

City of Redmond

Facility Condition Assessment



Summary Report

DRAFT



Prepared by MENG Analysis - April 10, 2024

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1. Introduction

1.1 Project Purpose

With its innovative technology sector, high quality public services, and beautiful surroundings, Redmond is a place where people and communities thrive. Washington has traditionally been on the cutting edge of sustainability initiatives, and Redmond is one of the cities that exemplifies this tradition. Redmond understands that to combat climate change, every city needs to make systemic changes to their operational strategies and building management practices.

According to Redmond's 2021 Zero Carbon Strategy, municipal buildings represent 62% of Redmond's municipal greenhouse gas (GHG) emissions. Understanding the physical conditions of each building in the City's portfolio is the first step on the path to decarbonization and zero net energy.

In 2023, the City of Redmond, Washington engaged the MENG Analysis team to complete a comprehensive facility condition assessment (FCA) and decarbonization plan for city-owned buildings. The purpose of this assessment is to assist City staff in addressing maintenance backlog needs in a way that aligns with the City's sustainability and decarbonization goals.

This Executive Summary Report presents an introduction and overview to the facility condition assessment process as well as summary condition findings across all facilities. The *Facility Details Report* includes detailed cost and condition information for each individual building and site infrastructure.

1.2 Terms & Metrics

To aid in understanding the data and concepts presented in this report and in the *Facility Details Report*, this section defines common terms and abbreviations related to the FCA process.

Backlog of Maintenance and Repair (BMAR): a parametric method that quantifies the value of maintenance backlog based on the assessed condition scores. The backlog for each system is calculated based on a statistical theoretical percentage of that system that would need repair or replacement for each of the qualitative condition scores. The costs of those systems are the facility use cost models customized for Redmond's facilities.

Current Replacement Value (CRV): A facility's CRV is the sum of the value of the existing components that comprise that facility. This conceptual cost is used as the denominator in the facility condition index (FCI) calculation. This cost represents the theoretical value of the building based on its current type of construction and materials. It is not synonymous with the cost to rebuild a new facility. The CRV is estimated based on a per-square-foot cost model for a representative model of a similar facility.

Facility Condition Assessment (FCA): A structured process to document the conditions of site infrastructure and building systems. FCAs are typically performed by a multi-disciplinary team of architects, engineers, construction, and cost specialists. Facility information and condition data should be maintained in a database for ease of updating and reporting. The data should be renewed over time.

Facility Condition Index (FCI): A benchmark used to compare relative condition of facilities within a portfolio of assets; derived by the following formula:

$$\text{FCI} = \frac{\text{Backlog of Maintenance \& Repair (BMAR)}}{\text{Current Replacement Value (CRV)}}$$

The following breakout provides a suggested interpretation of FCI:

- Excellent = 0.00 – 0.05 (5%)
- Good = 0.06 – 0.10 (6% – 10%)
- Fair = 0.11 – 0.20 (11% – 20%)
- Poor = 0.21 – 0.25 (21% – 25%)
- Critical = 0.26 (26% or greater)

Observed Deficiency (OD): Issues that are observed by facility assessors or disclosed to them (such as a leak that isn't visible in summer) that a) require remediation within 5 years and b) have a direct cost of at least \$5,000 are documented as observed deficiencies. Each observed deficiency is noted in the applicable building report and includes a description of the issue, the suggested remedial action, a photograph, and a cost estimate.

Predicted Renewal: A theoretical forecast of when building systems will exceed their typical lifespan and the cost required for a renewal/ replacement. Based on the same per-square-foot cost model used to calculate CRV.

Subsystem: The term subsystem in this report refers to a Uniformat Level 3 building systems category (e.g., B3010 - Roof Coverings; or B3020 – Roof Opening; or B3030 – Projections).

System: The term system in this report refers to a Uniformat Level 2 building system category (e.g., B30 – Roofing)

Weighted Average Condition Score (WACS): Each subsystem is scored 1-5 by the assessment team, with 1 being excellent and usually within the warranty period, and 5 being unsatisfactory/failed. These subsystem scores are weighted by system importance and combined to provide an overall building score.

WACS Score
1 = Excellent
2 = Good
3 = Fair
4 = Poor
5 = Failed

Commonly Used Abbreviations

AC = Asphalt concrete

ACT = Acoustic ceiling tile

A/V = Audio/video

AHU = Air handling unit

ASHRAE = American Society of Heating,
Refrigeration, & Air Conditioning Engineers

BUR = Built-up roofing

CCTV = Closed circuit television

CFH = Cubic feet per hour (of natural gas)

CFL = Compact fluorescent

CI = Cast iron

CMU = Concrete masonry unit

CO₂ = Carbon dioxide

CU = Condensing unit

Cx = Commissioning

DDC = Direct digital control

DHW = Domestic hot water

Dx = Direct expansion

EA = Each (measurable unit)

EF = Exhaust fan

EFIS = Exterior insulation finishing system

FRP = Fiber reinforced plastic

GI = Grease interceptor

GSHP = Ground-source heat pump

HID = High intensity discharge (lamps)

HM = Hollow metal

HVAC = Heating, ventilating, and air
conditioning

IT = Information technology

LF = Linear feet (measurable unit)

LED = Light emitting diode

LS = Lump sum (measurable unit)

MDF = Main distribution frame

OWS = Oil/water separator

PA = Public address

P-lam = Plastic laminate

PRV = Pressure regulating valve

PTAC = Packaged terminal air conditioning

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1.3 Included Facilities

The following facilities were included in the 2023 FCA.

Table 1. 2023 Assessed Facilities

Site	Facility	Address	Building Size (SF)
RCCMV Site	RCCMV	6505 176th Ave NE Redmond, WA 98052	20,491
Fire Station 11 Site	Fire Station 11 Building	8450 161st Ave NE Redmond, WA 98052	21,271
Fire Station 11 Site	Fire Station 11 Annex Building	8440 161st Ave NE Redmond, WA 98052	1,916
Fire Station 12 Site	Fire Station 12 Building	4211 148th Ave NE Bellevue, WA 98007	6,637
Fire Station 13 Site	Fire Station 13 Building	8701 208th Ave NE Redmond, WA 98053	6,548
Fire Station 14 Site	Fire Station 14 Building	5021 264th Ave NE Redmond, WA 98053	9,530
Fire Station 16 Site	Fire Station 16 Building	6502 185th Ave NE Redmond, WA 98052	9,852
Fire Station 16 Site	Fire Station 16 Shop Building	6502 185th Ave NE Redmond, WA 98052	5,625
Fire Station 17 Site	Fire Station 17 Building	16917 NE 116th St Redmond, WA 98052	19,397
Fire Station 18 Site	Fire Station 18 Building	22710 NE Alder Crest Dr. Redmond, WA 98053	7,714
Redmond Pool Site	Redmond Pool	17535 NE 104th St Redmond, WA 98052	12,554
Municipal Campus Site	Redmond City Hall	15670 NE 85th St. Redmond, WA 98052	113,068
Municipal Campus Site	Municipal Campus Parking Garage Building	8711 160th Ave NE Redmond, WA 98052	125,959
Municipal Campus Site	North SWAT Building		1,250
Municipal Campus Site	South SWAT Building		1,000
Municipal Campus Site	Public Safety Building	8701 160th Ave NE Redmond, WA 98052	94,975
Teen Center Site	Teen Center	16510 NE 79th St Redmond, WA 98052	8,600

2. Assessment Methodology

2.1 Technical Framework

The MENG Analysis assessment process is structured on the Unifomat building classification system. This system codifies building components into categories, systems, and subsystems. Each subsystem is assessed by a professional specialist in that area. The complete Unifomat breakdown used for this FCA is shown in **Table 2**.

Table 2. Unifomat Building Classification System – Buildings & Sites

Level 1 Category	Level 2 System	Level 3 Subsystem
A Substructure	A10 Foundations	A1010 Standard Foundations A1020 Special Foundations A1030 Slab On Grade
	A20 Basements	A2020 Basement Walls
B Shell	B10 Superstructure	B1010 Floor Construction B1020 Roof Construction
	B20 Exterior Closure	B2010 Exterior Walls B2020 Exterior Windows B2030 Exterior Doors
	B30 Roofing	B3010 Roof Coverings B3020 Roof Openings B3030 Projections
C Interiors	C10 Interior Construction	C1010 Partitions C1020 Interior Doors C1030 Fittings
	C20 Staircases	C2010 Stair Construction C2020 Stair Finishes
	C30 Interior Finishes	C3010 Wall Finishes C3020 Floor Finishes C3030 Ceiling Finishes
D Services	D10 Vertical Transportation	D1010 Elevators and Lifts D1090 Other Conveying Systems
	D20 Plumbing	D2010 Plumbing Fixtures D2020 Domestic Water Distribution D2030 Sanitary Waste D2040 Rainwater Drainage D2090 Other Plumbing Systems
	D30 HVAC	D3010 Energy Supply D3020 Heat Generating Systems D3030 Cooling Generating Systems D3040 HVAC Distribution Systems D3050 Terminal and Package Units D3060 Controls and Instrumentation D3090 Other HVAC Systems and Equipment
	D40 Fire Protection	D4010 Fire Protection Sprinkler Systems D4020 Stand-Pipe and Hose Systems D4030 Fire Protection Specialties D4090 Other Fire Protection Systems
	D50 Electrical	D5010 Electrical Service and Distribution D5020 Lighting and Branch Wiring D5032 Low Voltage Communication D5037 Low Voltage Fire Alarm D5038 Low Voltage Security D5039 Low Voltage Data D5090 Other Electrical Systems

Level 1 Category	Level 2 System	Level 3 Subsystem
E Equipment and Furnishings	E10 Equipment	E1010 Commercial Equipment E1020 Institutional Equipment E1030 Vehicular Equipment E1090 Other Equipment
	E20 Furnishings	E2010 Fixed Furnishings E2020 Moveable Furnishings
F Special Construction	F10 Special Construction	F1010 Special Structures F1020 Integrated Construction F1030 Special Construction Systems F1040 Special Facilities F1050 Special Controls and Instrumentation
G Sitework	G20 Site Improvements	G2010 Roadways
		G2020 Parking Lots
		G2030 Pedestrian Paving
		G2040 Site Development
		G2050 Landscaping
	G30 Site Civil / Mechanical Utilities	G3010 Water Supply
		G3020 Sanitary Sewer
		G3030 Storm Sewer
		G3040 Heating Distribution
		G3050 Cooling Distribution
		G3060 Fuel Distribution
	G40 Site Electrical Utilities	G4010 Electrical Distribution
		G4020 Site Lighting
	G90 Other Site Construction	G4030 Site Communications and Security
		G9010 Service and Pedestrian Tunnels
G9090 Other Site Systems		

2.2 Team

The primary assessment team was composed of three staff: one focused on architectural, site civil, and structural elements; another on mechanical, electrical, and plumbing systems, and a third MEP specialist who was responsible for documenting all the pieces of major maintainable equipment for the equipment inventory deliverable.

2.3 Preparation

The preparation phase included:

- Reviewing names, ages, sizes, and other details of the scoped facilities
- Designating site areas (for larger sites with multiple buildings)
- Establishing documentation parameters and categories
- Gathering and reviewing building plans and past reports
- Preparing and distributing facility questionnaires
- Interviewing knowledgeable maintenance staff

2.4 Assessments

The purpose of the pilot assessment is twofold. One, it is beneficial for the City to witness the process so they know what to expect when our team is onsite; and two, the City can review a single building report and have the chance to adjust reporting parameters before the rest of the buildings are reviewed. Fire Station 11 was selected as the pilot facility. On November 21, 2023, the MENG Analysis team met onsite to discuss the history and known issues of the facility with Redmond maintenance staff before moving on to the physical assessments.

The balance of the onsite assessment work was completed in December, 2023. During this period, the City experience a heatwave with temperatures in the upper 90s. The two-person assessment team was supplemented by an additional MEP specialist who was responsible for documenting all the pieces of major maintainable equipment for the equipment inventory deliverable.

2.5 Data Review & Costing

Data QC

All the field data was reviewed for completeness and consistency before being sent on to the cost estimator for review and estimating.

Cost Estimating

An independent cost estimator was used to estimate the costs of the observed deficiencies, as well as to develop representative models for estimating long-term building maintenance costs. Costs are based on current and recent past marketplace results, modified using estimating and construction experience to capture unique or specific circumstances of each building project. Many of the marketplace per-square-foot costs are adjusted to account for differences in quantity, quality, location, and other unique circumstances of the City's facilities.

2.6 Reporting

This phase of the project includes providing draft and final building reports, a draft and final summary report, a presentation to City Council, and a Microsoft Power BI data dashboard.

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3. Findings

3.1 Condition Scores

Table 3 lists the FCI and WACS for each building and infrastructure. Because infrastructures do not have a CRV, there is no FCI.

Table 3. FCI and WACS

Facility	FCI	WACS
Fire Station 11 Annex Building	0.21	3.25
Fire Station 11 Building	0.19	3.14
Fire Station 11 Infrastructure	N/A	3.46
Fire Station 12 Building	0.18	3.08
Fire Station 12 Infrastructure	N/A	3.31
Fire Station 13 Building	0.18	3.09
Fire Station 13 Infrastructure	N/A	3.04
Fire Station 14 Building	0.12	2.64
Fire Station 14 Infrastructure	N/A	2.97
Fire Station 16 Building	0.12	2.58
Fire Station 16 Infrastructure	N/A	2.89
Fire Station 16 Shop Building	0.11	2.62
Fire Station 17 Building	0.13	2.62
Fire Station 17 Infrastructure	N/A	2.57
Fire Station 18 Building	0.11	2.57
Fire Station 18 Infrastructure	N/A	2.28
Municipal Campus Infrastructure	N/A	2.82
Municipal Campus Parking Garage Building	0.12	2.86
North SWAT Building	0.04	2.64
Public Safety Building	0.16	2.92
RCCMV	0.1	2.51
RCCMV Infrastructure	N/A	3.04
Redmond City Hall	0.09	2.38
Redmond Pool Building	0.11	2.7
Redmond Pool Infrastructure	N/A	3.23
South SWAT Building	0.04	2.72
Teen Center	0.23	3.39
Teen Center Infrastructure	N/A	3.08

3.2 Previous vs. Current Scores

MENG Analysis previously performed an FCA for Redmond in 2013. This section compares the 2013 findings to the 2023 finding. Since 2013, some facility names have changed so those are noted for clarity.

The color scale aligns with the information in the Power BI dashboard where green equals a better condition and red equals a worse condition.

Table 4. Change in FCI

Previous Name	Current Name	Previous FCI	Current FCI	Condition Change
Old Medic One Building	Fire Station 11 Annex Building	0.18	0.21	Worsened
Fire Station 11 Building	Fire Station 11 Building	0.21	0.19	Improved
Fire Station 12 Building	Fire Station 12 Building	0.18	0.18	Constant
Fire Station 13 Building	Fire Station 13 Building	0.20	0.18	Improved
Fire Station 14 Building	Fire Station 14 Building	0.12	0.12	Constant
Fire Station 16 Building	Fire Station 16 Building	0.14	0.12	Improved
Fire Station 16 Shop Building	Fire Station 16 Shop Building	0.11	0.11	Constant
Fire Station 17 Building	Fire Station 17 Building	0.02	0.13	Worsened
Fire Station 18 Building	Fire Station 18 Building	0.06	0.11	Worsened
Municipal Campus Parking Garage Building	Municipal Campus Parking Garage Building	0.10	0.12	Worsened
Police Garage North Building	North SWAT Building	0.02	0.04	Worsened
Public Safety Building	Public Safety Building	0.14	0.16	Worsened
City Hall Building	Redmond City Hall	0.05	0.09	Worsened
Police Garage South Building	South SWAT Building	0.02	0.04	Worsened
Not Previously Assessed	RCCMV	N/A	0.10	N/A
Hartman Park Swimming Pool Building	Redmond Pool Building	0.23	0.11	Improved
Old Fire House Teen Center Building	Teen Center	0.22	0.23	Worsened

Although several buildings have had their FCI score worsen (increase), this is normal, and does not necessarily indicate a lack of appropriate maintenance.

