included with estimated costs of these upgrades.

This report does not provide a detailed code analysis or make suggestions about programmatic changes the District may choose to make, such as closing Chimacum Creek Primary and increasing capacity at the main campus elementary school. Unlike a Study and Survey which is *"an overall analysis of the school districts' facilities, educational programs and plans, student population projections, capital finance and operating capabilities and identification of needs for new construction, modernization or replacement of facilities"*,<sup>1</sup> the FCA provides detailed observable condition data which helps the District quantify and prioritize facility needs. While related, these are separate exercises. The system by system analysis of each building and site allows the District to anticipate both routine maintenance costs and large capital project costs occurring in the short term (2017-2022) or long-term (2023 – 2037). This will help inform decisions for long-range planning.

This FCA report also includes an inventory list of major maintainable equipment installed in the surveyed facilities. The Equipment Inventory List is included in Section VI.

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<sup>1</sup> <http://www.k12.wa.us/SchFacilities/Programs/StudySurveyGrants.aspx>

## 1.2 Scope of Services

The contracted scope of our Facility Condition Assessment includes the following activities:

### Preparation Phase

- O&M Questionnaires and Workshop to gather anecdotal facility data from CSD staff
- Review of recent work orders & facility projects
- Extensive preparation of documents, systems, and team members

### Condition Survey Phase

- Field Surveys of the following facilities and sites:
  - Chimacum Creek Primary Site
  - Chimacum Creek Primary Building
  - Chimacum Main Campus Site
  - Chimacum High School Building 100A
  - Chimacum Middle School Building 100B
  - Chimacum Middle School Building 200
  - Chimacum Elementary Building 300
  - Chimacum K-8 Library Building 400
  - Chimacum Multipurpose Building 500
  - Chimacum Maintenance Building
  - Chimacum Transportation Building
  - Chimacum Transportation Site
- Equipment Inventory

### Reporting Phase

- Data organization & QA/QC
- Draft report (1 printed copy; 1 electronic) including:
  - Facility Condition Summaries
  - Observed Deficiencies with photographs
  - Predicted Renewals
  - Opportunities
- Incorporation of comments after CSD review
- Final Report (1 printed copy; 1 electronic)
- Three presentations
- Database Training and Manual
- Copy of Facilities Database

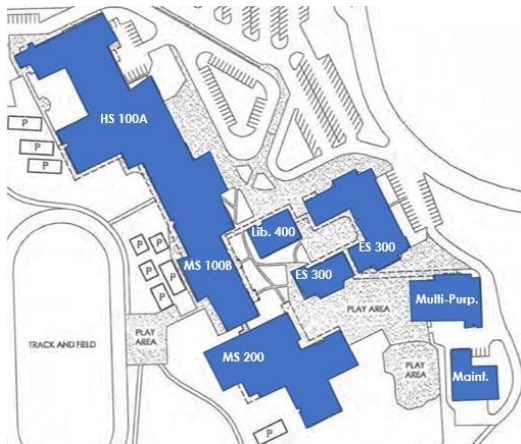
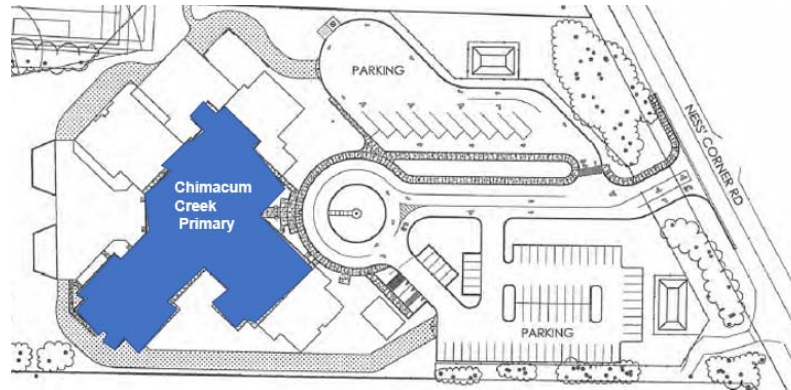
Additional activities that the District may choose to contract as additional services which are not included in this scope of work are:

- Full code-compliance analysis
- ADA accessibility and compliance assessment
- ASCE tier 1 seismic checklist
- Educational adequacy assessment
- Infra-red imaging of electrical panels and/or building envelope
- Feasibility study of alternate configuration options

