Facility Condition Assessment
Executive Summary

Purpose

The intent of this study is to provide a Facility Condition Assessment of the facilities within the Beaverton School District. The assessment covered 62 district facilities including schools, administration, and support buildings, totaling nearly 6 million square feet of space. The study reviewed the physical condition of site elements (e.g. parking lots, site drainage), exterior systems (e.g. windows, roof), interior building systems (HVAC, electrical, flooring), and incorporated the existing recommendations from the KPFF Seismic Report. In-depth replacement costs of equipment and systems was estimated, and an estimated remaining life was assigned to all systems and equipment analyzed. Further project prioritization scoring was also included in the assessment in order to support data-driven decisions for capital replacements.

Measures of success as defined by the project team are:

- Enhanced Capital Planning – the outcome shouldn't be a report in a binder, but a tool that can be used for capital planning.
- Operation Excellence – provide the results in a format that can be utilized to improve operation of maintenance and capital teams.
- Comprehensive Reporting – data-driven reporting in a concise format
- Safety – perform on-site assessments in a safe manner and complete without injury.

Project Team

Members of the project team include:

- Ryan Dickerson, Assessor/PM
- Mark Hood, Assessor
- Rick Becker, Account Manager
- Stephanie Dost, Energy Services
- Eric Caldwell, Assessor
- Michael Weingarten, Assessor
- Peter Goodall, Architect
- TJ Mulqueen, Engineering
- Marla Corey-Loiola, Estimator
- Arial Chen, Assessor

This document combines observations and data generated by the project team. This information was gathered by visual inspection only. No tools were used, or destructive testing performed for our analysis.

Methodology

PHASE 1 – INFORMATION CONSOLIDATION

Develop Project Goals & Define Project Outcomes

As a team, Beaverton School District staff and McKinstry developed project goals and outcomes so we could together track the success of the project. We also established key performance indicators (KPIs) for the project

based on our shared understanding of the project as well as McKinstry's prior experience conducting facility assessments with large school districts.

Review District Documentation & Practices

The facility condition assessment team reviewed any previous reports, available information, energy use, drawings, O&M reports, capital project history and maintenance practices provided by the district to familiarize themselves with the facilities. McKinstry also incorporated the KPFF seismic assessments into our final reports.

Interviews with Project Stakeholders

Interviews were conducted with district maintenance staff and on-site points of contact to gather critical information on historic performance and known deficiencies. This information helped our team understand the human impact of the conditions we encountered.

PHASE 2 – CRITERIA FOR CONDITION ASSESSING

Aligning District and McKinstry Standards

McKinstry provided assessment information on systems that align with the district's standards listed below:

APPLICABLE EDUCATIONAL SPECIFICATION CATEGORIES

- Walls, Windows, Ceilings and Doors
- Environmental Conditions for Optimal Learning (HVAC/Indoor Air Quality)
- Furnishings, Fixtures, and Equipment
- Electricity
- Educational Adequacy
- Lighting
- Plumbing
- Flooring
- Security
- Communications

Develop Data Collection Format

McKinstry deployed our detailed K-12 facility assessment data collection tool and a portion of the ODE Facility Assessment Template for the Beaverton School District project. Together, our teams ensured that these checklists contained all the necessary elements for completing the project with Beaverton School District based on the documents and interviews conducted prior to the date of the on-site visits.

Our checklists and ratings included the following systems:

Fire and Life Safety – Identify alarm panels, emergency generators, security systems, and fire suppression systems.

Heating System - Identify boilers, furnaces, unit ventilators, terminal units, and other major equipment.

Ventilation System - Identify the ventilation systems at the property and assess its overall condition.

Air Conditioning System - Identify the material air-conditioning components, including cooling towers, chillers, and major labeled equipment.

Roofing System - Material roof systems, including roof-type, reported age, drainage, or any unusual roofing conditions. The team will observe for evidence of material repairs, significant ponding, or evidence of material roof leaks.

Electrical System - Identify the electrical service provided and distribution system at the subject property. Observation and evaluation will include switchgear, transformers, emergency generators and main distribution panels.

Plumbing - Identify the material plumbing systems at the subject property, including domestic water supply, domestic water heaters, sanitary sewer, or any special or unusual plumbing systems (such as fuel systems and gas systems).

Vertical Transportation - Identify the existing vertical transportation equipment and provide an overall assessment of condition. Detail deficiencies for each elevator and provide an analysis of the remaining useful life, along with budgets for any expected expenditures up to, and including, modernization or replacement.