Facilities with a constant FCI indicate that the maintenance performed was sufficient to maintain the same quantity of maintenance backlog.

Facilities with an improved (decreased) FCI reduced their maintenance backlog.

Table 5. Scale of FCI Change

Facility	Rounded Comparison	
Fire Station 17 Building		-0.11
Fire Station 18 Building		-0.05
Redmond City Hall		-0.04
Fire Station 11 Annex Building		-0.03
North SWAT Building		-0.02
South SWAT Building		-0.02
Municipal Campus Parking Garage Building		-0.02
Public Safety Building		-0.02
Teen Center		-0.01
Fire Station 11 Building		0.02
Fire Station 16 Building		0.02
Fire Station 13 Building		0.02
Redmond Pool Building		0.12
Fire Station 16 Shop Building	Constant	
Fire Station 14 Building	Constant	
Fire Station 12 Building	Constant	
RCCMV	N/A	

Teen Center

The Teen Center's FCI puts its condition in the "poor" range. Although it's in poor condition, it is notable that it has only worsened slightly over the last 10 years. This can be attributed to excellent work from the City's maintenance staff. Keeping poorer condition buildings running is a difficult task which is further complicated by the presence of hazardous materials, which make any repair or maintenance project more complicated and challenging. Separately from this FCA, the City conducted a hazardous materials study for the Teen Center. This report is included in the Appendix for reference. Based on its age and condition, we recommend completing a more detailed analysis of the Teen Center, including a structural/seismic assessment, a more detailed hazmat assessment, and space use analysis. It is likely that this building is not worth the level of investment that would be required to bring it back to a fully functional and hazardous material-free space.

Public Safety Building

The City is aware of maintenance items needed at the Public Safety Building. Several small projects have been funded and implemented. A large upgrade is planned for this facility but has not yet had its budget approved.

Fire Station 17

The City is also aware of several significant issues at Fire Station 17. Miller Hayashi Architects are undertaking a project that replaces the siding and improves the building envelope in the spring to summer of 2024.

Fire Station 11

Fire Station 11 is in the third worst condition after the Teen Center and Fire Station 11 Annex. The City is aware of several issues and is in the process of preparing a business case to determine the best option for improving this facility.

3.3 Costs

Total estimated costs are shown in Table 6.

Table 6. Total Estimated Costs

Facility	ODs (2023 – 2028)	PRs (2029 – 2041)	Total	Additional Opportunities
Fire Station 11 Annex Building	\$371,000	\$196,000	\$567,000	\$175,000
Fire Station 11 Building	\$2,341,000	\$8,183,000	\$10,524,000	\$2,574,000
Fire Station 11 Infrastructure	\$1,008,000	N/A	\$1,008,000	\$1,135,000
Fire Station 12 Building	\$1,385,000	\$1,960,000	\$3,345,000	\$1,080,000
Fire Station 12 Infrastructure	\$321,000	N/A	\$321,000	\$1,022,000
Fire Station 13 Building	\$1,213,000	\$2,676,000	\$3,889,000	\$905,000
Fire Station 13 Infrastructure	\$207,000	N/A	\$207,000	\$630,000
Fire Station 14 Building	\$571,000	\$2,577,000	\$3,148,000	\$736,000
Fire Station 14 Infrastructure	\$214,000	N/A	\$214,000	\$131,000
Fire Station 16 Building	\$336,000	\$3,237,000	\$3,573,000	\$842,000
Fire Station 16 Infrastructure	\$230,000	N/A	\$230,000	\$701,000
Fire Station 16 Shop Building	\$302,000	\$999,000	\$1,301,000	\$518,000
Fire Station 17 Building	\$1,839,000	\$5,995,000	\$7,834,000	\$420,000
Fire Station 17 Infrastructure	\$110,000	N/A	\$110,000	\$164,000
Fire Station 18 Building	\$749,000	\$1,959,000	\$2,708,000	\$1,589,000
Fire Station 18 Infrastructure	\$50,000	N/A	\$50,000	\$488,000
Municipal Campus Infrastructure	\$251,000	N/A	\$251,000	\$24,848,000
Municipal Campus Parking Garage	\$1,105,000	\$3,155,000	\$4,260,000	\$703,000
North SWAT Building	\$487,000	\$25,000	\$512,000	\$61,000
Public Safety Building	\$5,973,000	\$27,941,000	\$33,914,000	\$10,599,000
Redmond City Hall	\$1,354,000	\$27,572,000	\$28,926,000	\$3,323,000
South SWAT Building	\$460,000	\$29,000	\$489,000	\$57,000
RCCMV	\$1,735,000	\$3,970,000	\$5,705,000	\$3,906,000
RCCMV Infrastructure	\$620,000	N/A	\$620,000	\$398,000
Redmond Pool Building	\$1,030,000	\$5,510,000	\$6,540,000	\$3,712,000
Redmond Pool Infrastructure	\$234,000	N/A	\$234,000	\$62,000
Teen Center	\$1,992,000	\$1,075,000	\$3,067,000	\$1,358,000
Teen Center Infrastructure	\$98,000	N/A	\$98,000	\$319,000

LEGEND

Total OD <\$250k	+\$500k - \$1M
+\$250k - \$500k	+\$1M

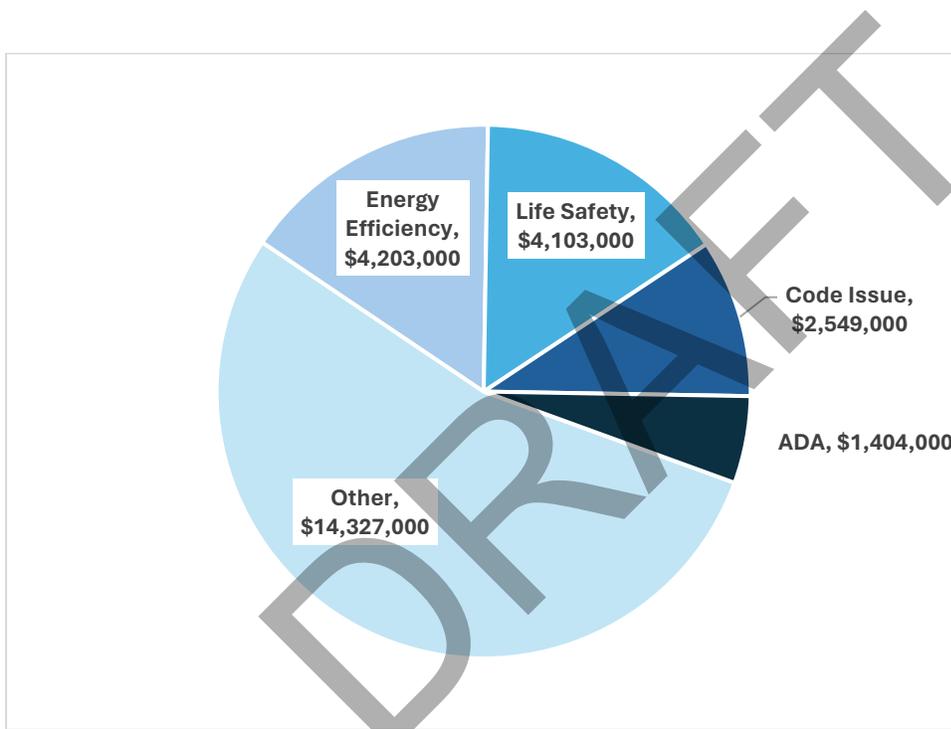
3.4 Deficiencies

For a notable issue to be considered an Observed Deficiency (OD), the surveyor must think that the issue needs to be addressed within the next 5-year period, with an expected direct cost of \$5,000 or greater. Each deficiency is assigned an action type to help prioritize the order in which it should be addressed. The following pie chart shows the ODs broken out by action type.

For the 2023 FCA, ODs total approximately \$26.6M.

Priority ODs are those in the “Life Safety” and “Code Issue” categories, which total nearly \$6.7M. Detailed descriptions, photos, and cost estimates of these deficiencies can be found in the *Facility Details Report*.

Figure 1. Deficiencies by Action Type



As seen in Figure 1, the majority of the facilities' deficiencies fall under the “Other” category. This is the broadest category type and captures many aesthetic and general building issues, such as worn or stained carpet, stained or damaged ceiling tiles, worn or scratched doors and walls, aged roofing and plumbing, and many other others. The largest deficiency in this category is related to the siding at Fire Station 17. The City is aware of this issue and has a team under contract to correct it over the spring-summer of 2024.

3.5 Significant Deficiencies

286 deficiencies were identified across all buildings and site infrastructures. Of these, 24 exceed \$300k each. Table 7 lists these deficiencies from most to least expensive. Facilities and their sites with more than one large deficiency are highlighted.

Table 7. Highest Cost Deficiencies (repeat buildings highlighted)

Facility	Subsystem	Material	Action Type	Subsystem Priority	OD Total
Public Safety Building	D1010 Elevators and Lifts	Elevator	ADA	Medium	\$1,392,000
Fire Station 17 Building	B2010 Exterior Walls	Exterior Siding	Other	High	\$991,000
Public Safety Building	D3060 Controls and Instrumentation	Controls	Other	Medium	\$974,000
Public Safety Building	D3040 HVAC Distribution Systems	Water Source Heat Pumps	Other	Medium	\$782,000
Fire Station 13 Building	B1020 Roof Construction	Wood Decking	Life Safety	Highest	\$662,000
RCCMV Infrastructure	G4010 Electrical Distribution	Power Quality	Life Safety	High	\$620,000
Teen Center	B3010 Roof Coverings	Torch Down Roof	Other	Highest	\$572,000
Municipal Campus Parking Garage	B2010 Exterior Walls	Concrete Paint	Other	High	\$555,000
Redmond City Hall	D5037 Low Voltage Fire Alarm	Fire Alarm	Life Safety	Highest	\$555,000
Fire Station 11 Infrastructure	G2020 Parking Lots	Asphalt Parking Lots	Other	Low	\$480,000
Fire Station 18 Building	B3010 Roof Coverings	Asphalt Shingles	Other	Highest	\$467,000
RCCMV	D3020 Heat Generating Systems	Boilers	Energy Efficiency	High	\$464,000
Redmond City Hall	E1030 Vehicular Equipment	Waste management	Code Issue	Low	\$447,000
North SWAT Building	B2010 Exterior Walls	Cement plaster siding	Other	High	\$421,000
Fire Station 11 Building	D3050 Terminal and Package Units	Roof Top Units	Other	Medium	\$406,000
Fire Station 11 Building	D3090 Other HVAC Systems and Equipment	Vehicle Engine Exhaust	Other	Medium	\$403,000
Fire Station 12 Building	B3010 Roof Coverings	Built-Up Roof	Other	Highest	\$401,000
Fire Station 11 Infrastructure	G3030 Storm Sewer	Storm	Code Issue	Medium	\$397,000
Redmond Pool Building	D3040 HVAC Distribution Systems	Ductwork	Other	Medium	\$392,000
RCCMV	D3060 Controls and Instrumentation	Control System	Energy Efficiency	Medium	\$372,000
Public Safety Building	D5032 Low Voltage Communication	Cable plant	Code Issue	Low	\$363,000
Fire Station 11 Building	D2030 Sanitary Waste	Drain, Waste, and Vent	Other	Medium	\$359,000
South SWAT Building	B2010 Exterior Walls	Cement plaster siding	Other	High	\$316,000
Fire Station 11 Building	B3010 Roof Coverings	Membrane Roofing	Other	Highest	\$306,000

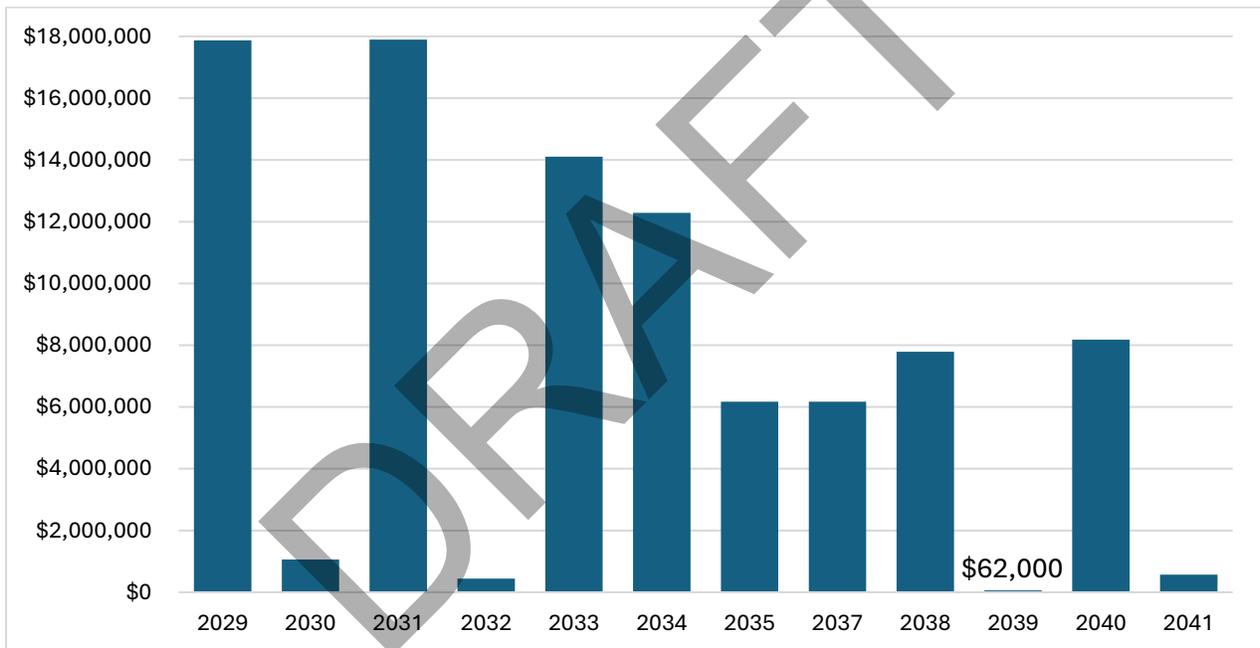
Pages 15 to 23 show a graphic representation of the ODs by Site, broken out to Unifomat Level 2 Systems. These graphics can be viewed in greater detail in the Microsoft BI Dashboard that accompanies this report.

3.6 Predicted Renewals

Predicted Renewals (PRs) are modeled for the years 2029 – 2042, based on the system type, age, current condition, expected useful life, and anticipated replacement cost. These costs are based on predictive models, and therefore should be used as a high-level, long-term planning tool. Some systems may fail sooner or last longer than the model predicts based on maintenance practices, intensity of use, weather, or other variables.

For the period of 2029 – 2042, the estimated PR cost is approximately \$97M. The highest cost years are expected to be 2029 and 2031; each just under \$18M. Years omitted from the chart below have no predicted renewals occurring in that year. 2039's PR total is approximately \$62K.

Figure 2. Predicted Renewals Per Year



Pages 24 to 32 show a graphic representation of the total predicted renewals by site, broken out by Unifomat Level 2 categories.