**1.3 Facilities Surveyed**

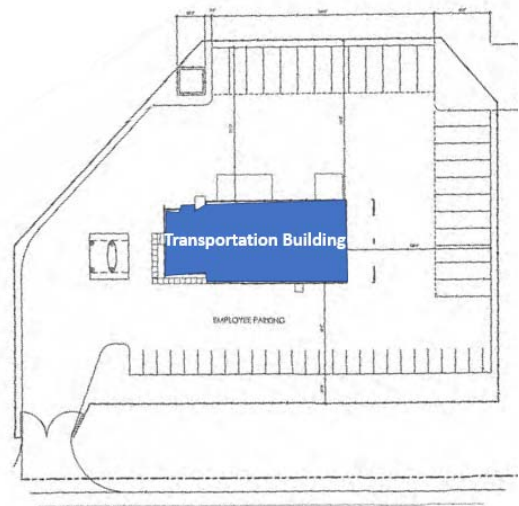
The following facilities and sites were included in the assessment:

Chimacum Creek Primary 29,739 SF  
Chimacum Creek Primary Site



Chimacum Elementary Building 300	29,077 SF
Chimacum High School Building 100A	77,168 SF
Chimacum K-8 Library Building 400	6,312 SF
Chimacum Maintenance Building	7,541 SF
Chimacum Middle School Building 100B	21,558 SF
Chimacum Middle School Building 200	38,330 SF
Chimacum Multipurpose Building 500	12,392 SF
Chimacum Main Campus Site	

Chimacum Transportation Building 7,950 SF  
Chimacum Transportation Site



**1.4 Weighted Average Condition Score**

The condition assessment process rates each building subsystem with a qualitative score of 1 through 5. General score descriptions are shown below. More detailed system-level scoring definitions are included in the Appendix. Subsystem scores are combined and weighted by the cost of that subsystem relative to the total replacement value of the facility. These system scores combine to create the Weighted Average Condition Score (WACS) for each of the District's facilities.

- 1 = excellent
- 2 = good
- 3 = fair
- 4 = poor
- 5 = unacceptable



The following table summarizes these qualitative assessment scores for the surveyed facilities from best to worst condition:

Facility	WACS
Chimacum Middle School Building 100B	2.3
Chimacum Middle School Building 200	2.5
Chimacum Creek Primary	2.5
Chimacum High School Building 100A	2.6
Chimacum Multipurpose Building 500	2.9
Chimacum Elementary Building 300	3.1
Chimacum Transportation Building	3.1
Chimacum K-8 Library Building 400	3.5
Chimacum Maintenance Building	3.9

**1.5 Facility Condition Index**

A Facility Condition Index (FCI) is an industry standard used for benchmarking and evaluating a portfolio of facility assets over time. The FCI is the ratio between a facility's Backlog of Maintenance and Repair (BMAR) cost and the Current Replacement Value (CRV) of the facility. Please see the list of FCA terminology in Appendix for further explanation of FCI. The lower the FCI, the lower the cost of maintenance backlog in relation to the cost of a full building replacement.

Facility	FCI
Chimacum Middle School Building 100B	0.08
Chimacum Middle School Building 200	0.10
Chimacum Creek Primary	0.10
Chimacum Multipurpose Building 500	0.13
Chimacum High School Building 100A	0.13
Chimacum Elementary Building 300	0.17

Facility	FCI
Chimacum Transportation Building	0.21
Chimacum K-8 Library Building 400	0.27
Chimacum Maintenance Building	0.32

### 1.6 Projected Cost Summary

Estimated costs are calculated for both short-term Observed Deficiencies (ODs) as well as for long-term Predicted Renewals (PRs). The costs summarized here include typical construction markups as well as project development markups (design, management, etc.) and are calculated as 2017 present value costs. To account for the time value of money, the database uses a 5% discount rate and a 3% escalation/inflation rate.

It is important to note that 2017 – 2022 ODs should not be added to 2017 – 2022 PRs. ODs are based on known conditions that are *witnessed by or disclosed directly to* the field surveyors. Alternatively, PRs are based on *predictive models* that use industry-standard expected life data, combined with original construction or remodel dates and system scores from surveyors to estimate when a system will require renewal. Often the 2017-2022 ODs and PRs align; however, PRs may indicate a system needs renewal that is not evident from visual survey. Conversely, a model might indicate that a renewal is due based on timing, but survey conditions estimate a longer life. Therefore, ODs are generally the best short-term planning tool, while PRs are best used for long-term budgeting.

### 1.7 OD Summary

- Current Observed Deficiencies (2017 - 2022) = \$15.4M for all building and site systems
  - Approximately 174 deficiencies
  - Items with a direct cost of less than \$7,500 are not included in OD report but may be noted in subsystem comments if considered significant.
- Highest Cost Systems based on Observed Deficiencies:
  - HVAC: \$3.8M
  - Interior Finishes: \$2.4M
  - Site Improvements \$2.0M
- Observed Deficiencies Peak Cost Years
  - 2022 - \$4.1M
  - 2020 - \$3.5M
  - 2017 – \$3.3M

The following table shows the total Observed Deficiency cost per building, along with OD costs per square foot of building area. As shown, the highest total OD cost in a single facility is the high school, yet it has a relatively low OD cost per square foot. By contrast, the library's OD cost is about 25% of the high school's cost, while the building is less than one tenth it's size. The higher concentration of ODs signifies that the building is in poorer condition overall.

