

Capital Reserves Study

INTRODUCTION

Purpose

The Library has identified a need to evaluate its current facilities and assess the current conditions, likely life expectancy for the various components of the facilities and identify likely replacement costs for those components reaching the end of their useful performance life. The scope of this study is to identify those building systems or components that can be maintained or replaced using designated funds.

Definitions

Capital Replacements

Evaluation of building condition focused on the elements likely to be included in a Special Repair Fund. Equipment, materials or assemblies that are nominal in cost or are a part of routine maintenance are not included. This is therefore not a comprehensive list but does identify major expenses that are likely to be incurred in the foreseeable future. A supplemental tally of maintenance items is included as a separate worksheet.

For this study an item must have a life span **OR** a capital expense as defined in the following table. Other items are scheduled as maintenance items or included in the FF&E or IT worksheets.

Minimum Life Expectancy	10	YEARS
Minimum Capital Expense	10,000	USD

Escalation

Costs are calculated at 2015 levels and escalated at a presumed rate of inflation, adjusted in 3.00% per

Changes in long term average escalation rates can be reflected in the workbook by revising the rate in the highlighted cell. Anomalies or short term spikes should not be used as a basis for revising the long term projections. Only extended periods of reduced or increased inflation in the construction industry should be reflected by changes to the escalation rate.

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Limitations

The appended schedules include opinions of both anticipated repair or replacement dates and probable cost. All are subjective and require ongoing monitoring to assess the impact of continued building use, maintenance procedures, weather and other factors that will influence the longevity of products and assemblies.

As to cost, many decisions regarding material selection, system development and project parameters have yet to be defined. Market conditions, as always, are beyond the control of the architect or estimator and will vary over time. No guarantee is given or implied that costs will not vary from these schedules. In order to ensure conformance with projected costs it is imperative that additional estimates are prepared or specific proposals sought from potential vendors or contractors as the projected replacement or repair date nears.

The costs identified do not include routine maintenance. The costs do not address changes in service models or delivery methodology.

Conditions change with time and this evaluation, along with the funds allocated to cover the associated expenses should be reviewed and revised periodically as the library's needs evolve. Unanticipated expenses can develop for a number of reasons including accelerated use or changes in use patterns, accident, or deferred general maintenance. Such reviews should include updating baseline costs for the components or assemblies identified.

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Using the Workbook

The workbook is intended as a working tool for ongoing tracking and analysis of building integrity and anticipated expenses. Data is entered and monitored on the 'Tracking File' worksheet. As conditions are reviewed, repairs or replacements made, the worksheet should be updated with the installation date and a projected 'theoretical' life expectancy. This is the only worksheet that should be used for data entry. All other worksheets are copies sorted by the various indicated criteria with modifications to include repeated events.

Intro Care should be taken when updating the tracking file to replace the secondary worksheets with new sorted versions to stay consistent with ongoing replacements and repairs. Frequent sorts and filters are pre-programmed in the Intro worksheet.

TF

Expand all outline groups to expose all date fields. This will facilitate data entry and review.

Enter data as appropriate to the system, location, and projected life expectancy, as well as replacement cost and year of replacement and evaluation.

This file includes only the first occurrence of each type of repair or replacement. Short lived improvements such as painting may occur multiple times in a planning window.

Use caution when copying rows - the root unit cost methodology for the engineering systems is different from the architectural components and from each other.

Additional variations in defining root costs and escalated cost are introduced via the various repair concepts (Plan B, CR Repairs, Renewal/Renovation...). Do not assume adjacent rows have equivalent calculation methods.

S

Summary is a multiple condition sort of the TF file. Do not enter data in this sheet.

CR

Capital Repairs is a multiple condition sort of the TF file. Do not enter data in this sheet.

M

Maintenance is a multiple condition sort of the TF file. Do not enter data in this sheet.