Deficiencies by System Level

Figure 3. Fire Station 11 Building

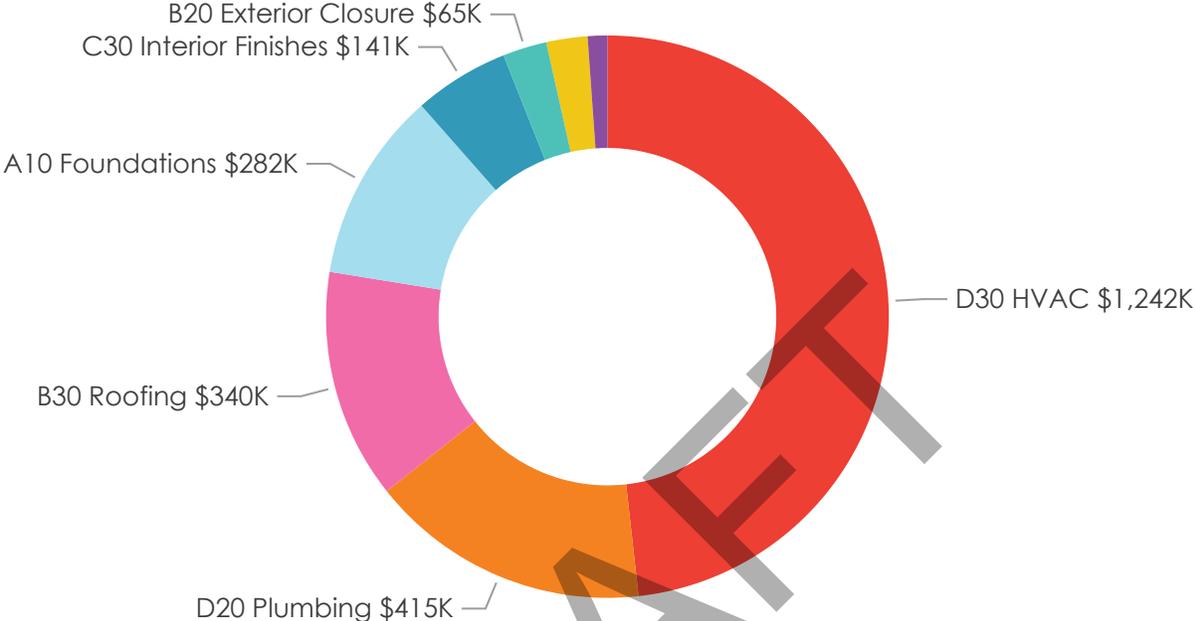


Figure 4. Fire Station 11 Annex

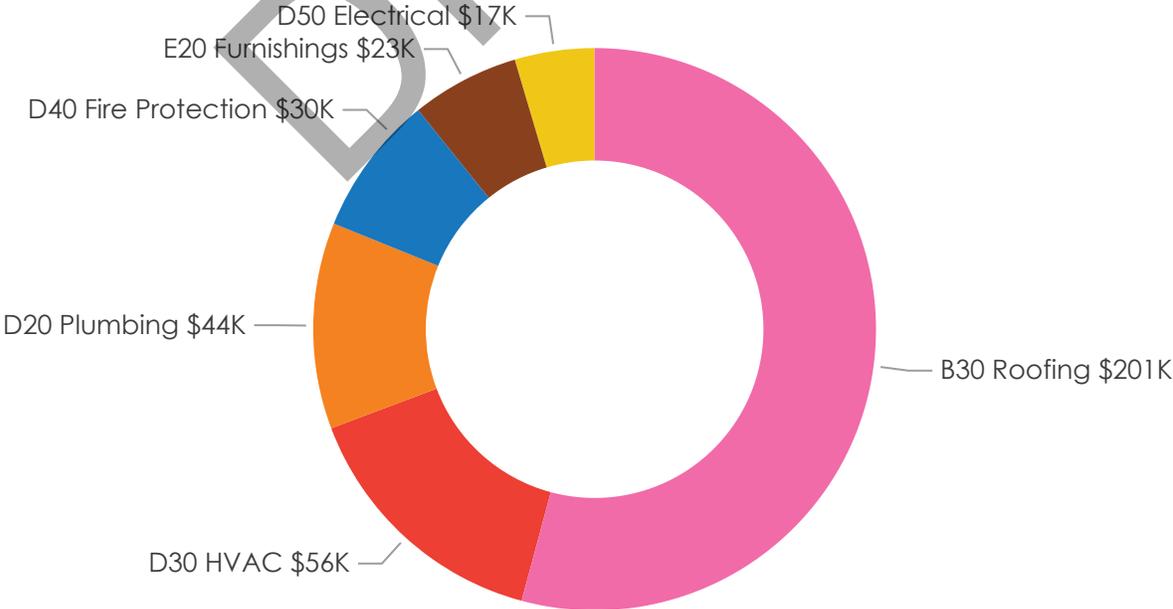


Figure 5. Fire Station 12 Building

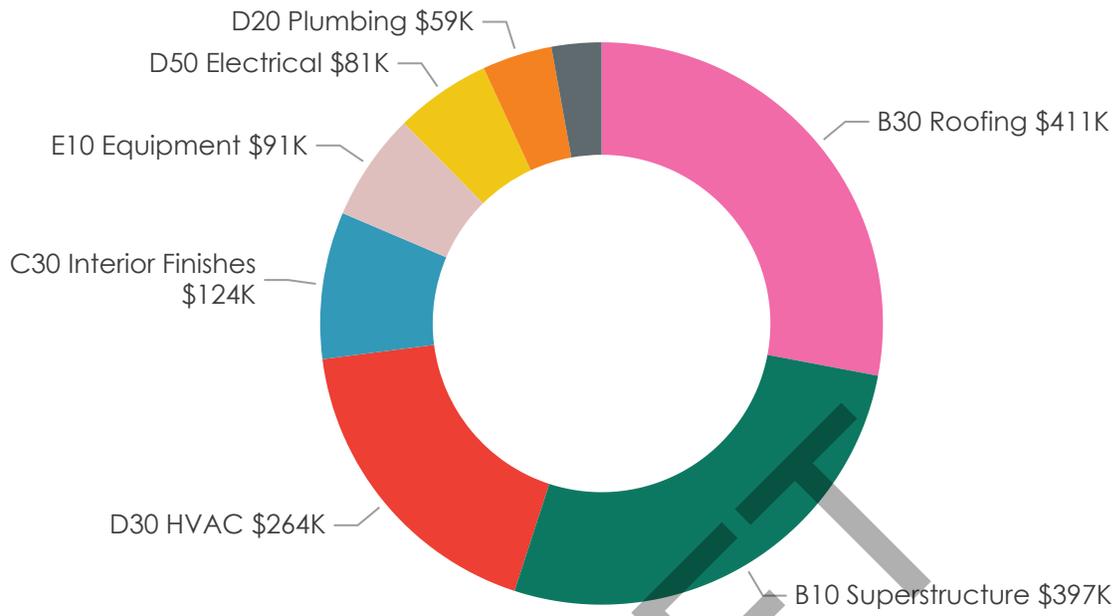


Figure 6. Fire Station 13 Building

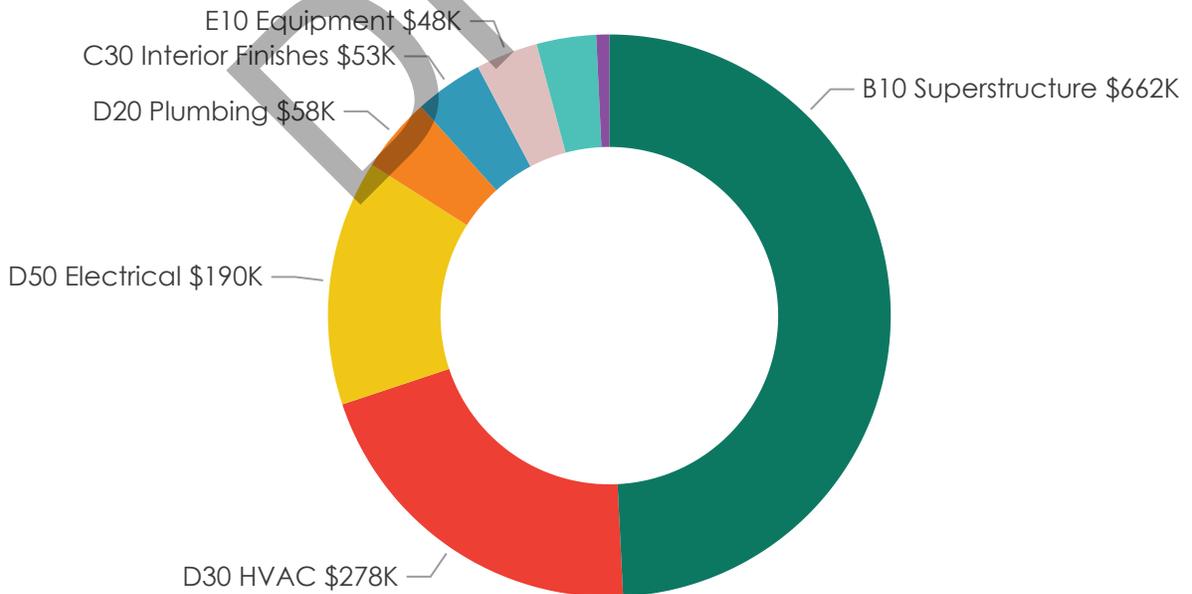


Figure 7. Fire Station 14 Building

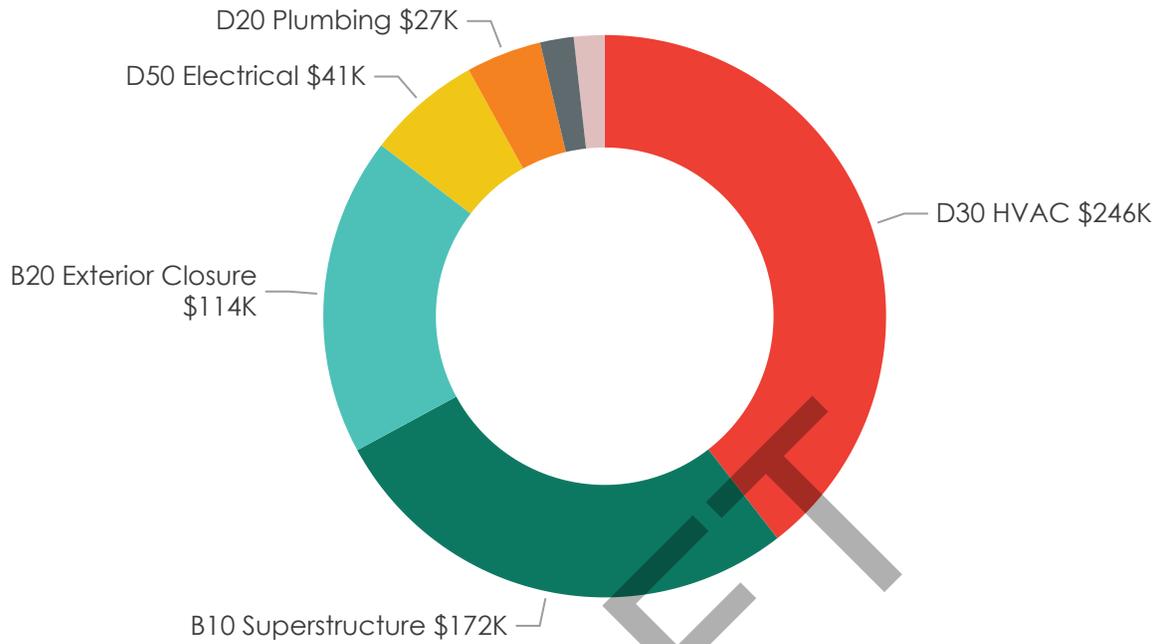


Figure 8. Fire Station 16 Building

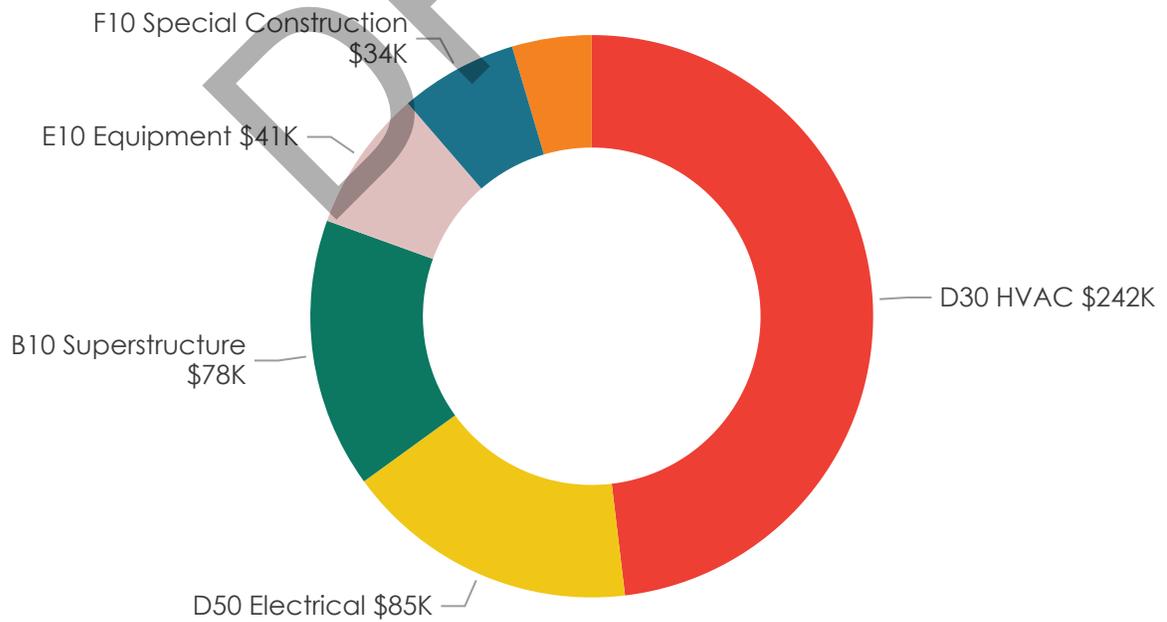


Figure 9. Fire Station 16 Shop

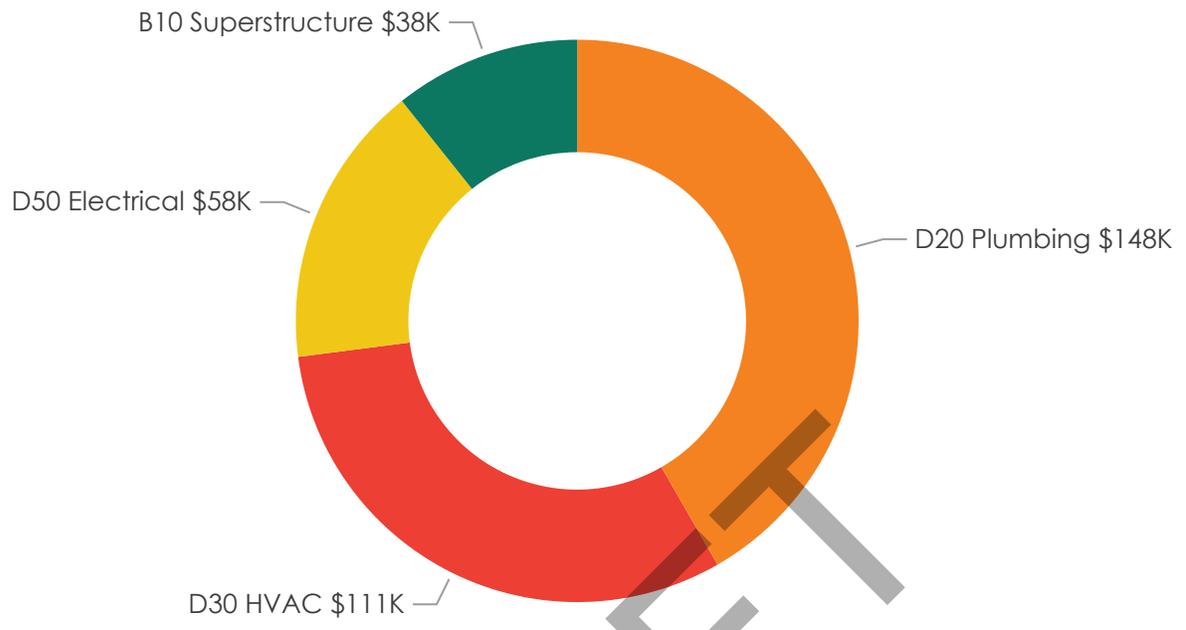


Figure 10. Fire Station 17 Building

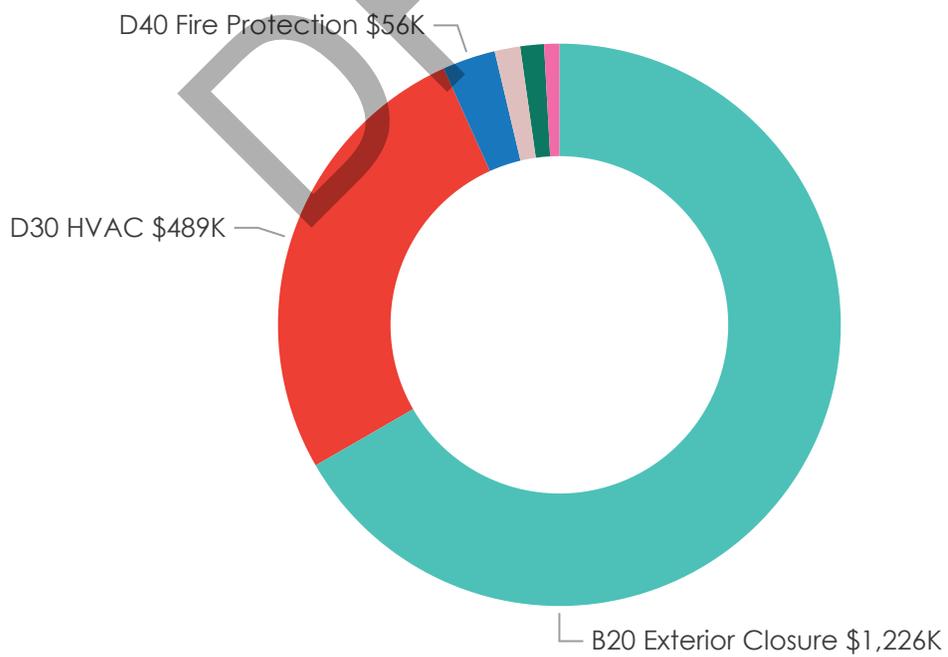


Figure 11. Fire Station 18 Building