The table also shows the 20-year PR costs in relation to building SF.

Facility	SF	Present Value OD Costs	OD per SF	Present Value PR Costs	PR per SF
Chimacum Middle School Building 100B	21,558	\$497,000	\$23.05	\$2,152,498	\$99.85
Chimacum High School Building 100A	77,168	\$2,938,000	\$38.07	\$14,558,229	\$188.66
Chimacum Middle School Building 200	38,330	\$1,751,000	\$45.68	\$5,317,592	\$138.73
Chimacum Creek Primary	29,739	\$1,655,000	\$55.65	\$4,232,332	\$142.32
Chimacum Elementary Building 300	29,077	\$1,691,000	\$58.16	\$5,357,152	\$184.24
Chimacum Multipurpose Building	12,392	\$732,000	\$59.07	\$1,867,201	\$150.68
Chimacum K-8 Library Building 400	6,312	\$652,000	\$103.30	\$1,308,829	\$207.36
Chimacum Transportation Building	7,950	\$1,010,000	\$127.04	\$1,270,571	\$159.82
Chimacum Maintenance Building	7,541	\$1,825,000	\$242.01	\$1,491,689	\$197.81

### 1.8 PR Summary

- 20-year (2017-2037) Predicted Renewals total \$46.4M<sup>2</sup>
- Highest cost long-term system renewals are electrical, HVAC, and interior finishes (these are very typical for the top-cost long-term renewals)
- Highest renewal costs are found at the High School (\$14.6M), Main Campus Infrastructure (\$7.8M), and the Elementary School (\$5.4M).

<sup>2</sup> It is important to note that 2017 – 2022 ODs should not be added to 2017 – 2022 PRs. ODs are based on known conditions that are seen by or mentioned directly to the field surveyors. PRs are based on predictive models that use industry-standard expected life data, combined with original construction or remodel dates to estimate when a system will require renewal. Often the 5-year ODs and PRs align, however, PRs may indicate a system needs renewal that is not evident from visual survey. Conversely, a model might dictate that a renewal is due based on timing, but survey conditions estimate a longer life. Therefore, generally ODs are the best short-term planning tool and PRs are best used for long-term planning.

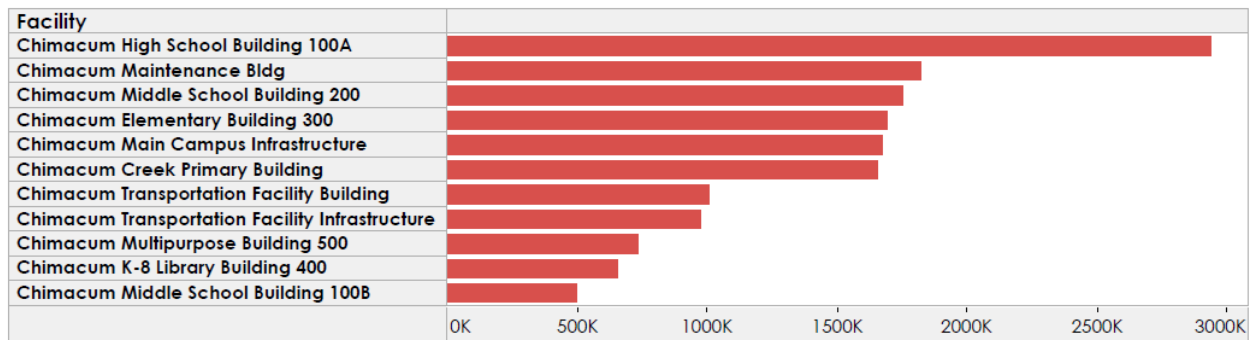


## II. OBSERVED DEFICIENCIES (ODs)

### 2.1 OD Summary

The buildings with highest OD costs for the five-year period of 2017 – 2022 are the in the High School, Maintenance Building, and Middle School Building 200. The High School and Middle School 200 building are the two largest buildings in the District, so it is to be expected that they have the highest total OD costs. The Maintenance Building is relatively small but with the highest (worst) condition score and FCI of all the District's facilities. The soil remediation project cost provided by the District to MENG Analysis is incorporated in the OD costs for the Transportation Site.