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Calendar Year	SUM					Sum 1-4
	Summary of CR + M Costs					
	1	2	3	3.H	4	
	Life Safety	Building Integrity	Functional Obsolescence	Heat Pump Replacement	Aesthetic Obsolescence	
2016	\$0	\$0	\$0	\$0	\$0	\$0
2017	\$0	\$0	\$0	\$85,876	\$0	\$85,876
2018	\$0	\$131,587	\$105,023	\$79,607	\$71,946	\$388,164
2019	\$0	\$0	\$297,066	\$131,995	\$13,219	\$442,279
2020	\$0	\$61,402	\$395,176	\$131,150	\$11,178	\$598,906
5 Year Group	\$0	\$192,989	\$797,265	\$428,628	\$96,342	\$1,515,225
2021	\$1,546	\$13,566	\$223,558	\$216,119	\$89,611	\$544,401
2022	\$8,920	\$107,883	\$402,697	\$176,888	\$897,859	\$1,594,246
2023	\$0	\$0	\$466,854	\$0	\$329,566	\$796,420
2024	\$0	\$1,761,249	\$109,842	\$0	\$0	\$1,871,090
2025	\$1,567	\$68,751	\$11,749	\$0	\$0	\$82,066
5 Year Group	\$12,033	\$1,951,448	\$1,214,699	\$393,007	\$1,317,036	\$4,888,224
2026	\$120,117	\$230,442	\$669,939	\$0	\$124,715	\$1,145,213
2027	\$0	\$3,854	\$293,777	\$18,466	\$10,116	\$326,213
2028	\$0	\$0	\$29,764	\$29,480	\$0	\$59,244
2029	\$0	\$14,182	\$42,064	\$36,438	\$42,151	\$134,835
2030	\$0	\$0	\$522,609	\$25,222	\$0	\$547,831
5 Year Group	\$120,117	\$248,477	\$1,558,152	\$109,606	\$176,983	\$2,213,336
2031	\$0	\$0	\$54,348	\$77,937	\$0	\$132,286
2032	\$0	\$48,398	\$84,145	\$26,758	\$0	\$159,302
2033	\$0	\$0	\$29,886	\$82,353	\$152,817	\$265,056
2034	\$0	\$0	\$16,589	\$95,157	\$0	\$111,745
2035	\$0	\$0	\$18,479	\$20,936	\$0	\$39,415
5 Year Group	\$0	\$48,398	\$203,448	\$303,141	\$152,817	\$707,804
TOTAL	\$132,150	\$2,441,313	\$3,773,565	\$1,234,383	\$1,743,178	\$9,324,588

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Calendar Year	CR	Capital Repairs				Sum 1-4
	1	2	3	3.H	4	
	Life Safety	Building Integrity	Functional Obsolescence	Heat Pump Replacement	Aesthetic Obsolescence	
2016	\$0	\$0	\$0	\$0	\$0	\$0
2017	\$0	\$0	\$0	\$0	\$0	\$0
2018	\$0	\$114,504	\$97,492	\$0	\$62,849	\$274,845
2019	\$0	\$0	\$291,235	\$0	\$11,178	\$302,413
2020	\$0	\$61,402	\$378,360	\$0	\$11,178	\$450,940
5 Year Group	\$0	\$175,906	\$767,087	\$0	\$85,205	\$1,028,197
2021	\$0	\$0	\$213,312	\$62,632	\$74,278	\$350,222
2022	\$0	\$89,034	\$377,211	\$138,181	\$897,859	\$1,502,285
2023	\$0	\$0	\$457,314	\$0	\$321,871	\$779,185
2024	\$0	\$1,751,559	\$109,842	\$0	\$0	\$1,861,401
2025	\$0	\$68,751	\$0	\$0	\$0	\$68,751
5 Year Group	\$0	\$1,909,344	\$1,157,679	\$200,813	\$1,294,007	\$4,561,844
2026	\$120,117	\$179,045	\$629,154	\$0	\$124,715	\$1,053,031
2027	\$0	\$0	\$240,873	\$11,541	\$10,116	\$262,530
2028	\$0	\$0	\$11,554	\$22,348	\$0	\$33,903
2029	\$0	\$0	\$11,243	\$24,488	\$24,592	\$60,323
2030	\$0	\$0	\$516,555	\$25,222	\$0	\$541,778
5 Year Group	\$120,117	\$179,045	\$1,409,381	\$83,599	\$159,423	\$1,951,564
2031	\$0	\$0	\$52,997	\$77,937	\$0	\$130,935
2032	\$0	\$44,675	\$80,275	\$26,758	\$0	\$151,709
2033	\$0	\$0	\$12,654	\$68,903	\$145,362	\$226,920
2034	\$0	\$0	\$16,589	\$81,303	\$0	\$97,892
2035	\$0	\$0	\$18,479	\$13,918	\$0	\$32,398
5 Year Group	\$0	\$44,675	\$180,995	\$268,820	\$145,362	\$639,853
TOTAL	\$120,117	\$2,308,970	\$3,515,142	\$553,233	\$1,683,997	\$8,181,458