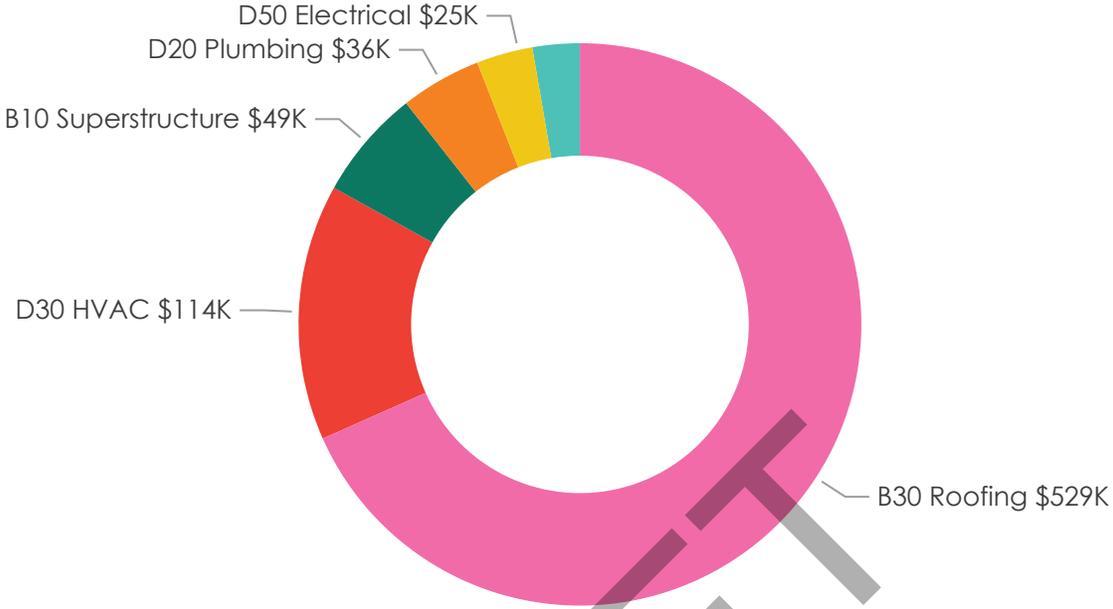


Figure 12. Redmond City Hall

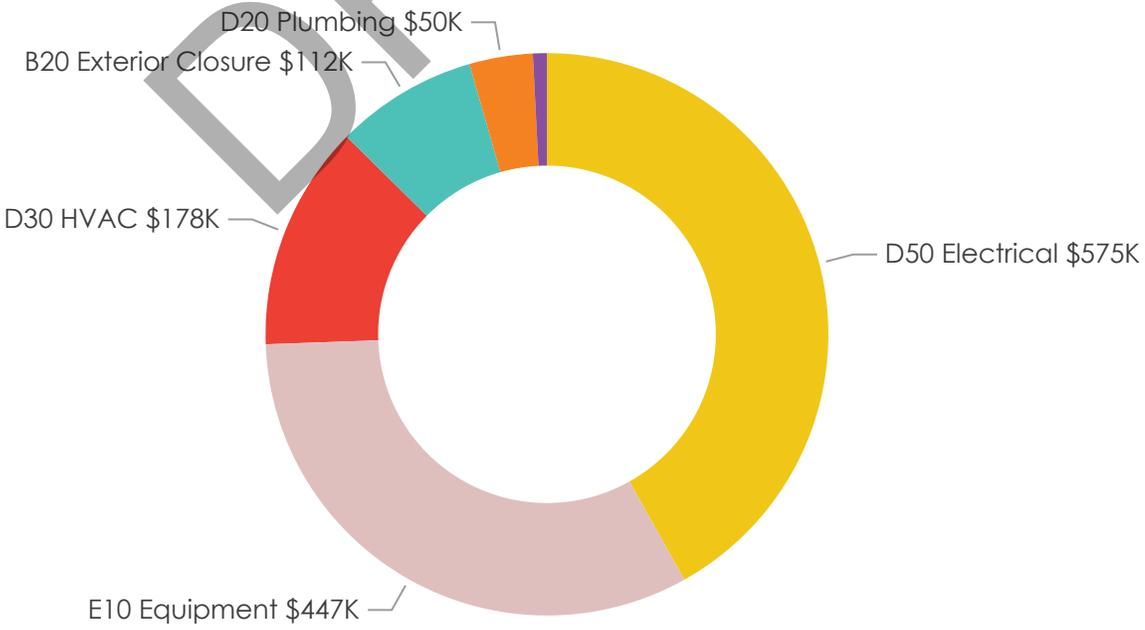


Figure 13. Public Safety Building

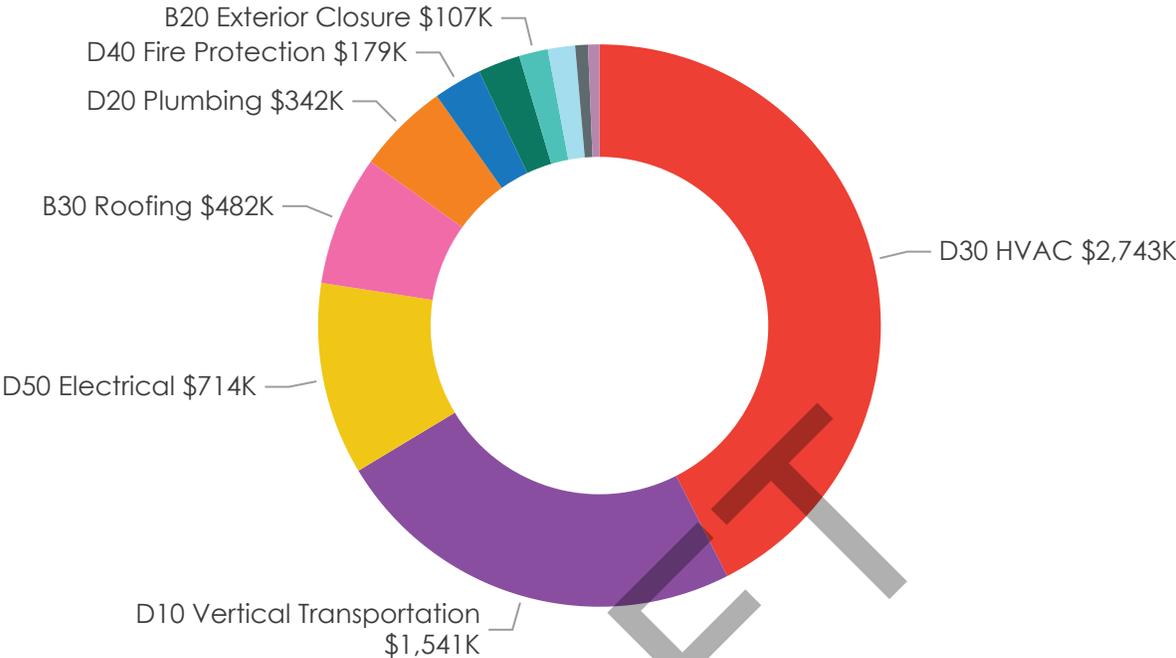


Figure 14. Municipal Campus Parking Garage

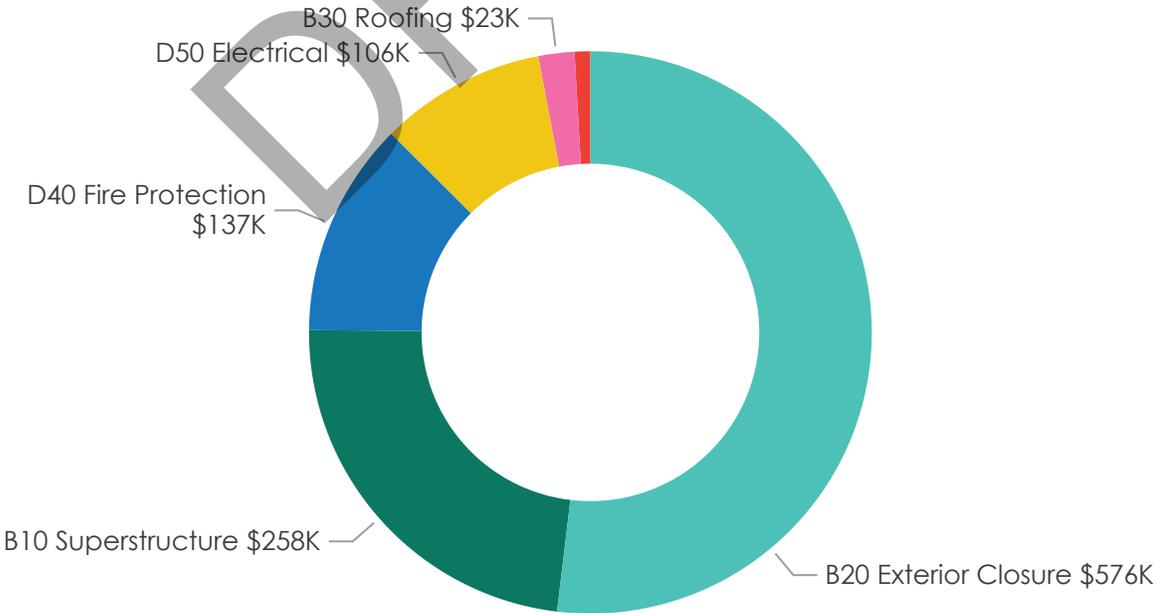


Figure 15. North SWAT Building

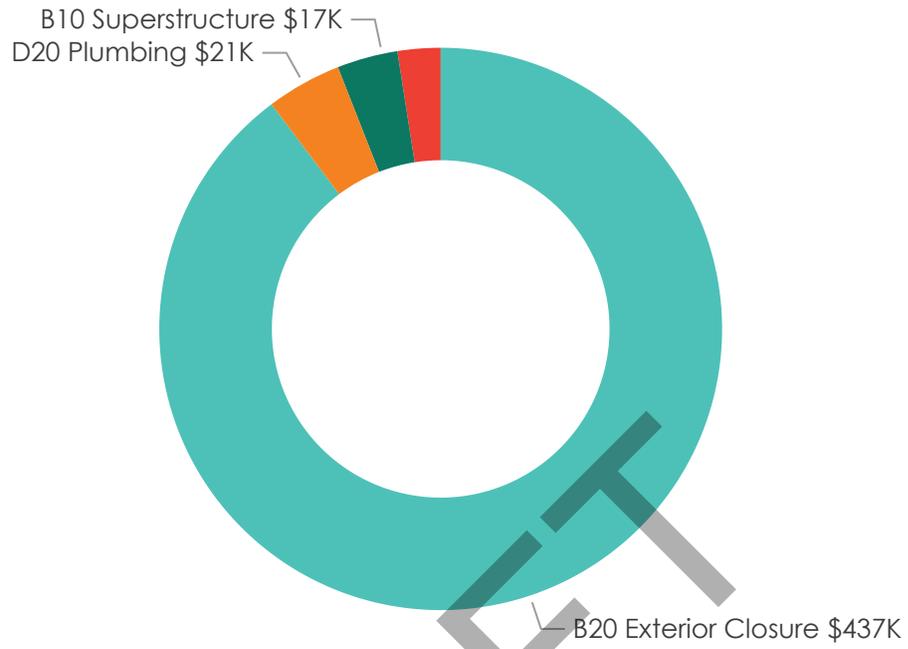


Figure 16. South SWAT Building

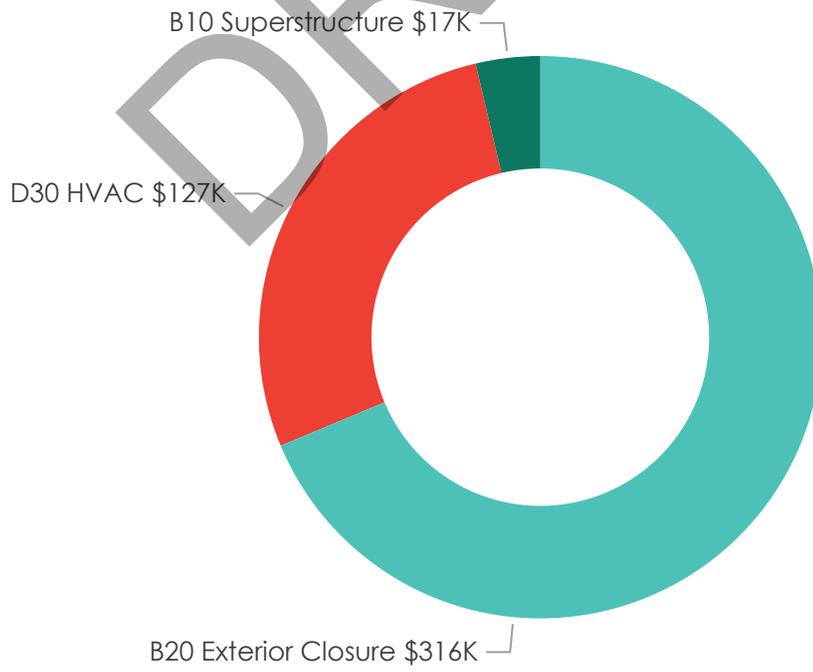


Figure 17. RCCMV

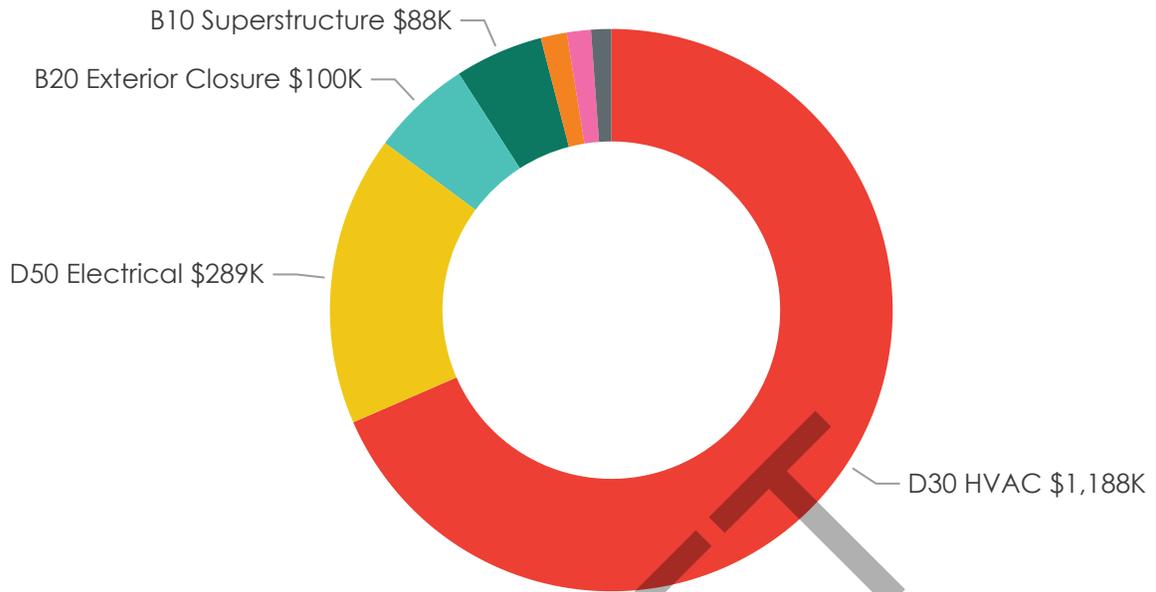


Figure 18. Redmond Pool Building

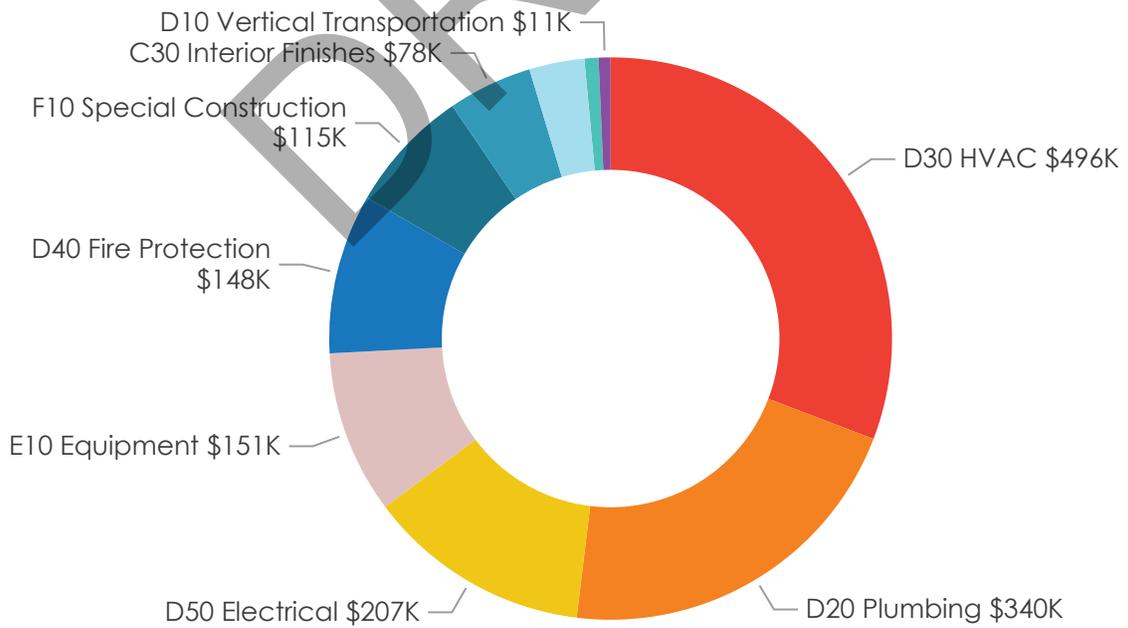
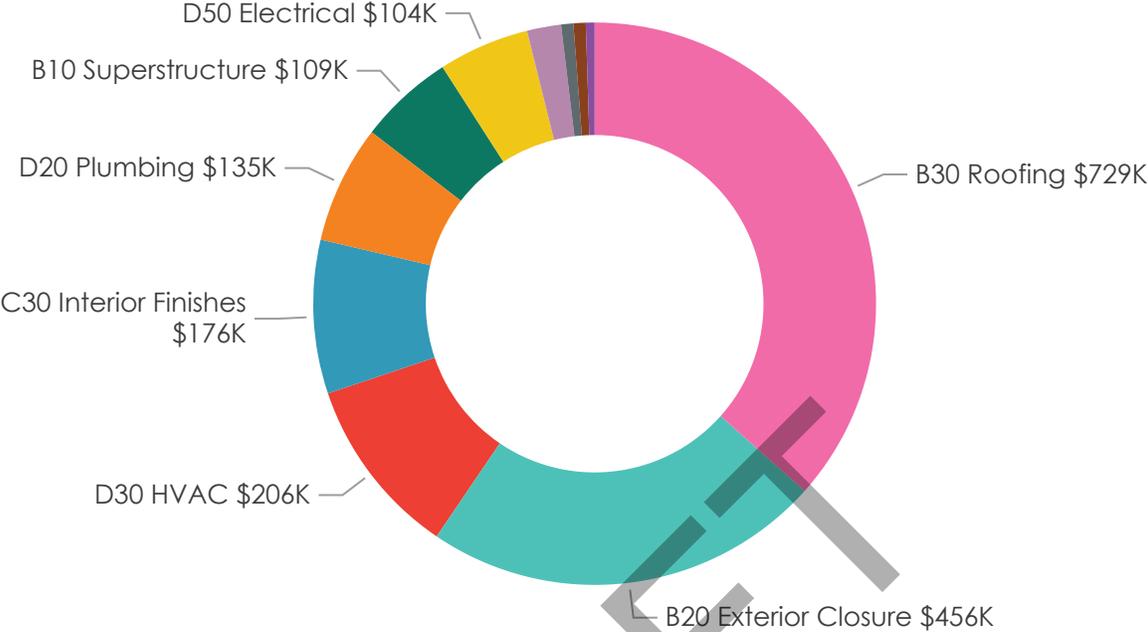


Figure 19. Teen Center



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Predicted Renewals at System Level