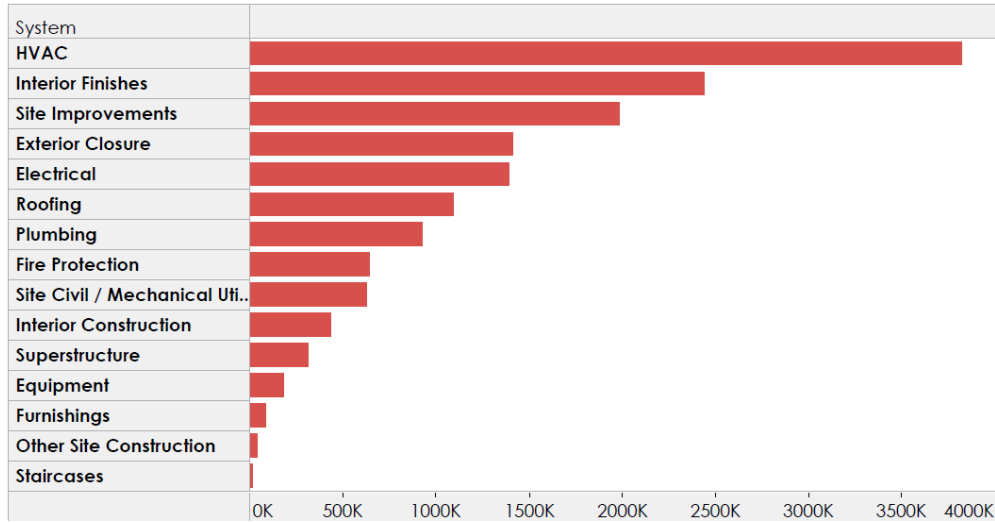
The breakdown of all the facilities and sites by ODs is shown in the table & graph below.



Chimacum Creek Primary Building	1,654,821
Chimacum Elementary Building 300	1,691,230
Chimacum High School Building 100A	2,937,763
Chimacum K-8 Library Building 400	652,386
Chimacum Main Campus Infrastructure	1,671,795
Chimacum Maintenance Bldg	1,824,879
Chimacum Middle School Building 100B	496,762
Chimacum Middle School Building 200	1,751,103
Chimacum Multipurpose Building 500	732,263
Chimacum Transportation Facility Building	1,009,542
Chimacum Transportation Facility Infrastructure	975,053
<b>Grand Total</b>	<b>15,397,597</b>

## 2.2 Observed Deficiency Costs by System

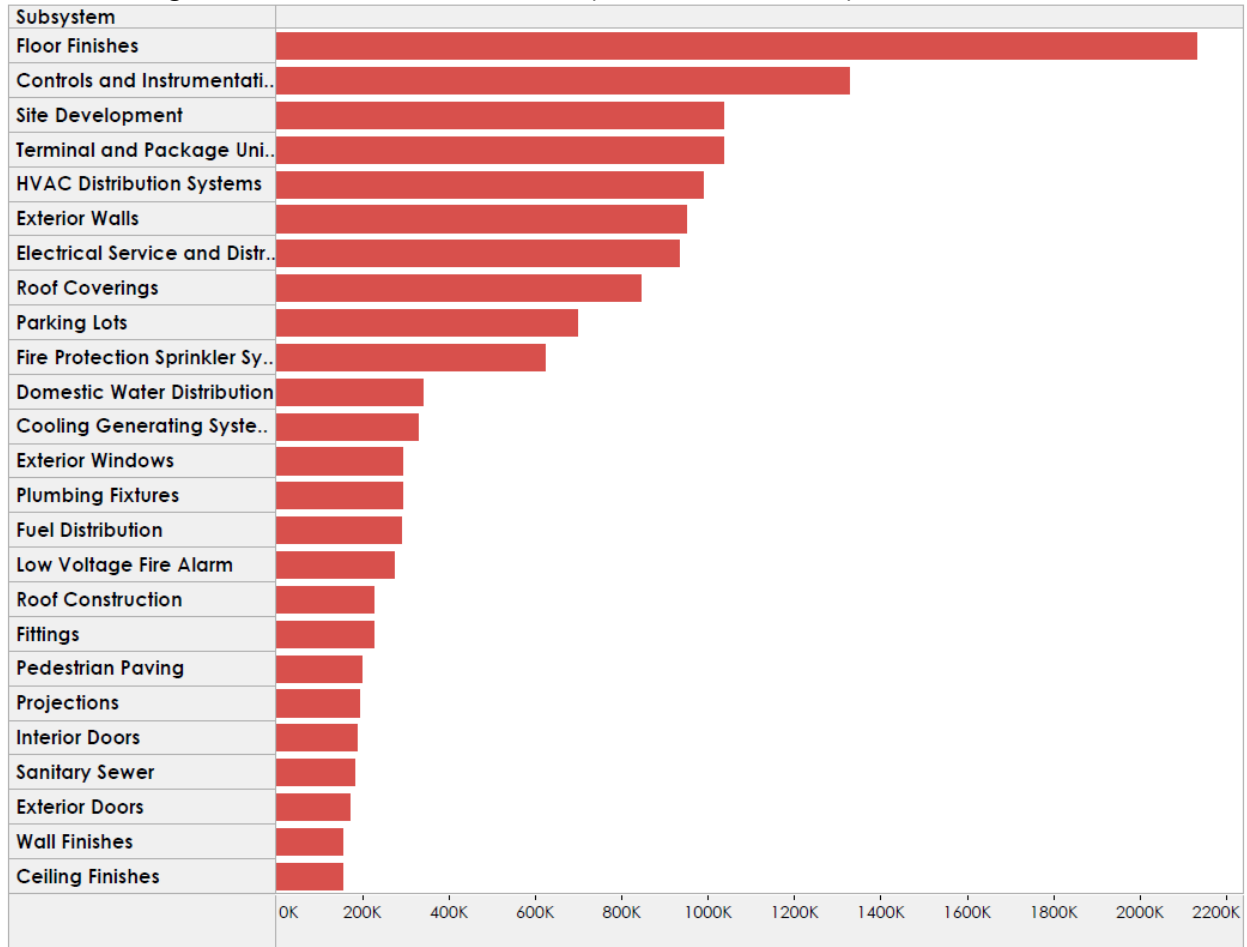
This chart summarizes the 15 OD costs by system across all facilities. HVAC, interior finishes and site improvements are the systems in greatest need of major maintenance. Detailed descriptions of system conditions are included in the detailed reports.