Building Envelope - Identify the material elements of the building exterior, to include walls, doors, windows, and fire escapes. This will also include the façade, curtain-wall systems, glazing, exterior sealant, exterior balconies, and stairways. Observations may be subject to grade, accessible balconies, and rooftop vantage points.

Structural Components - Evaluate the footings, foundations, slabs, columns, floor framing system, and roof framing system as part of the structural inspection for soundness. Observations will be subject to grade and visibility of components. This is a visual inspection only, and no structural testing of components or materials will be undertaken.

Furnishing – Evaluate fixed furnishings (cabinets, casework, etc.).

Site Paving - Observe and evaluate the site paving and/or site components including pavement, curbs, drains and sidewalks.

Kitchen Equipment – Walk-in freezer and refrigerators, dishwashers, ovens, stoves, broilers, grills, fryers, and ice makers.

Site and other-

- Playgrounds
- Sports and ground facilities
- Auditorium
- Outbuildings
- Synthetic turf fields
- Natural fields
- Tracks
- Stadiums

PHASE 3—CONDITION ASSESSING

The McKinstry Facility Assessment Team conducted all condition assessments at the locations identified.

Perform Condition Assessments

Our dedicated facilities team performed assessments on all sites requested by the district. We worked with district staff to gain access to the facilities and perform our analysis. While on-site the team collected equipment and system inventories, categorized, and performed analysis on all system and asset types identified in Phase 2.

The following data was collected:

- Facility Name
- Location Type
- Building Name
- Location Description
- Asset Tag
- Asset Equipment Type
- Asset System
- Asset Sub System
- Manufacturer
- Model Number
- Serial Number
- Asset/Equipment Size

- Approximate Install Date
- Estimated Remaining Life
- Asset Condition
- Classroom Impact
- EUI Score
- Estimated Replacement Cost
- Notes
- Deficiencies

PHASE 4—DATA ANALYSIS

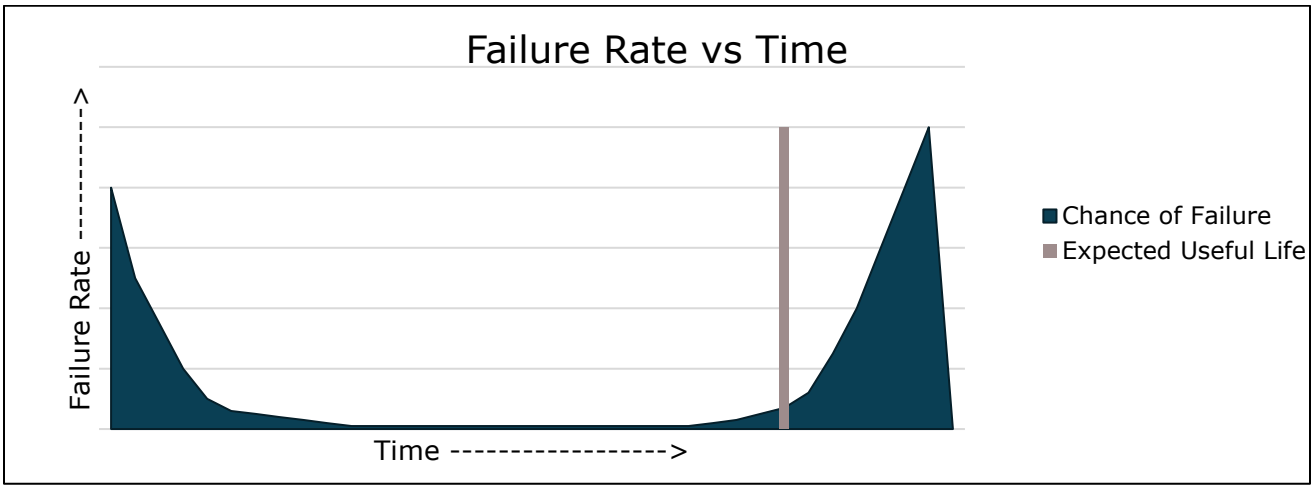
After on-site data was collected, the McKinstry team performed analysis on the information collected.