Figure 20. Fire Station 11 Building

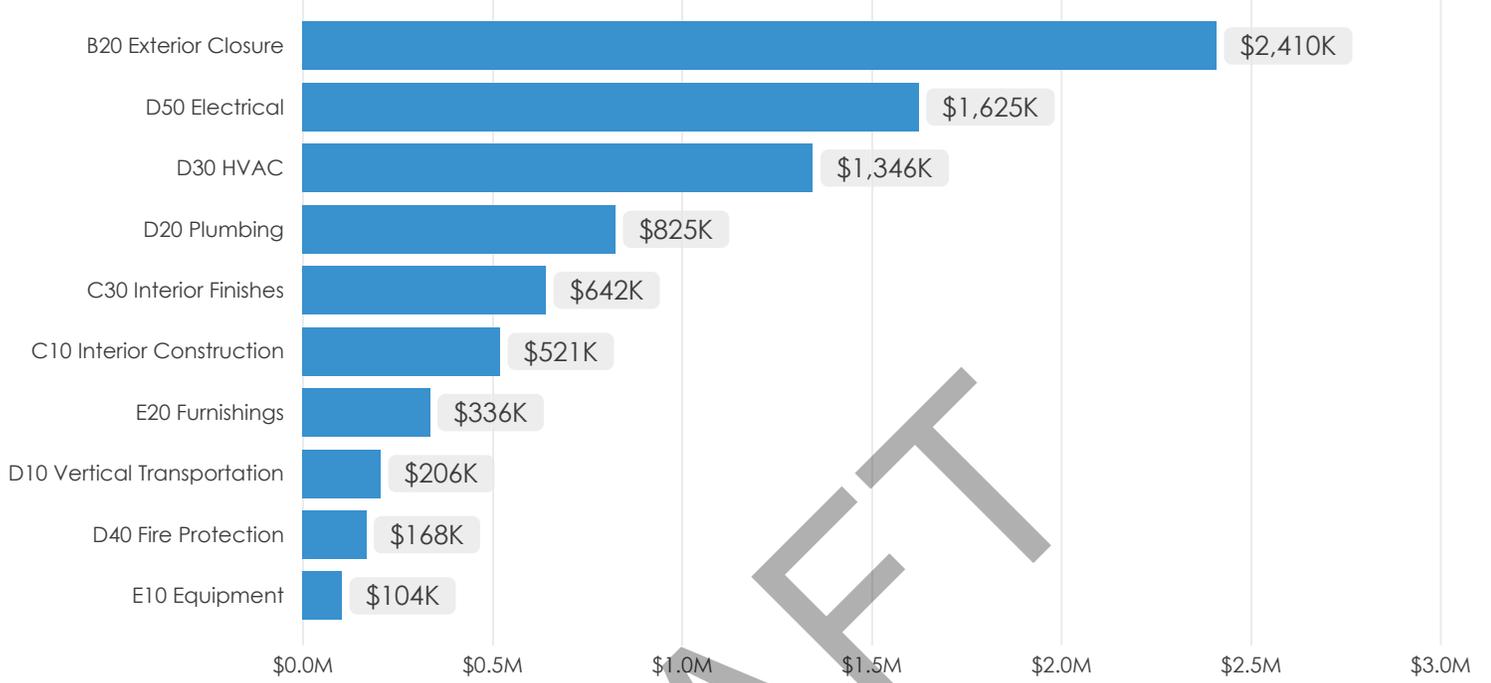


Figure 21. Fire Station 11 Annex

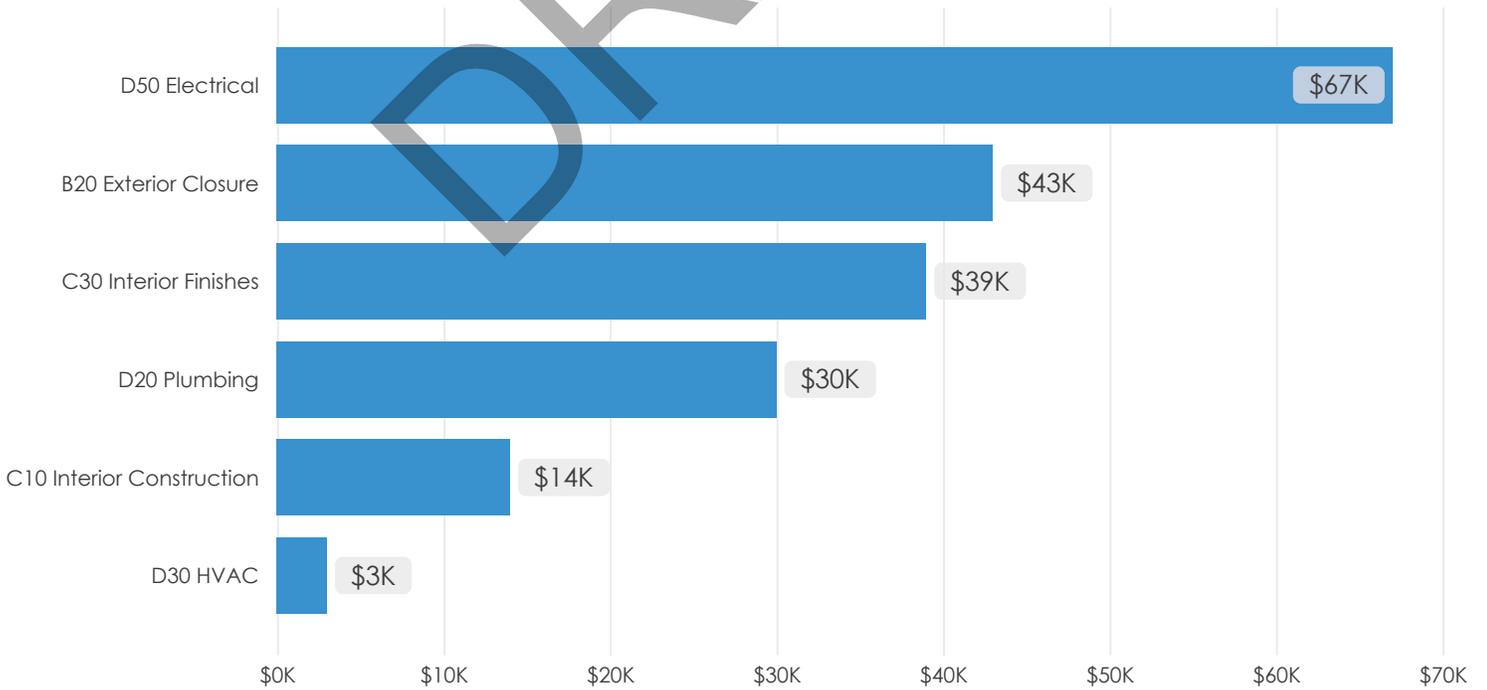


Figure 22. Fire Station 12 Building

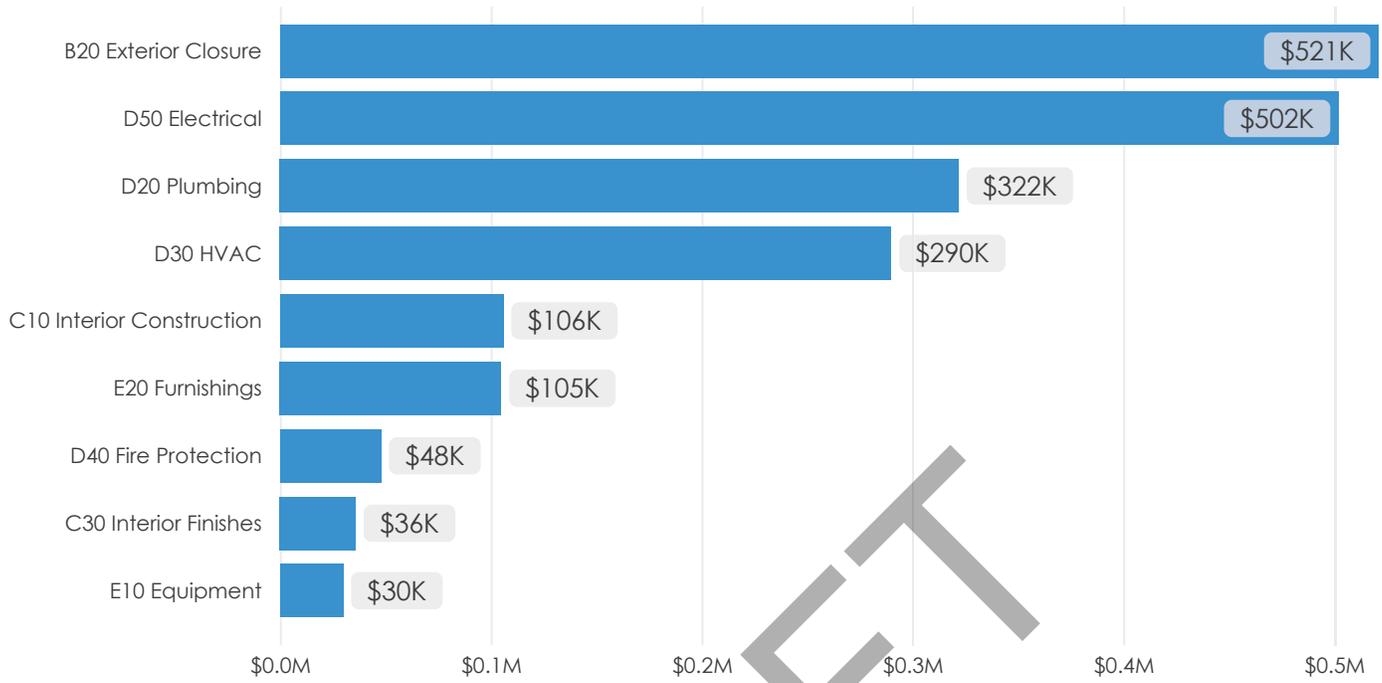


Figure 23. Fire Station 13 Building

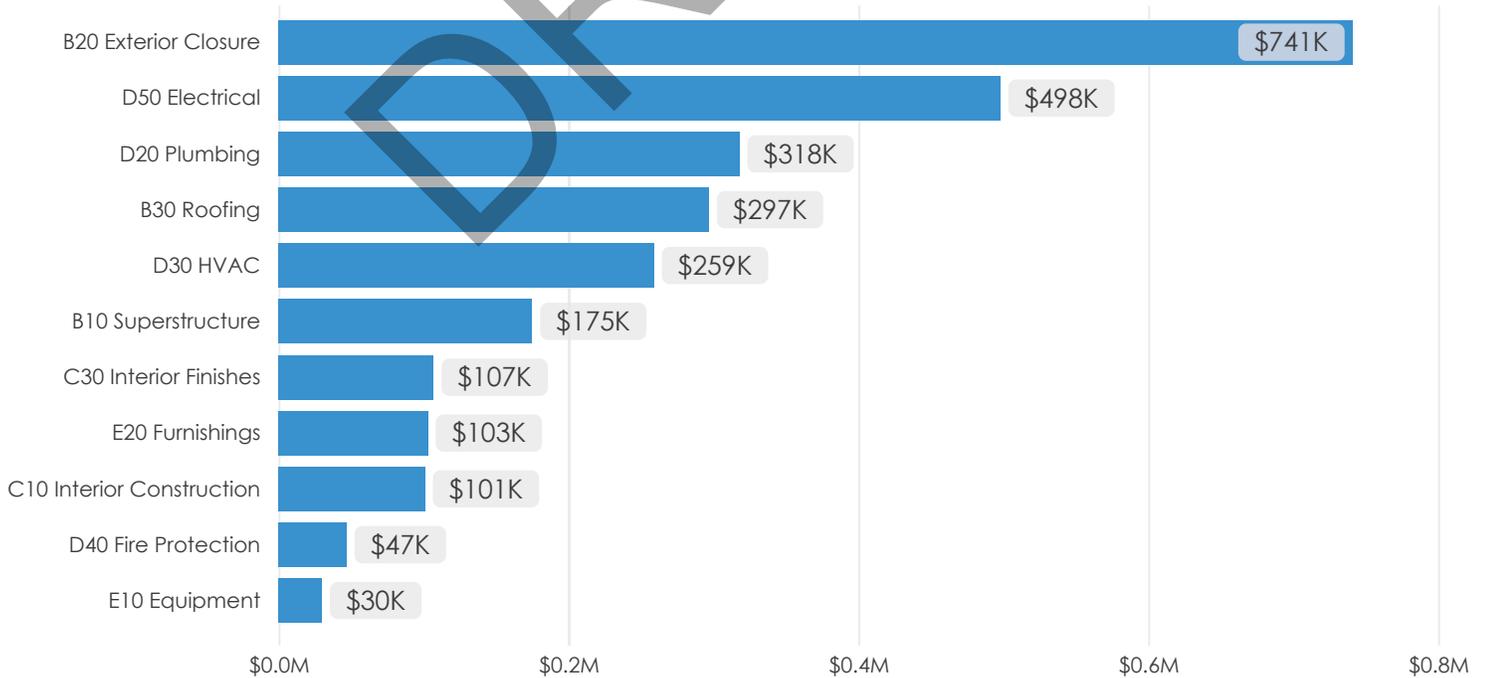


Figure 24. Fire Station 14 Building

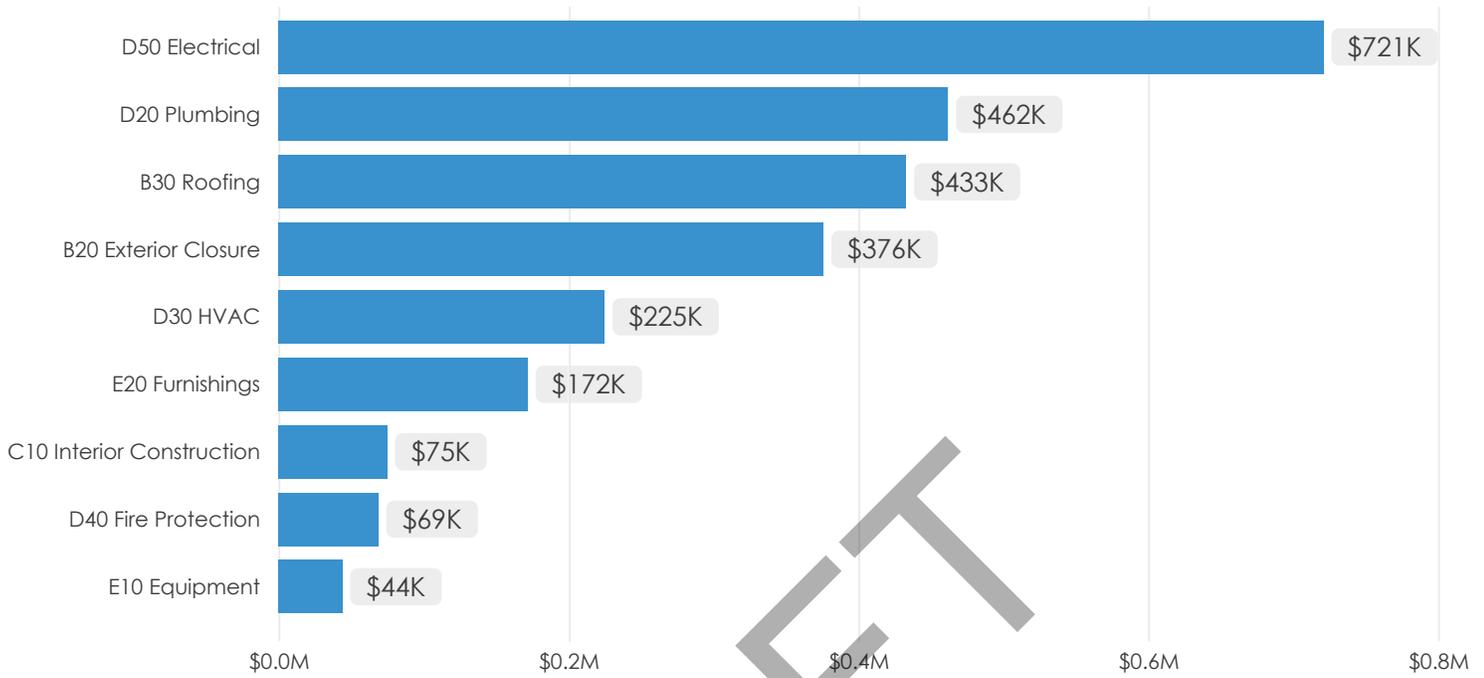


Figure 25. Fire Station 16 Building

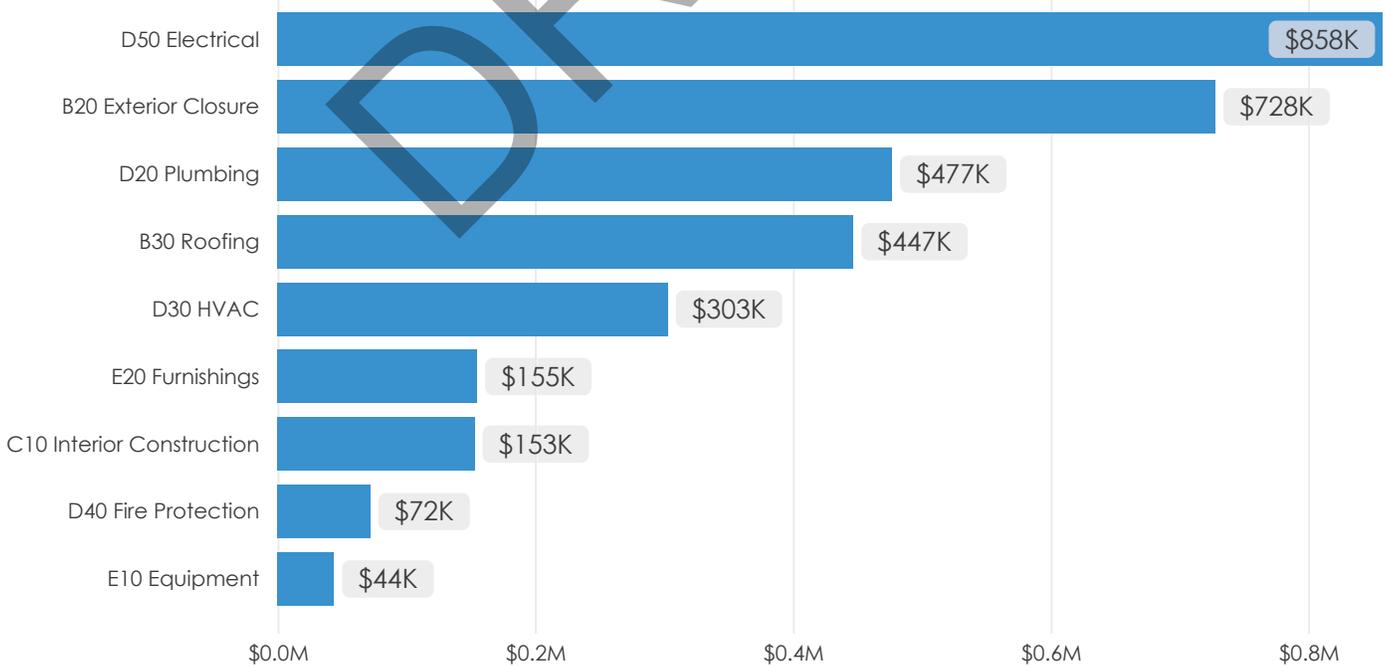


Figure 26. Fire Station 16 Shop Building

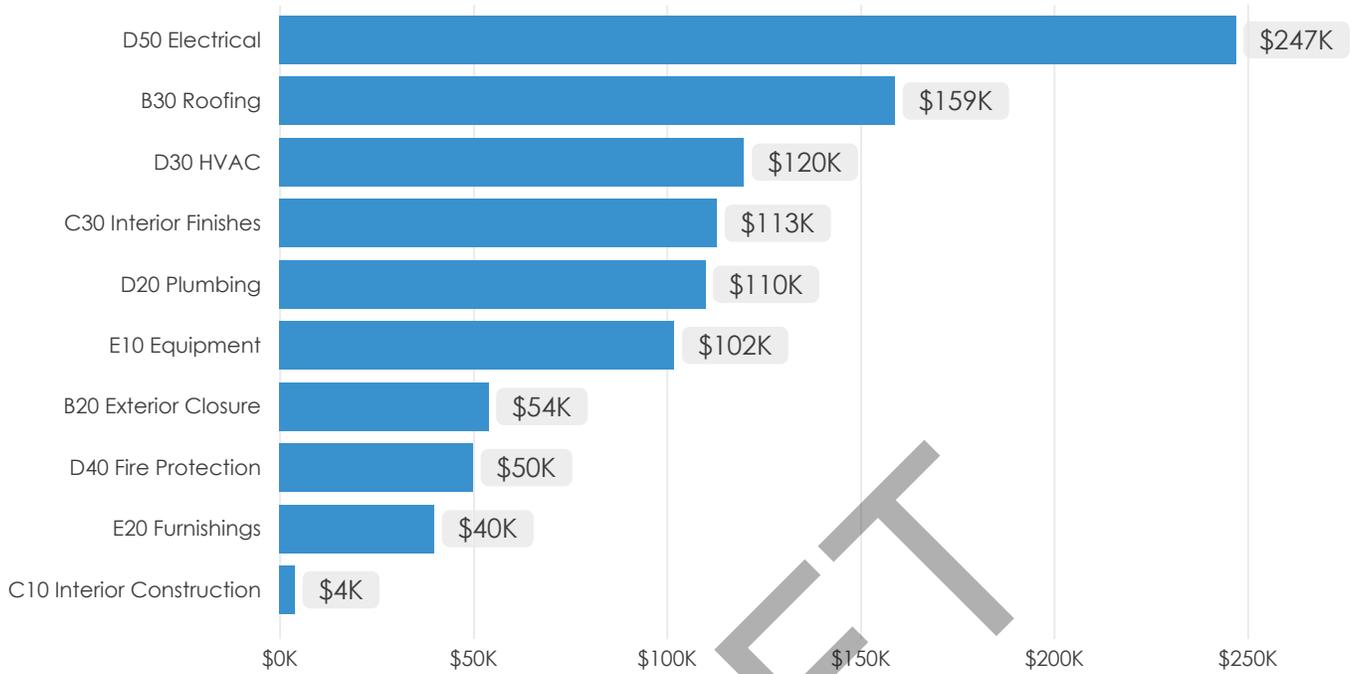


Figure 27. Fire Station 17 Building

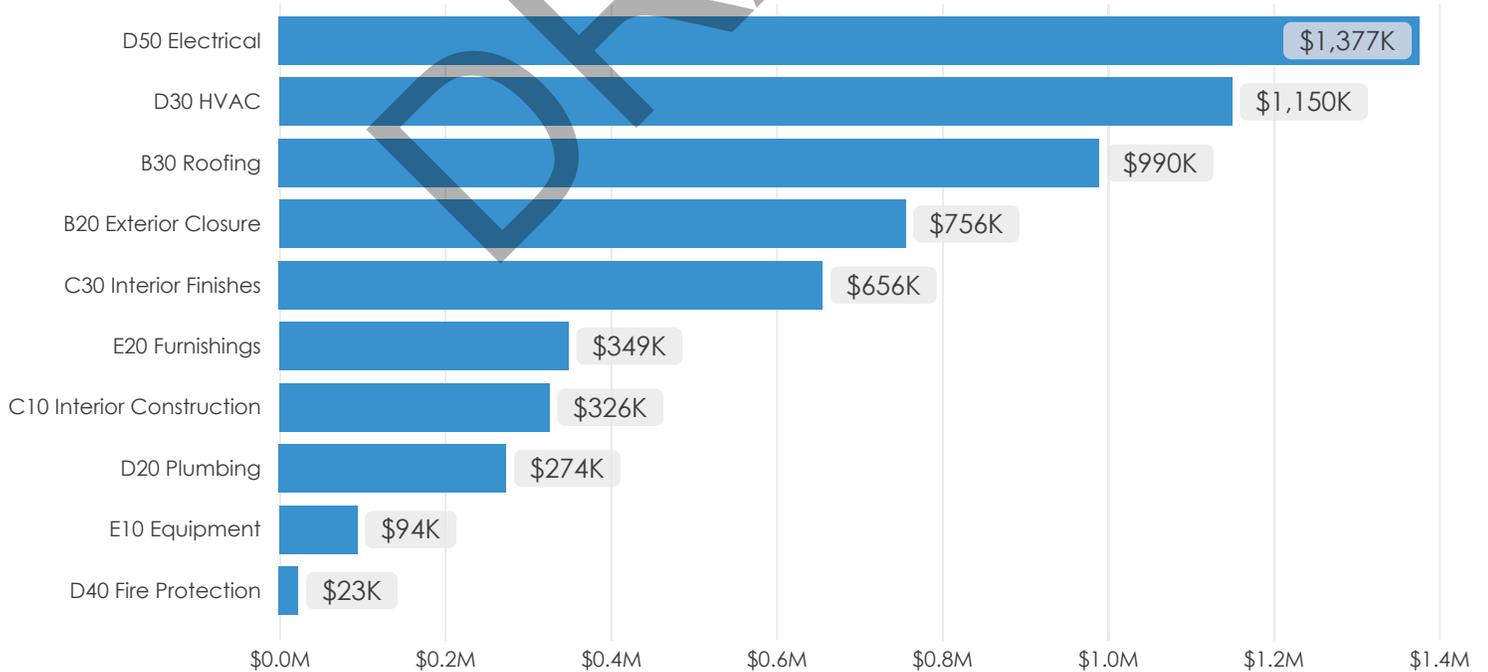


Figure 28. Fire Station 18 Building

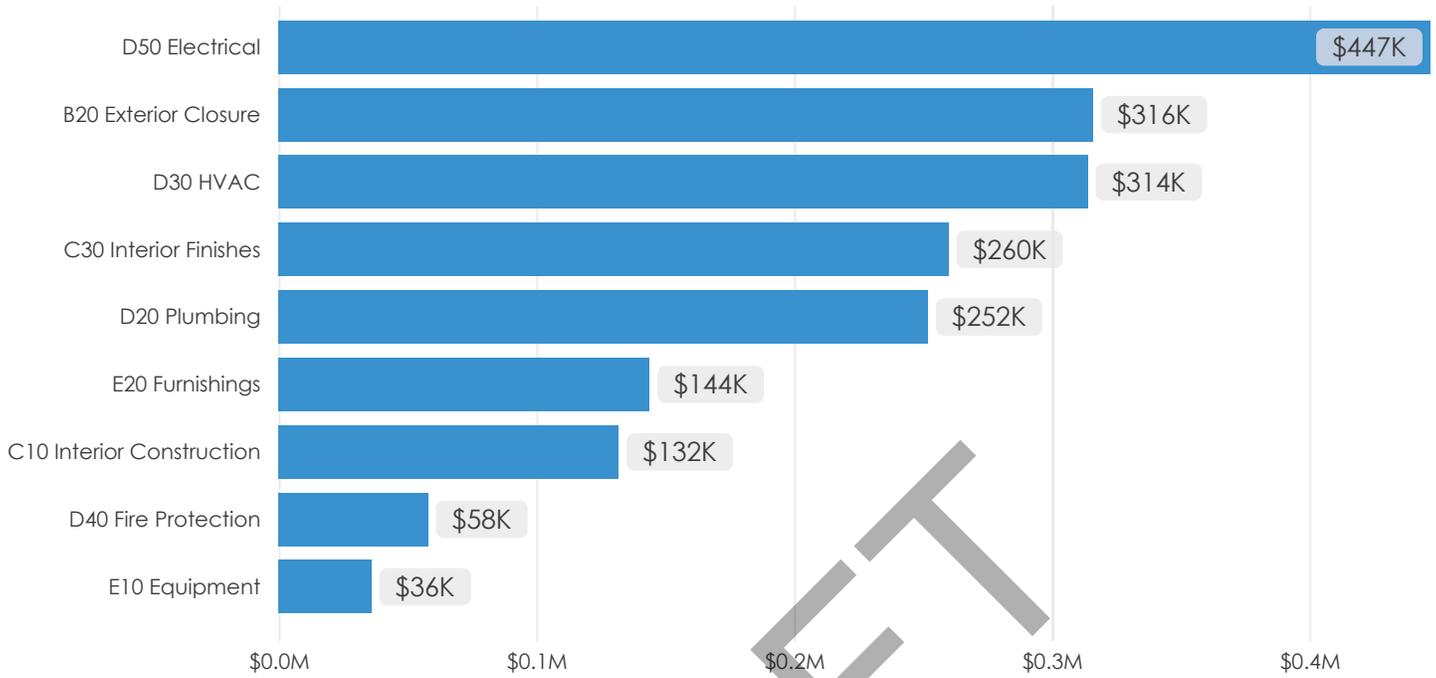


Figure 29. City Hall

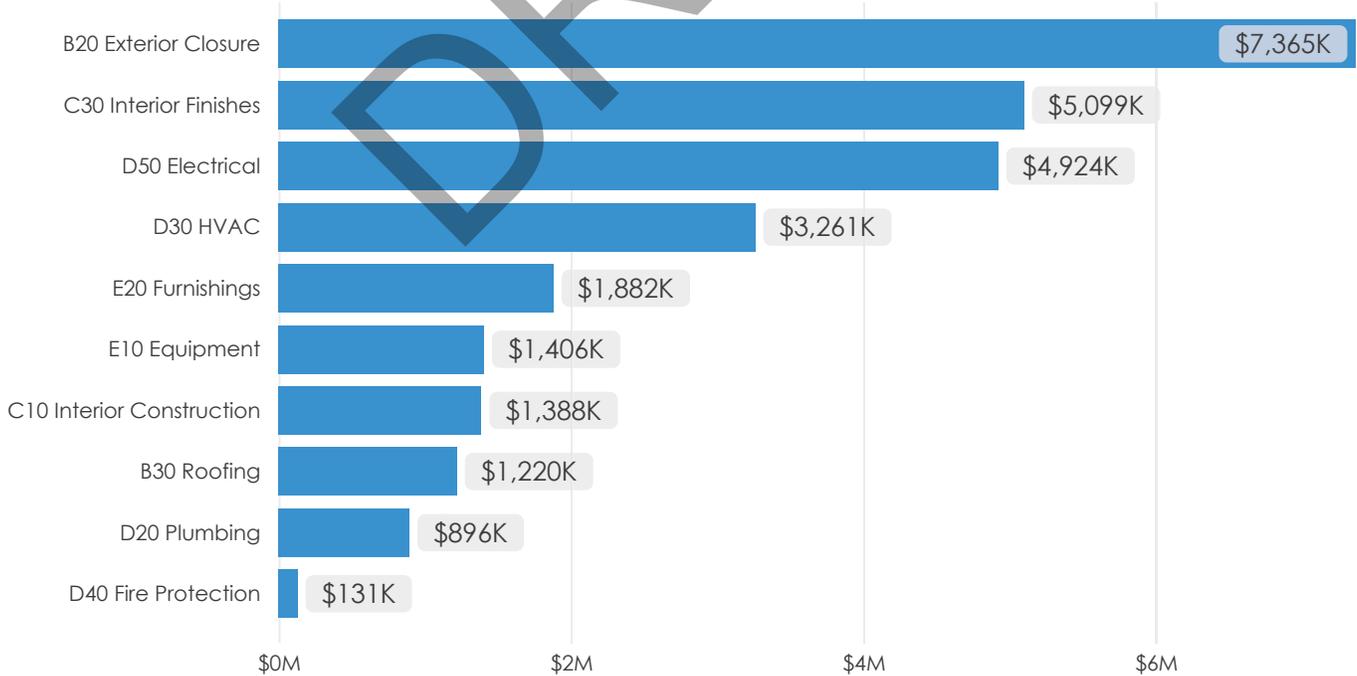


Figure 30. Public Safety Building

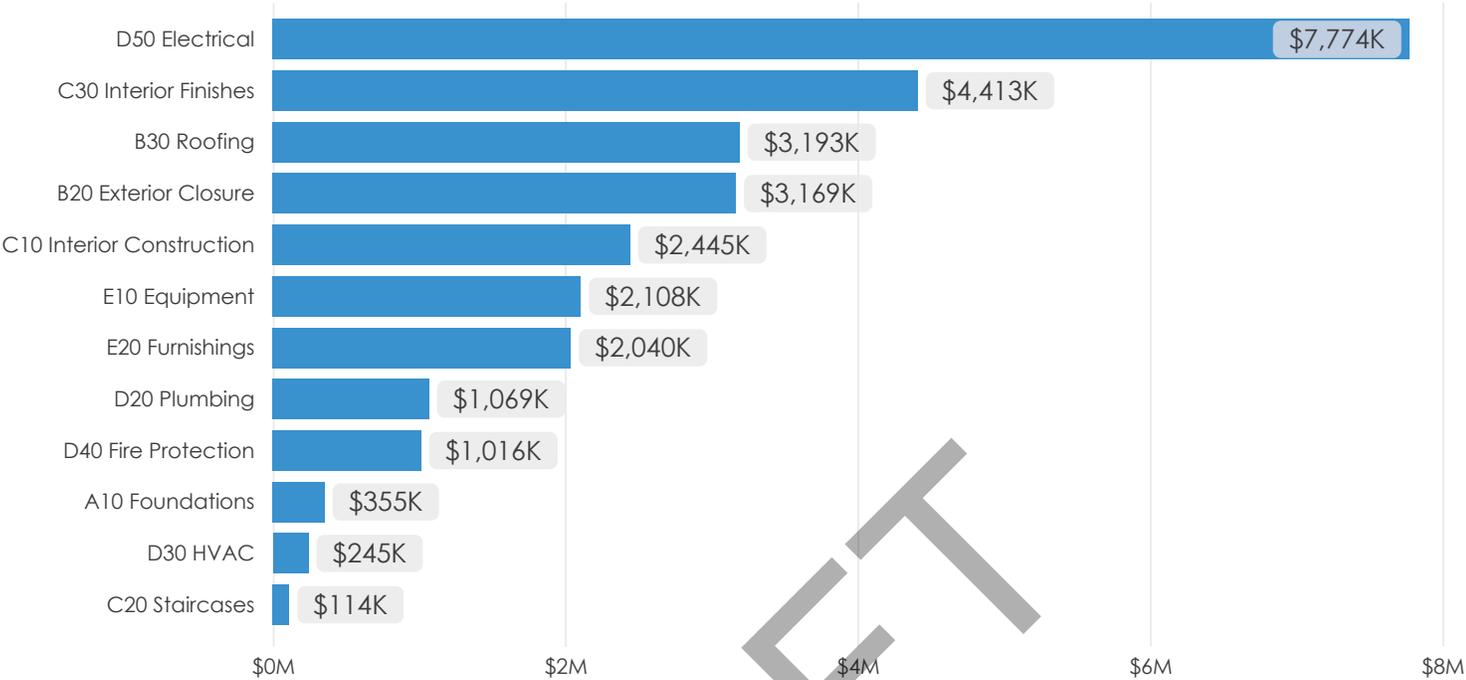


Figure 31. Municipal Campus Parking Garage

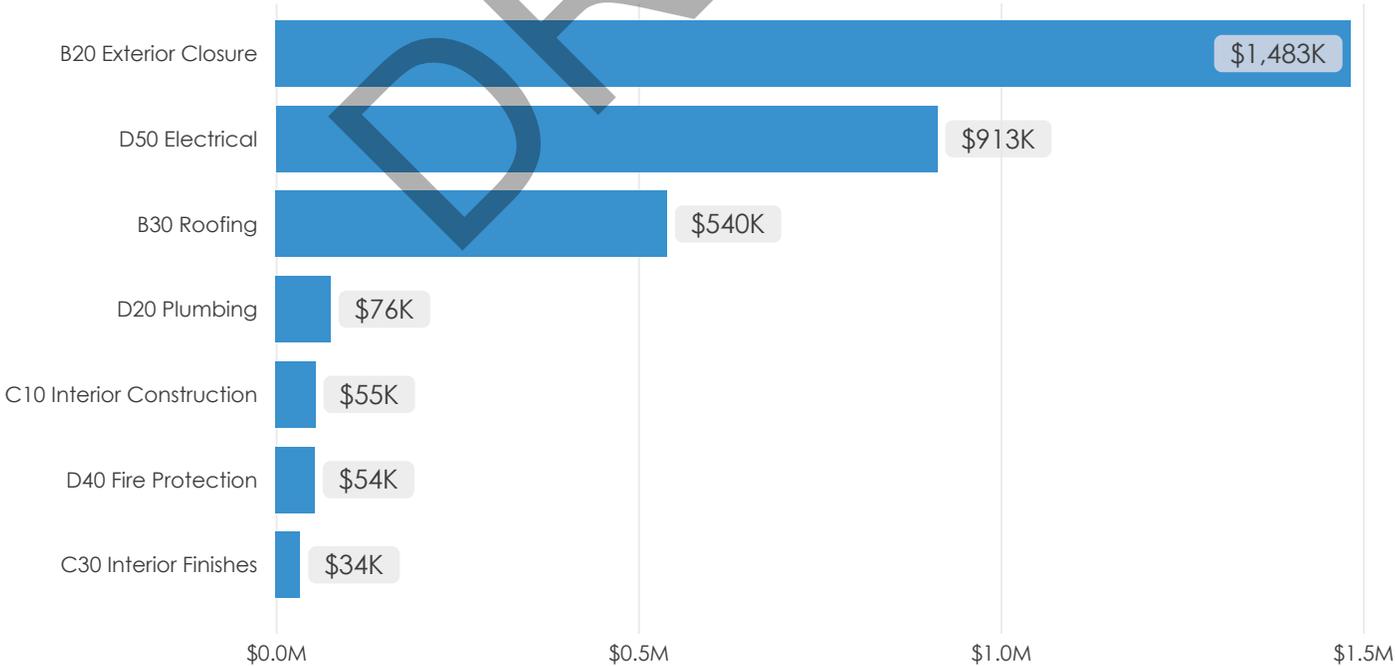


Figure 32. North SWAT Building

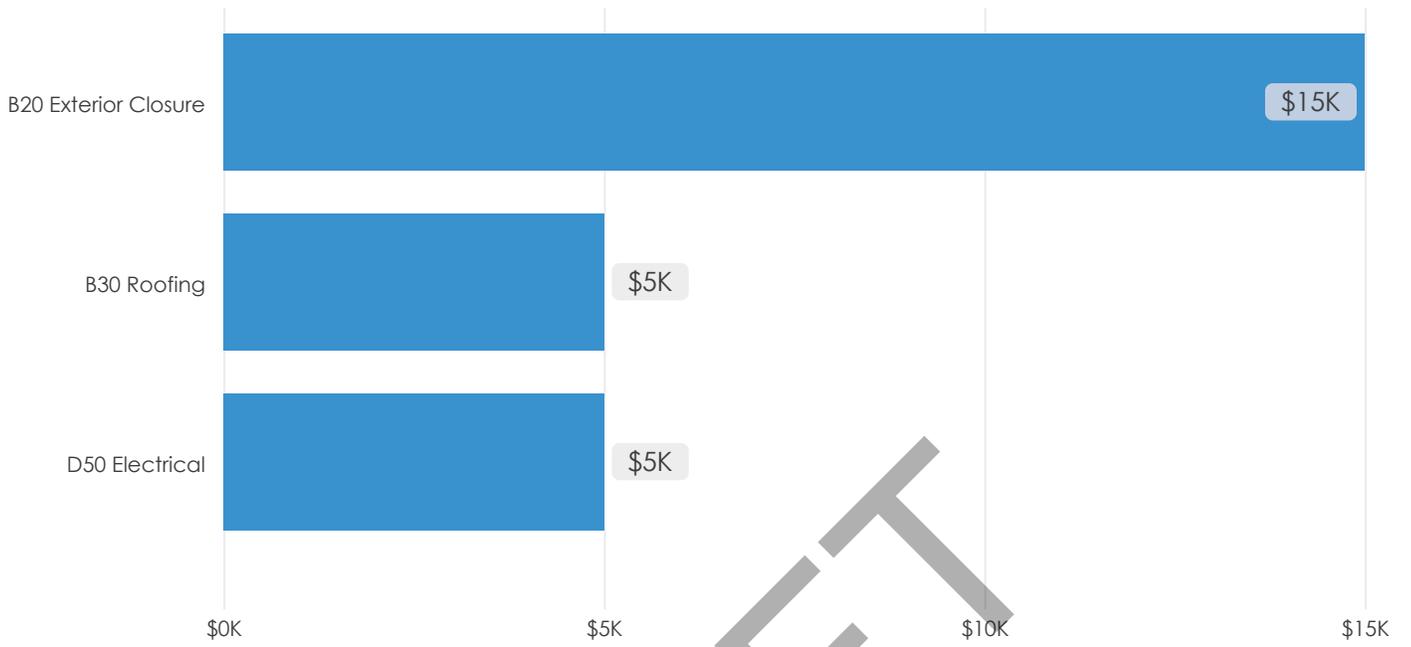


Figure 33. South SWAT Building

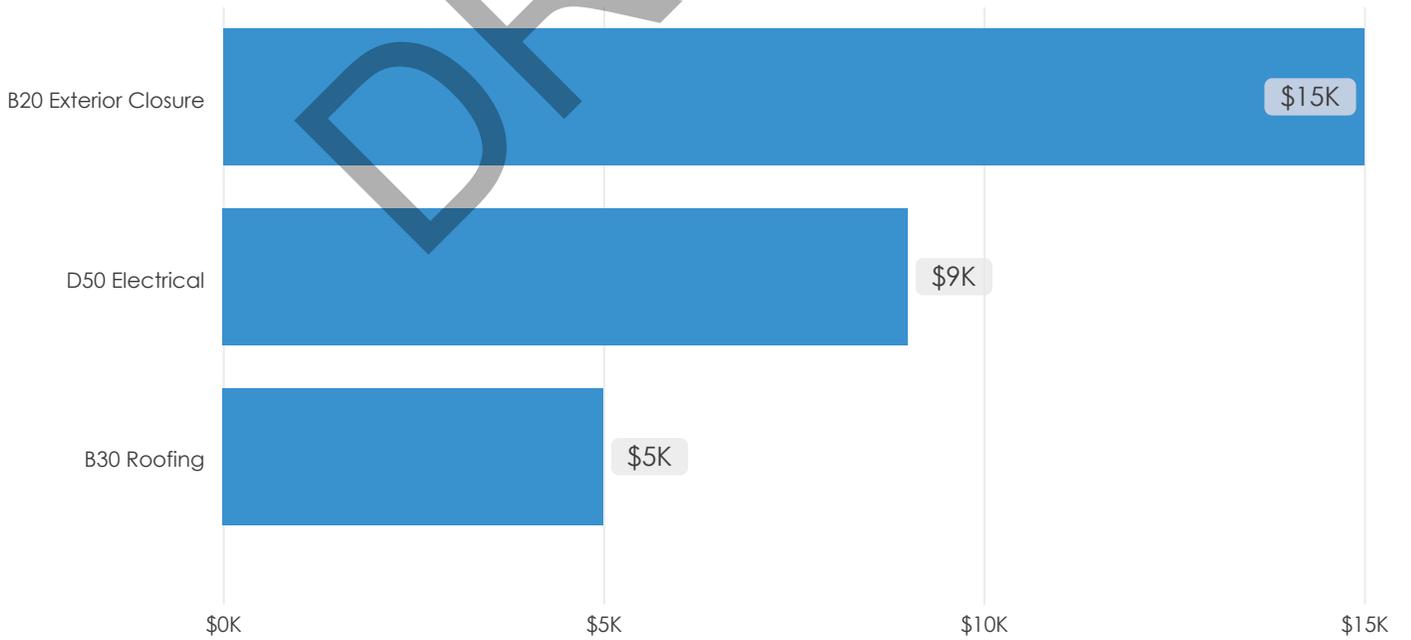