System	Cost
HVAC	3,818,320
Interior Finishes	2,441,705
Site Improvements	1,982,635
Exterior Closure	1,413,958
Electrical	1,394,258
Roofing	1,095,432
Plumbing	925,832
Fire Protection	639,661
Site Civil / Mechanical ..	626,289
Interior Construction	434,594
Superstructure	311,449
Equipment	180,957
Furnishings	81,624
Other Site Construction	37,924
Staircases	12,959
<b>Grand Total</b>	<b>15,397,597</b>

### 2.3 Observed Deficiency Costs by Subsystem

This following chart and table show the top 25 OD cost subsystems.



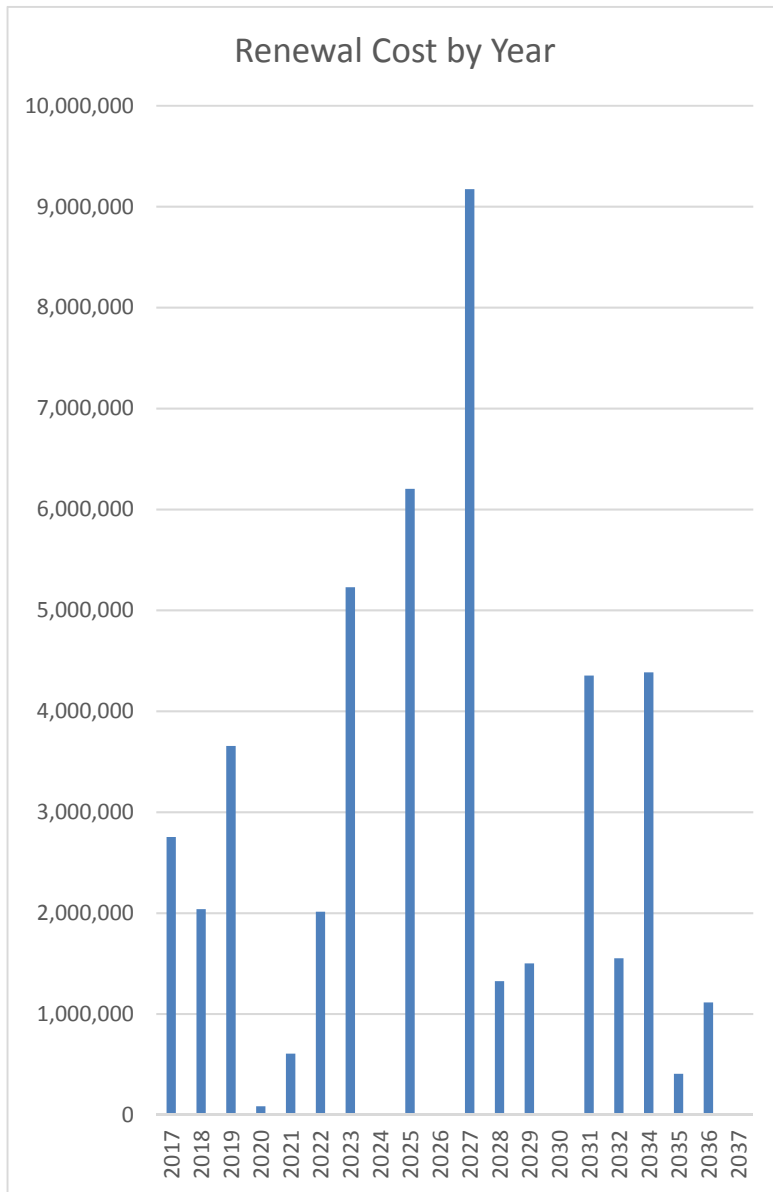
Electrical	Electrical Service and Distribution	933,014
	Low Voltage Fire Alarm	273,099
	Other Electrical Systems	100,141
	Lighting and Branch Wiring	88,004
Equipment	Institutional Equipment	148,853
	Vehicular Equipment	32,104
Exterior Closure	Exterior Walls	948,786
	Exterior Windows	294,001
	Exterior Doors	171,171
Fire Protection	Fire Protection Sprinkler Systems	620,929
	Other Fire Protection Systems	18,732
Furnishings	Fixed Furnishings	81,624
HVAC	Controls and Instrumentation	1,329,166
	Terminal and Package Units	1,035,483
	HVAC Distribution Systems	989,934
	Cooling Generating Systems	327,447
	Other HVAC Systems and Equipment	73,756
	Heat Generating Systems	62,534
Interior Construction	Fittings	226,666
	Interior Doors	185,670