Assign Probable Costs

Using our team's experience with all the building systems, cost data, and past experiences, an opinion of probable cost was developed for each element within the report to assist in establishing appropriate repair budgets to be used in determining the Net Present Value of the Asset. Cost estimates are generated for equipment and systems based on a like-for like replacement. Where appropriate (typically items outside of the realm of maintenance replacement), the following costs were included in the estimates: Demo/removal of existing, materials, labor, contingency, general conditions, general requirements, bonds and insurance, and engineering fees. Additionally, multipliers may have been added for particular systems or equipment that may be less accessible, require cranes, or other special conditions.

Estimated Remaining Life

Estimated remaining life was calculated using three data points: the actual condition of the system, the expected useful life of the system, and the probability of failure of the system.



FCA Viz Tool

To make data actionable, McKinstry has provided a software tool that enables visualization of facilities data in service of capital planning. The Facility Condition Assessment Visualization Tool (FCA Viz) is an interactive data visualization tool, built in Tableau, that gives decision-makers the ability to navigate through their portfolio at an asset level and communicate goals and plans to stakeholders. The raw data and customized tool are yours to use for capital planning.

The FCA Viz tool allows you to weigh each of the qualitative criteria per asset to match your own priorities. For example, you may value the asset condition and the impact on the classroom, were it to fail, more highly than energy performance or maintenance intensity when prioritizing projects.

Asset Scoring Criteria

BEAVERTON SD – FACILITY CONDITION ASSESSMENT

At each location, the equipment and systems were given a score from one to five in four different categories. The scoring is defined below:

ASSET CONDITION SCORE (1 – 5)

1 – Excellent Condition New or easily restorable to "like new" condition.
2 – Good Condition Component is not new but exhibits no damage or excessive wear.
3 – Fair Condition Minor component wear, but operating properly.
4 – Poor Condition Component has significant wear and is approaching the end of its expected useful life.
5 – Very Poor Condition Component is at or past its expected useful life, has major damage, complete failure, or in need of replacement.

CLASSROOM IMPACT SCORE (1 – 5)

1 – Little or No Classroom Impact Occupants will not be impacted if the system or equipment fail.
2 – Mild Classroom Impact Few occupants will be impacted by the failure of the system or equipment.
3 – Moderate Occupant Impact Many occupants may be moderately or slightly impacted by the failure of the system or equipment.
4 – High Classroom Impact Many or all occupants may be highly impacted by the failure of the equipment or system.
5 – Space is Unusable Many or all occupants may not be able to perform their work because of the failure of the equipment or system.

EUI (ENERGY USE INTENSITY) SCORE (1 – 5)

1 – Top 20% of Energy Performing Buildings

2 – Top 20%-40% of Energy Performing Buildings
3 – Middle 40%-60% of Energy Performing Buildings
4 – Bottom 20%-40% of Energy Performing Buildings
5 – Bottom 20% of Energy Performing Buildings

PHASE 5—REPORT

Prepare Facilities Condition Assessment Report and Other Deliverables

We've compiled all field observation reports into a final working presentation document. We delivered executive summaries in our reports, walked our clients through their options, trained district staff on the FCA Viz Tool and provided the raw data that we used to come to our conclusions.

In all, Beaverton School District received the following deliverables from McKinstry:

- A summary description of each site and facility with necessary and recommended improvements, alongside photos and narratives.
- Analysis of critical (immediate) repairs, and repairs anticipated over the term of the analysis.
- Schedule for recommended replacement or repairs (schedule of priorities).
- 30-year capital plan with an executive summary. Including a graphic presentation of results to provide a quick, user-friendly summary of the facilities observed, their conditions and estimated costs assigned by category.
- The FCA Viz Tool to help interactively display Beaverton School District's data, plus training on how to use the tool.

Facility Condition Assessment Summary

DISTRICT STATISTICS

Measurable	Stat
Buildings	62
Asset Count	11,385
Average Condition Score	3.04 out of 5.00 (Fair)
30-Year Net Present Value to Replace Assets	$1.15 Billion
Average Estimated Remaining Life of Assets	10.3 Years
1st Year Estimated Capital Renewal Needs	$178 Million

The net present value of $1.15 Billion represents the cost of replacing all 11,385 assets captured in this study are on a regular replacement cycle over 30 years. That suggests that the district would need to spend approximately $38.3 Million a year on regular capital replacement needs. The 1st year estimated capital renewal needs indicates that the district hasn't been spending the suggested $38.3 Million per year and therefore has a multi-year backlog of deferred maintenance. Fortunately, the district's Maintenance Department utilizes strategies to extend the life of equipment and the Capital Department prioritizes

replacements based on impact to students and operations. It is also important to note that a significant portion of the capital renewal costs for the first 4 years is associated with seismic upgrades. If seismic upgrade costs are removed from the study, the recommended yearly capital renewal budget is approximately $29.3 Million per year.