Figure 34. RCCMV

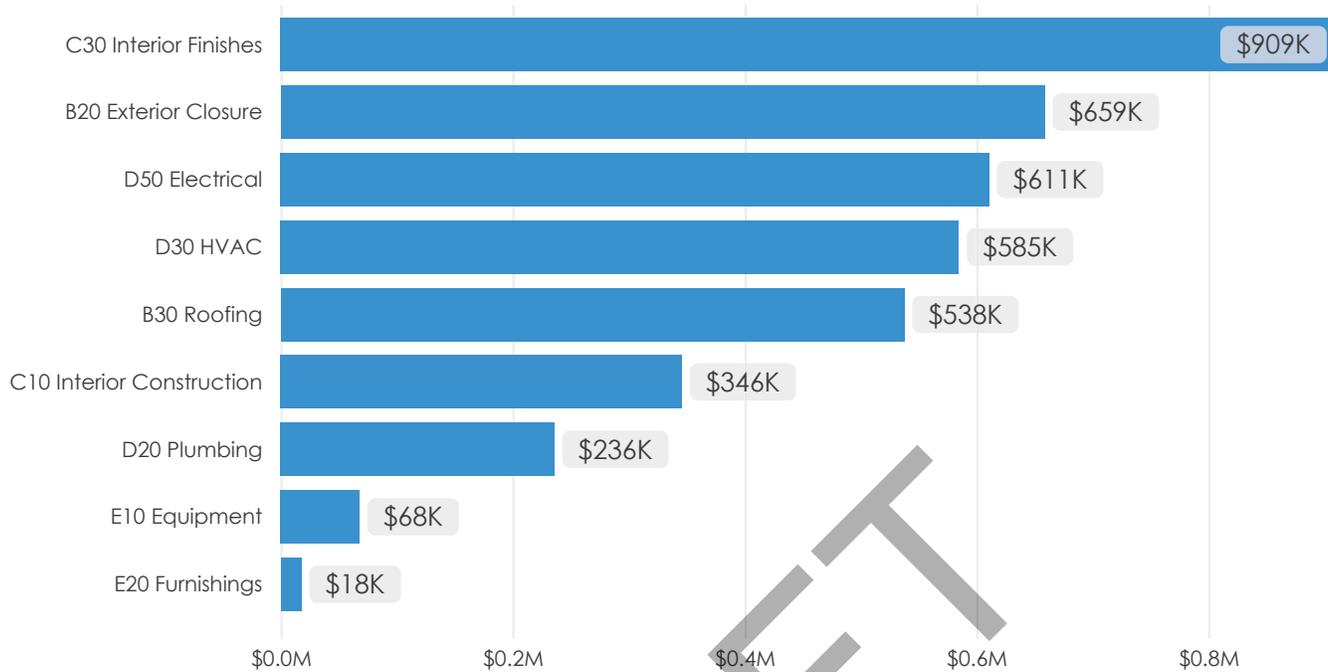


Figure 35. Redmond Pool Building

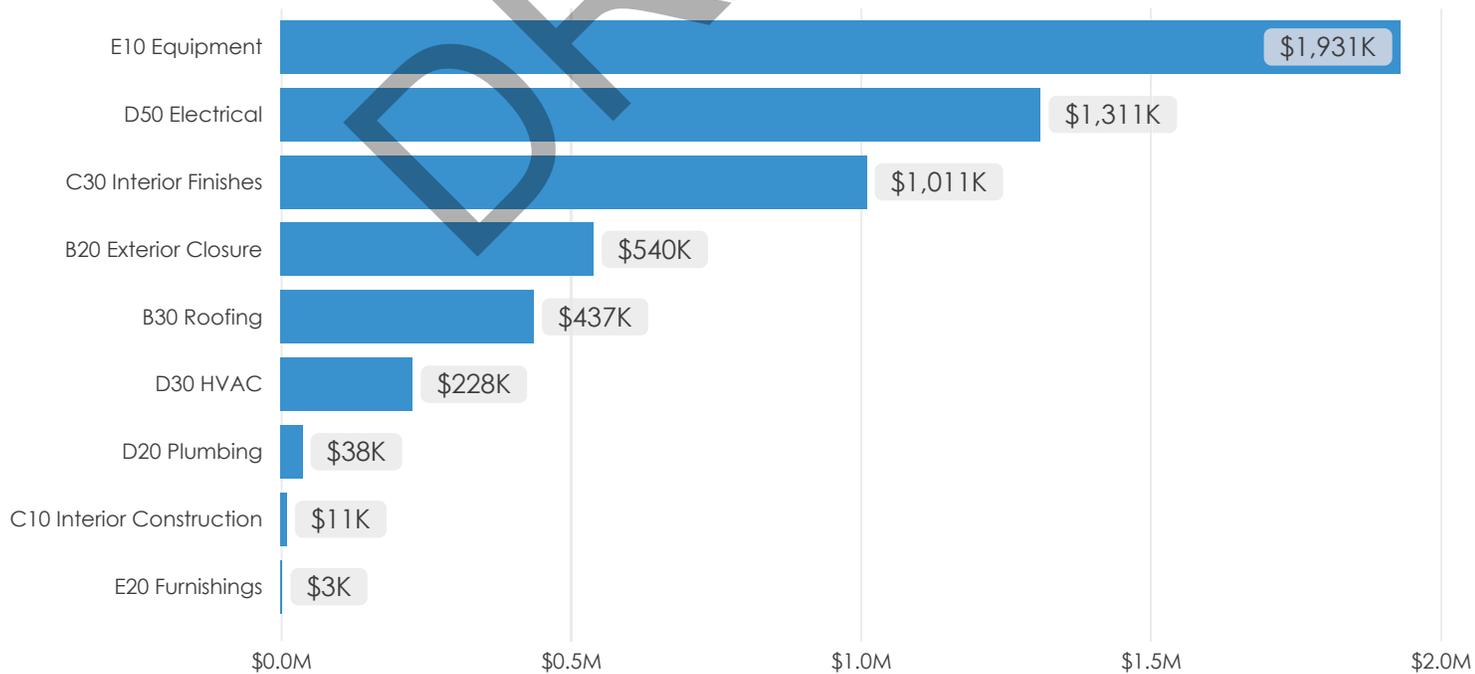
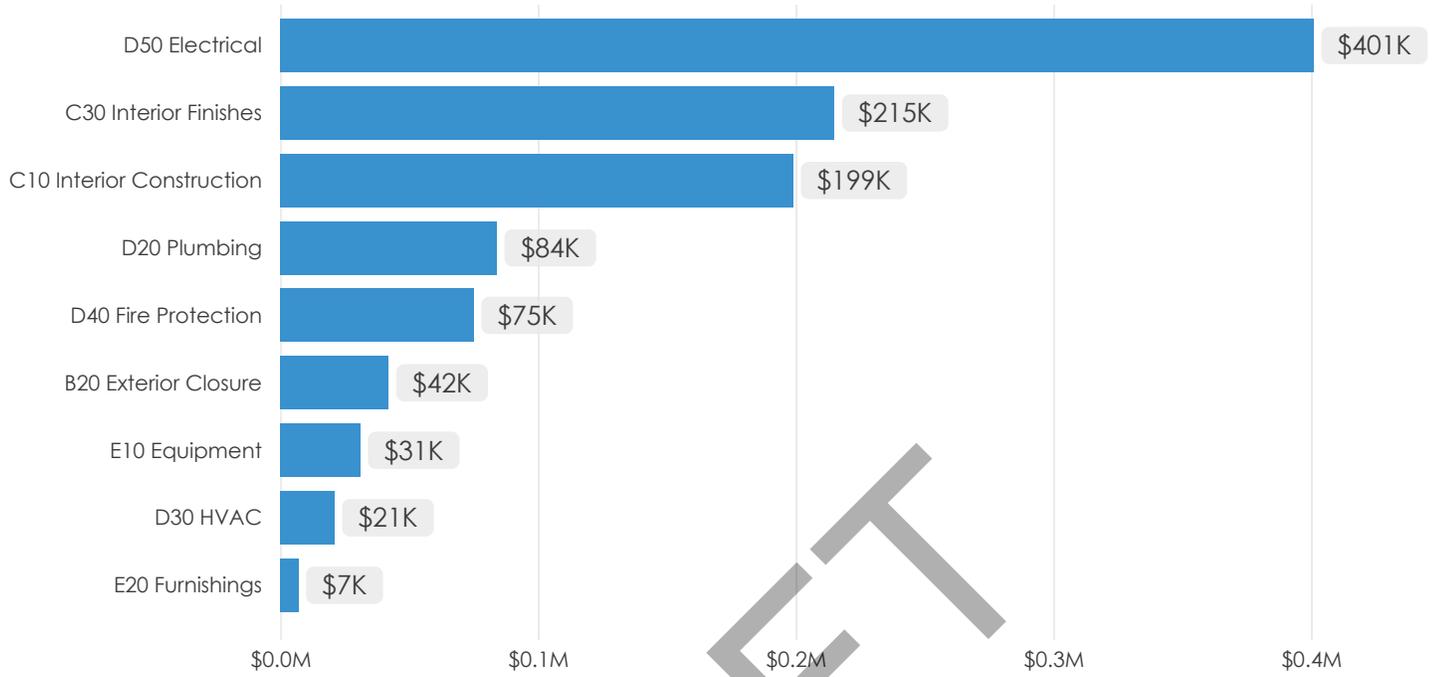


Figure 36. Teen Center



4. Assessment Team Roles & Contact Information

MENG Analysis – Prime Contractor

Project Manager

Sarah Partap
sarah@menganalysis.com
206-838-9797

Assistant Project Manager

Kara White
Kara@menganalysis.com
206-838-9797

Data Manager

Cam Iseri
Cam@menganalysis.com
206-838-9797

Field Assessor- Civil, Structural, Architectural

Timothy Buckley
Timothy@menganalysis.com
206-838-9797

Field Assessor – Mechanical, Electrical, Plumbing

Doug Smith
Doug@menganalysis.com
206-838-9797

Field Assessor – Equipment Inventory

Jeff Mitchell
jeff@menganalysis.com
206-838-9797

RC Cost Group Cost Estimation

Lead Estimator

Andy Cluness
andy@rccostgroup.com
206-830-0543

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5. Appendix

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OLD FIRE STATION / TEEN CENTER

16510 Northeast 79th Street



