LAKE OSWEGO SCHOOL DISTRICT

FACILITY CONDITION ASSESSMENT

OCTOBER 19, 2015

OH PLANNING + DESIGN, ARCHITECTURE

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Part 1 - Executive Summary

1.1 Project Intent

The purpose of this facility condition assessment report is to provide Lake Oswego School District (LOSD) with an evaluation of the existing condition and recommended remediation for 17 District-owned facilities. The assessment is a multi-disciplinary on-site inspection of the existing buildings focusing on architectural, structural, mechanical, electrical and plumbing systems. The specific items for evaluation include the following:

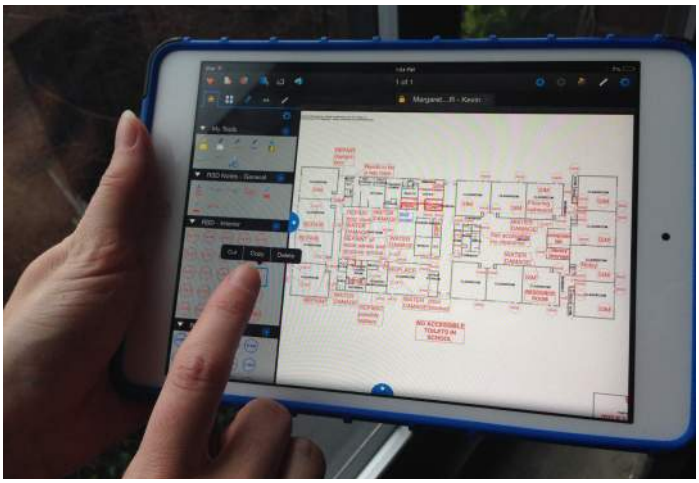
- Building Exterior: Walls, foundation, doors, windows, soffits
- Building Interior: Partition walls, floors, ceilings, doors, windows, casework
- Roof: Roofing system, drains, downspouts, scuppers, crickets, cap flashing
- Seismic Lateral Systems: Modified ASCE 41-13 Tier 1 Checklist-based Evaluation
- Mechanical, Electrical, Plumbing, systems: HVAC equipment, plumbing fixtures, electrical equipment

1.2 Data Gathering Process

Team site visits took place on July 28, August 3-7, and August 11-13 of 2015 by the team. OHP+D, KPFF and Heery participated in the assessment of all (17) sites. The Facade Group participated in four elementary school assessments, and Terracon participated in the assessment of the District swimming pool.

During these site visits, BlueBeam digital technology on a tablet computer was used for documenting, photographing, and keying existing conditions into digital drawings of the buildings, provided by the District. BlueBeam software provides PDF creation, markup, editing and collaboration.

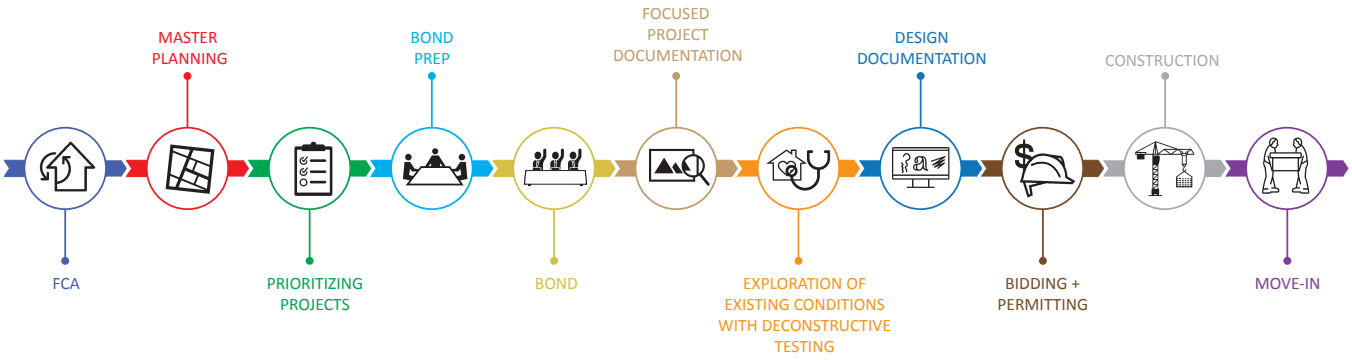
Fillable forms were utilized to provide high level summary information about each site. This allowed the assessor to inventory what conditions needed repair or replacement as well as provide comment on the condition. Floor plans, site plans, elevations and Google maps were utilized in BlueBeam to provide more detailed comment on conditions. Comments and photos were overlaid onto the District-provided PDF documentation. Comments are color-coded and sortable within BlueBeam. Red comments are identified deficiencies. Blue comments are identified as existing conditions for reference. Orange and purple comments are linear and area takeoffs used for cost estimating.