	Partitions	22,258
Interior Finishes	Floor Finishes	2,131,093
	Wall Finishes	155,464
	Ceiling Finishes	155,148
Other Site Construction	Service and Pedestrian Tunnels	20,802
	Other Site Systems	17,122
Plumbing	Domestic Water Distribution	337,752
	Plumbing Fixtures	292,481
	Rain Water Drainage	115,761
	Other Plumbing Systems	108,129
	Sanitary Waste	71,709
Roofing	Roof Coverings	846,151
	Projections	190,819
	Roof Openings	58,462
Site Civil / Mechanical Utilities	Fuel Distribution	290,231
	Sanitary Sewer	181,921
	Water Supply	107,012
	Storm Sewer	47,125
Site Improvements	Site Development	1,035,489
	Parking Lots	696,714
	Pedestrian Paving	196,361
	Landscaping	35,344
	Roadways	18,727
Staircases	Stair Construction	12,959
Superstructure	Roof Construction	227,030
	Floor Construction	84,419
<b>Grand Total</b>		<b>15,397,597</b>

### III. PREDICTED RENEWALS (PRs)

#### 3.1 PR Summary

This section presents an overview of the District's long-term maintenance needs, known as Predicted Renewals (PRs). These parametric costs are based on industry-standard equipment life expectations, original construction or remodel date, adjusted by system survey score. Costs are presented in 2017 dollars.

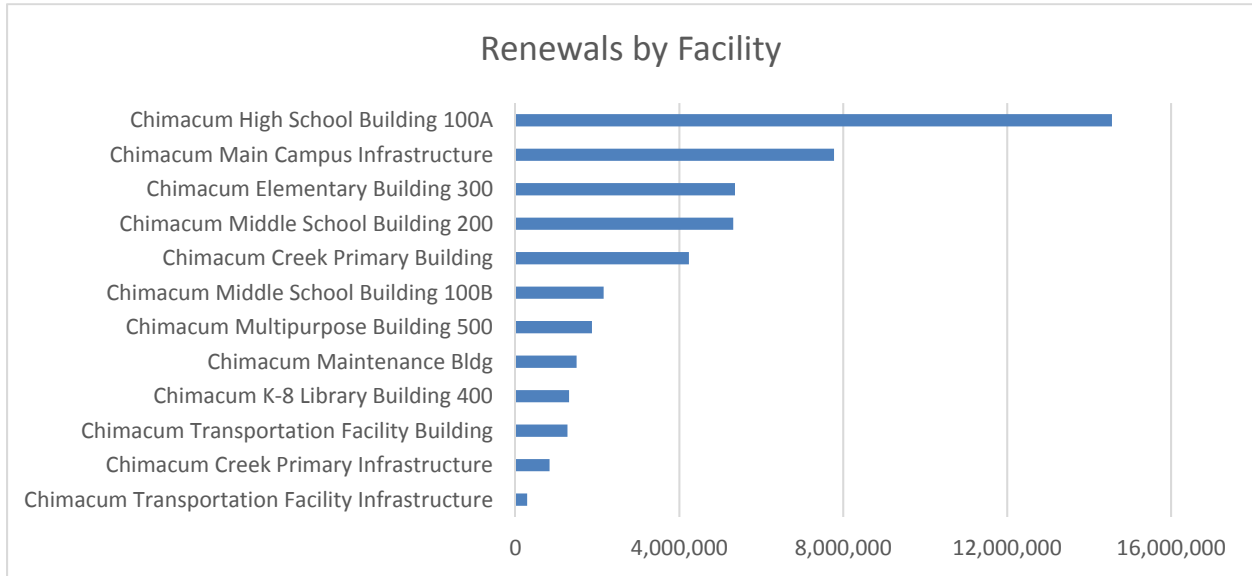
For the 20-year period of 2017- 2037, PR costs total \$46.4M.