- Summary of Asbestos-Containing Materials**

Homogeneous Area	Description	Quantity	Cat. / Type	Percent Asbestos
Exterior metal framed windows	Window Glazing (white, brittle)	2,000 LF	Misc. / NF	2% Chrysotile
Floor in southwest office, north storage, south office	Trace black flooring mastic	800 SF	Misc. / NF	5% Chrysotile
Walls and ceilings	White skim coating on plaster and CMU walls	T / O Walls and Ceilings	Surf. / F	4% Chrysotile
Game Room	Diner-style seating base (red, cementitious)	70 SF	Misc. / NF	4% Chrysotile
Basement	Hard mudded piping manifold insulation (white, hard)	10 LF	TSI / F	20% Chrysotile 15% Amosite
Basement / piping tunnels, in walls and ceilings	Hard mudded water piping fittings, elbows	350 Each	TSI / F	25% Chrysotile 21% Amosite
Basement / piping tunnels, in walls and ceilings	Aircell piping insulation (fabric lagging on cardboard layers)	2,500 LF	TSI / F	50% Chrysotile
Basement boiler	PACM Boiler breach gasket	2 Each	Misc. / F	Presumed Asbestos-Containing Material
Basement boiler	PACM Boiler breach insulation	10 SF	TSI / F	Presumed Asbestos-Containing Material