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Calendar Year	M Major Maintenance					Sum 1-5
	1	2	3	3.H	4	
	Life Safety	Building Integrity	Functional Obsolescence	Heat Pump Replacement	Aesthetic Obsolescence	
2016	\$0	\$0	\$0	\$0	\$0	\$0
2017	\$0	\$0	\$0	\$85,876	\$0	\$85,876
2018	\$0	\$17,083	\$7,532	\$79,607	\$9,097	\$113,319
2019	\$0	\$0	\$5,831	\$131,995	\$2,041	\$139,866
2020	\$0	\$0	\$16,816	\$131,150	\$0	\$147,966
5 Year Group	\$0	\$17,083	\$30,178	\$428,628	\$11,138	\$487,027
2021	\$1,546	\$13,566	\$10,245	\$153,487	\$15,334	\$194,179
2022	\$8,920	\$18,848	\$25,486	\$38,707	\$0	\$91,961
2023	\$0	\$0	\$9,540	\$0	\$7,695	\$17,235
2024	\$0	\$9,690	\$0	\$0	\$0	\$9,690
2025	\$1,567	\$0	\$11,749	\$0	\$0	\$13,315
5 Year Group	\$12,033	\$42,104	\$57,020	\$192,194	\$23,029	\$326,380
2026	\$0	\$51,398	\$40,784	\$0	\$0	\$92,182
2027	\$0	\$3,854	\$52,904	\$6,925	\$0	\$63,683
2028	\$0	\$0	\$18,209	\$7,132	\$0	\$25,342
2029	\$0	\$14,182	\$30,821	\$11,950	\$17,560	\$74,512
2030	\$0	\$0	\$6,053	\$0	\$0	\$6,053
5 Year Group	\$0	\$69,433	\$148,772	\$26,007	\$17,560	\$261,771
2031	\$0	\$0	\$1,351	\$0	\$0	\$1,351
2032	\$0	\$3,723	\$3,870	\$0	\$0	\$7,593
2033	\$0	\$0	\$17,232	\$13,450	\$7,454	\$38,136
2034	\$0	\$0	\$0	\$13,853	\$0	\$13,853
2035	\$0	\$0	\$0	\$7,018	\$0	\$7,018
5 Year Group	\$0	\$3,723	\$22,453	\$34,321	\$7,454	\$67,951
TOTAL	\$12,033	\$132,343	\$258,423	\$681,150	\$59,181	\$1,143,129

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S Summaries

These are extended view summaries covering anticipated costs through 2092.
See Budget Category Codes at bottom of this sheet.

CSI Division		CR	M	-	-	-
03	Concrete	\$130,153	\$5,704	\$0	\$0	\$0
04	Masonry	\$182,821	\$34,683	\$0	\$0	\$0
05	Metals	\$149,425	\$23,941	\$0	\$0	\$0
06	Wood	\$195,297	\$9,003	\$0	\$0	\$0
07	Thermal & Moisture	\$55,270	\$1,394	\$0	\$0	\$0
07R	Roof	\$1,751,559	\$0	\$0	\$0	\$0
07W	Windows	\$0	\$7,515	\$0	\$0	\$0
08	Doors & Windows	\$74,295	\$87,056	\$0	\$0	\$0
09	Finishes	\$1,518,350	\$65,039	\$0	\$0	\$0
10	Specialties	\$23,897	\$33,173	\$0	\$0	\$0
11	Equipment	\$159,472	\$18,209	\$0	\$0	\$0
12	Furnishings	\$0	\$0	\$0	\$0	\$0
13	Special Construction	\$0	\$0	\$0	\$0	\$0
14	Conveying Devices	\$677,191	\$0	\$0	\$0	\$0
21	Fire Protection	\$2,411,436	\$3,956	\$0	\$0	\$0
22	Plumbing	\$672,355	\$37,276	\$0	\$0	\$0
23	HVAC	\$1,564,349	\$102,945	\$0	\$0	\$0
23HP	HVAC- Heat Pumps	\$720,966	\$681,150	\$0	\$0	\$0
26	Electrical	\$912,115	\$8,964	\$0	\$0	\$0
27	Technology	\$0	\$0	\$0	\$0	\$0
28	Electronic Security	\$84,327	\$0	\$0	\$0	\$0
31	Earthwork	\$0	\$0	\$0	\$0	\$0
32	Site	\$1,483,397	\$37,456	\$0	\$0	\$0
33	Utilities	\$0	\$0	\$0	\$0	\$0
		\$12,766,676	\$1,157,464	\$0	\$0	\$0

Notes

Priority		CR	M	-	-	-
1	Life Safety Issue	\$2,615,880	\$12,033	\$0	\$0	\$0
2	Building Integrity At Risk	\$2,386,896	\$138,047	\$0	\$0	\$0
3	Functionally Obsolete	\$5,358,936	\$267,054	\$0	\$0	\$0
3.H	Heat Pump Replacement	\$720,966	\$681,150	\$0	\$0	\$0
4	Aesthetically Obsolete	\$1,683,997	\$59,181	\$0	\$0	\$0
		\$12,766,676	\$1,157,464	\$0	\$0	\$0

Budget Category Codes

CR	Capital Repairs
M	Major Maintenance