Renewal Year	Cost
2017	2,753,510
2018	2,039,309
2019	3,656,728
2020	86,175
2021	607,458
2022	2,013,591
2023	5,229,023
2024	0
2025	6,204,704
2026	3,490
2027	9,172,899
2028	1,325,996
2029	1,500,968
2030	0
2031	4,354,523
2032	1,551,974
2034	4,385,539
2035	408,308
2036	1,114,913
2037	0
<b>Grand Total</b>	<b>46,409,106</b>

3.2 PRs by Facility

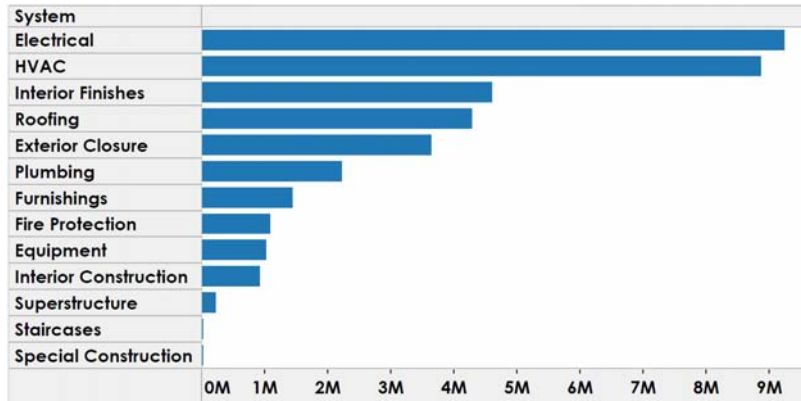
This chart shows the total PR costs for the 2017 – 2037 timeframe organized by facility.



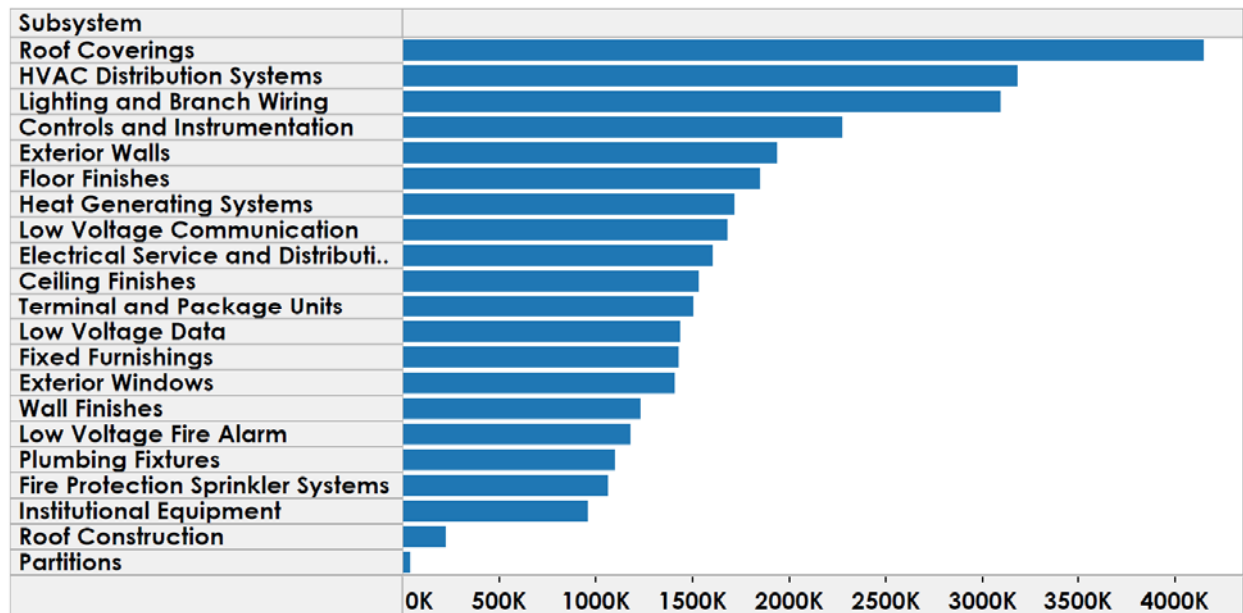
<b>Chimacum High School Building 100A</b>	14,558,229
<b>Chimacum Main Campus Infrastructure</b>	7,774,756
<b>Chimacum Elementary Building 300</b>	5,357,152
<b>Chimacum Middle School Building 200</b>	5,317,592
<b>Chimacum Creek Primary Building</b>	4,232,332
<b>Chimacum Middle School Building 100B</b>	2,152,498
<b>Chimacum Multipurpose Building 500</b>	1,867,201
<b>Chimacum Maintenance Building</b>	1,491,689
<b>Chimacum K-8 Library Building 400</b>	1,308,829
<b>Chimacum Transportation Facility Building</b>	1,270,571
<b>Chimacum Creek Primary Infrastructure</b>	831,262
<b>Chimacum Transportation Facility Infrastructure</b>	287,128