30-YEAR CAPITAL NEEDS BY LOCATION

See table on next page.

BEAVERTON SD – FACILITY CONDITION ASSESSMENT

SUMMARY BY EQUIPMENT TYPE

Equipment Type	Average Condition Score
Structural	4.204
Mechanical Utilities	3.417
Portable Classroom	3.185
Mechanical	3.153
Site Work	3.017
Commercial Equipment	2.949
Electrical	2.931
Roofing	2.847
Exterior Enclosure	2.788
Furnishings	2.778
Equipment	2.743
Electrical Utilities	2.724
Interior Finishes	2.709
Fire & Life Safety	2.533
Conveyance	2.423
Grand Total	3.042

Equipment Type	1	2	3	4	5
Structural	$104,762,206	$66,839,119	$72,379,776	$21,928,928	$1,784,336
Mechanical Utilities	$640,000	$85,000	$100,000	$15,000	$30,000
Portable Classroom			$480,000	$400,000	$1,520,000
Mechanical	$42,600,572	$4,785,254	$11,199,763	$19,864,371	$26,420,945
Site Work	$602,017	$676,993	$48,670	$473,260	$2,183,401
Commercial Equipment	$212,150	$106,950	$436,789	$169,400	$943,872
Electrical	$9,303,718	$1,344,452	$1,356,842	$3,353,899	$8,848,681
Roofing	$10,397,636	$1,350,000	$10,791,157	$455,801	$12,583,466
Exterior Enclosure	$6,579,624	$712,611	$937,839	$649,027	$1,993,950
Furnishings	$1,029,684	$729,594	$477,042	$857,124	$602,478
Equipment	$92,920	$40,000	$40,000	$104,090	$337,788
Electrical Utilities	$137,483	$122,396	$632,759	$104,965	$1,013,034
Interior Finishes	$1,705,710	$3,711,285	$1,231,614	$1,468,879	$8,741,847
Fire & Life Safety		$2,100	$1,287		
Conveyance	$60,000	$30,500		$319,032	$66,408
Grand Total*	**$178,123,719**	**$80,536,254**	**$100,113,538**	**$50,163,776**	**$67,070,207**

*All numbers are displayed in 2020 dollars.

FACILITY CONDITION INDEX

The **Facility Condition Index** (FCI) is used in facilities management to provide a benchmark to compare the relative condition of a group of facilities. This index is determined by dividing the total deferred maintenance costs by the Current Replacement Value (CRV) of the facility. The basis of the index is to provide information to owners that will help them determine whether they should continue to maintain and perform capital replacement projects at a location versus completely replacing or renovating the facility. A rule of thumb for the index score is as follows:

Good < 0.05 – Continue predictive and preventive maintenance

Fair 0.05 – 0.10 – Continue maintenance with capital renewal

Poor 0.10 – Consider whole building replacement or renovation versus repair

As a K-12 portfolio, the district should target to get a majority of their buildings below the 0.10 number if they would like to continue to operate in the building. Typically, projects associated with HVAC, Roofing, Seismic, and Exterior Enclosure drive the FCI numbers down sharply.

High Schools				
Building	Year Built	Current Replacement Value (CRV)	FCI Score	Location Type
Terra Nova School	1938	$6,032,750.00	0.349	High School
Beaverton	1915/1938	$155,756,239.20	0.337	High School
Sunset	1958	$149,686,243.65	0.280	High School
Aloha	1968	$153,786,396.15	0.187	High School
Southridge	1999	$151,068,496.50	0.187	High School
Westview	1994	$165,883,910.85	0.176	High School
Merlo Station	1993	$26,137,656.25	0.173	High School
Merle Davies @ BHS	1915/1938	$23,008,050.00	0.048	High School
Mountainside	2017	$201,762,900.00	0.021	High School