Basement boiler	AACM Boiler refractory brick	50 SF	Misc. / F	Assumed Asbestos- Containing Material
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AACM	Assumed Asbestos-Containing Material
F	Friable
LF	Linear Feet
ND	None Detected
NF	Nonfriable
Misc.	Miscellaneous
SF	Square Feet
Surf.	Surfacing
TSI	Thermal System Insulation

• **Summary of Lead-Based Paint**

Location	Component	Substrate	Color	Lead Concentration (mg/cm ²)
Old Fire Station	Door Casing	Wood	Blue	2.00
Old Fire Station	Door	Wood	Red	2.30
Old Fire Station	Window Panel	Other	Black	3.00

mg/cm² Milligrams per square centimeter

• **Summary of Bulk Arsenic Sampling**

Sample Number	Location	Description	Results (mg/kg)
RED-OFC-AS-01	Old Fire Station – media lab wall	CMU	<18.0
RED-OFC-AS-02	Old Fire Station – media lab wall	Grey CMU mortar	<19.0

CMU Cement Masonry Unit
Mg/kg milligrams per kilogram

• **Universal Waste Inventory**

Location	PCB Light Ballasts	Fluorescent Lamps	High Intensity Discharge Lamps (HID)
Old Fire Station / Teen Center	135	250	10

HID High intensity discharge
PCB Polychlorinated biphenyls