The top systems and subsystems for renewal costs are shown in the charts below.

Renewals by System



Renewals by Subsystem



The detailed table on the next page breaks out OD (short-term) and PR (long-term) costs each year for each facility to present a full 20-year estimate of costs.

Facility	2017	2018	2019	2020	2021	2022	2023	2025	2026	2027	2028	2029	2031	2032	2034	2035	2036	Total
	OD Cost	OD Cost	OD Cost	OD Cost	OD Cost	OD Cost	PR Cost	PR Cost	PR Cost	PR Cost	PR Cost	PR Cost	PR Cost	PR Cost	PR Cost	PR Cost	PR Cost	20-Year Cost
Chimacum Creek Primary Building	93,661	34,671	536,227	198,443	0	791,829	336,464	1,107,704	0	699,926	64,519	206,978	315,363	0	57,697	52,934	175,008	4,671,424
Chimacum Creek Primary Infrastructure	0	0	0	0	0	0	0	0	0	0	71,692	25,297	79,966	430,901	295,728	0	0	903,584
Chimacum Elementary Building 300	407,918	203,731	183,219	355,952	0	540,410	426,647	591,341	0	1,316,907	111,723	224,857	575,283	1,072,610	62,681	56,437	0	6,129,716
Chimacum High School Building 100A	599,185	272,396	204,902	1,029,614	459,975	371,691	1,859,419	1,859,498	0	2,826,352	254,224	429,370	1,892,370	48,463	770,426	161,018	574,308	13,613,211
Chimacum K-8 Library Building 400	144,952	118,458	156,302	69,509	136,143	27,022	64,538	171,363	0	33,140	0	18,098	147,178	0	3,311	8,518	0	1,098,532
Chimacum Main Campus Infrastructure	104,853	20,802	68,021	952,161	196,361	329,597	1,208,852	185,906	0	2,150,441	530,462	131,155	0	0	2,720,654	0	0	8,599,265
Chimacum Maintenance Building	735,693	102,950	306,191	411,495	0	268,550	236,349	925	0	4,573	0	21,678	0	0	0	3,921	0	2,092,325
Chimacum Middle School Building 100B	25,398	27,899	0	259,443	170,180	13,842	302,527	244,036	644	215,970	80,609	111,433	402,963	0	200,296	38,299	123,448	2,216,987
Chimacum Middle School Building 200	64,008	0	283,396	149,191	596,938	657,70	495,573	1,039,943	0	1,262,005	128,989	219,193	616,720	0	242,419	61,286	197,541	5,357,202
Chimacum Multipurpose Building 500	287,335	40,564	102,030	55,128	8,400	238,806	163,032	227,294	0	442,916	16,128	104,333	267,797	0	31,466	21,555	44,607	2,051,391
Chimacum Transportation Facility Building	519,201	0	33,867	53,891	259,787	142,796	69,622	206,441	2,846	196,999	59,192	0	43,330	0	861	4,341	0	1,593,174
Chimacum Transportation Facility Infrastructure	270,969	0	18,139	0	0	685,945	0	211,676	0	23,669	8,457	8,574	13,552	0	0	0	0	1,240,981
<b>Total</b>	<b>3,253,173</b>	<b>821,471</b>	<b>1,892,294</b>	<b>3,534,827</b>	<b>1,827,784</b>	<b>3,410,488</b>	<b>5,229,023</b>	<b>6,204,704</b>	<b>3,490</b>	<b>9,172,899</b>	<b>1,325,996</b>	<b>1,500,968</b>	<b>4,354,523</b>	<b>1,551,974</b>	<b>4,385,539</b>	<b>408,308</b>	<b>1,114,913</b>	<b>49,992,374</b>

Note: Years omitted from table do not have projected costs occurring in those years