Middle Schools				
Building	Year Built	Current Replacement Value (CRV)	FCI Score	Location Type
ISB	1944	$40,362,390.00	0.361	Middle School
Whitford	1963	$62,457,708.00	0.316	Middle School
Highland Park	1965	$62,420,328.00	0.287	Middle School
Meadow Park	1963	$62,308,188.00	0.282	Middle School
Cedar Park	1965	$62,506,836.00	0.277	Middle School
Five Oaks	1976	$76,382,826.00	0.255	Middle School
Mountain View	1969	$71,525,028.00	0.221	Middle School
Stoller	1999	$76,782,792.00	0.201	Middle School
Conestoga	1994	$68,447,586.00	0.195	Middle School
Arts & Communication ACMA (Performing Arts Center)	2010	$13,083,000.00	0.079	Middle School
Timberland (new Middle School	2016	$88,644,000.00	0.032	Middle School

K-8 Schools				
Building	Year Built	Current Replacement Value (CRV)	FCI Score	Location Type
Raleigh Hills K-8	1927	$28,960,778.75	0.410	K-8
Aloha-Huber Park (K-8)	2006	$54,216,017.50	0.138	K-8

BEAVERTON SD – FACILITY CONDITION ASSESSMENT

K-8 Schools				
Building	Year Built	Current Replacement Value (CRV)	FCI Score	Location Type
Springville (K-8)	2009	$44,584,067.50	0.120	K-8

Elementary Schools				
Building	Year Built	Current Replacement Value (CRV)	FCI Score	Location Type
Cedar Mill	1950	$20,989,368.75	0.347	Elementary School
Raleigh Park	1959	$23,091,117.50	0.344	Elementary School
Beaver Acres	1955	$40,647,953.75	0.325	Elementary School
Fir Grove	1954	$31,015,492.50	0.324	Elementary School
Cooper Mountain	1954	$28,027,236.25	0.312	Elementary School
West Tualatin View	1955	$22,212,278.75	0.309	Elementary School
Bethany	1971	$25,518,021.25	0.280	Elementary School
McKinley	1962	$31,321,731.25	0.279	Elementary School
Sexton Mountain	1989	$34,416,327.50	0.279	Elementary School
Mckay	1929	$24,916,280.00	0.252	Elementary School
Barnes	1927	$38,803,875.00	0.250	Elementary School
Kinnaman	1975	$41,327,916.25	0.246	Elementary School
Chehalem	1971	$27,769,055.00	0.237	Elementary School
Terra Linda	1970	$26,398,905.00	0.237	Elementary School
Hiteon	1974	$40,374,435.00	0.234	Elementary School
Nancy Ryles	1992	$36,359,588.75	0.233	Elementary School
Errol Hassell	1979	$30,851,381.25	0.233	Elementary School
Scholls Heights	1999	$35,246,086.25	0.232	Elementary School
Rock Creek	1975	$26,331,931.25	0.232	Elementary School
Elmonica	1980	$25,937,757.50	0.229	Elementary School
Greenway	1979	$28,114,148.75	0.224	Elementary School
Findley	1997	$36,836,585.00	0.221	Elementary School
Ridgewood	1958	$27,637,663.75	0.217	Elementary School
Montclair	1970	$19,696,417.50	0.206	Elementary School
Oak Hills	1967	$25,506,262.50	0.200	Elementary School
Jacob Wismer	2001	$37,251,208.75	0.149	Elementary School
Bonny Slope	2008	$41,107,056.25	0.120	Elementary School
Vose	2017	$45,501,250.00	0.028	Elementary School
Sato	2017	$45,501,250.00	0.027	Elementary School
William Walker	2019	$26,120,785.00	0.027	Elementary School
Hazeldale	2018	$45,501,250.00	0.025	Elementary School

BEAVERTON SD – FACILITY CONDITION ASSESSMENT

Administration Buildings				
Building	Year Built	Current Replacement Value (CRV)	FCI Score	Location Type
Administration Center	1972	$18,120,602.90	0.233	Administration
Capital Center	1970	$53,303,619.86	0.227	Administration
Admin Aloha Branch	1999	$5,034,200.00	0.129	Administration

Ancillary Buildings				
Building	Year Built	Current Replacement Value (CRV)	FCI Score	Location Type
Transportation 5th Street South	1965	$12,379,614.00	0.349	Ancillary Building
Transportation Allen	1969	$4,692,257.57	0.331	Ancillary Building
Maintenance Center	1971	$10,768,153.80	0.240	Ancillary Building
Transportation 5th Street North	2001	$2,465,846.37	0.231	Ancillary Building
Transportation and Support Center	1973	$20,794,266.52	0.168	Ancillary Building