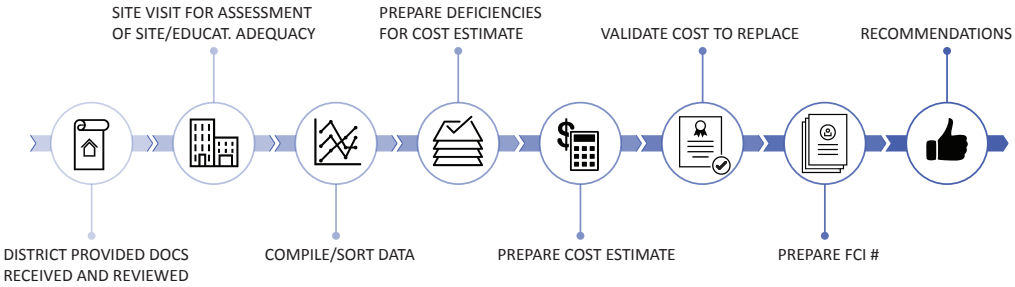
A meeting with the LOSD LRFP Steering Committee was conducted to gain additional operational and procedural requirements to align with the assessment process. Meeting minutes were recorded and are included in the appendix of this report.

1.3 Facility Condition Assessment (FCA)

The Facilities Condition Assessment (FCA) is one step in the long-range facility planning process for LOSD. The process begins with the FCA where the team begins to understand the conditions of each site. The FCA is a rapid visual assessment of buildings that provides costs and facility condition numbers that can be taken into the master planning phase. Master planning provides priorities, concepts and associated costs, from which the District can prepare for a bond. The graphic below depicts the complexity and multiple steps of this process.



The FCA is based on the physical inspection of building conditions, combined with the review of the existing building documentation and the school district's maintenance records. On-site observations include the review of the building components' age, design, construction methods and material adequacy. District-provided documents are surveyed to understand the building's construction. Existing conditions are confirmed on-site through visual observation. The FCA report compiles the visual assessment data, recommendations from client meetings , and source documents to identify deficiencies. A cost estimate of the remediation of deficiencies is then prepared. The graphic below illustrates the steps in the FCA process:



An FCA is the baseline to further planning efforts. A high level assessment of conditions of the building(s) is used to determine the recommendation for facility repair or replacement. An FCA is a cost- and time- efficient method providing an overview of general conditions. Some tasks are not specifically included within the FCA process.

FCA Limitations and Exclusions

- Validating as-built conditions
- Hazardous material assessment
- Destructive testing
- Site Improvements (repairs and site replacement)
- Concealed Systems: below grade, within walls or roofing systems
- Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible.
- Measurement of load (current) or temperature of any electrical equipment
- Functionality and performance of the HVAC equipment (pumps, fans, boilers, etc)
- Fire life safety components associated with building systems such as dampers, occupancy, fire rating of systems, etc.

- Complete ASCE 41-13 Tier I Evaluation
- Contingencies, inflation, general conditions, permits and design fees

1.4 Facility Condition Index (FCI)

Within the FCA is the Facility Condition Index (FCI) which is calculated based on the deficiencies found in each building and the corresponding cost to address them. Specifically, the FCI outcome is the ratio of the estimated cost of renovations to the cost of replacing the entire school with the current square footage and features. The closer the renovation costs are to the full replacement cost of the building, the higher the percentage. According to this methodology, the FCI will help determine if it is more cost-effective to entirely rebuild or to renovate a facility or school, rather than address each deficiency separately.

FCI = Repair Cost (excluding site work)/Replacement Cost (excluding site work)

For example:

- Repair Cost $2,000/Replacement Cost $20,000 = FCI of .10 *Recommend **Repair***
- Repair Cost $17,000/Replacement Cost $20,000 = FCI of .85 *Recommend **Replace***

An FCI over .50 is the point where the cost to repair is half of the building value replacement. A .50 FCI number indicates a critical point at which replacement rather than repair may be considered a better investment value.

The FCI provides a general indicator of a building's condition and is a benchmark used to compare the relative condition to other buildings. This does not consider the classroom configuration for current learning and teaching styles. The FCI does not include upgrades or improvements to program needs.

1.5 FCA Clarifications

This assessment report is completed on a facility conditions basis established during the visual investigation and documentation review. In some cases, not all surfaces and areas can be assessed and a building component's condition may not be conclusive without further investigation; which will be stated within this report.

Basis of Facility Condition Assessment

Architectural Evaluation

- Review of the existing architectural building drawings.
- The visual appearance and age of a finish, material, fixture, or piece of equipment is the main cue to determine its current condition.
- If a material is warped, rotten, discolored, deformed, or deteriorated then the material is considered in poor condition.
- If 75% of a surface is showing signs of deterioration, then the entire surface is considered in poor condition.
- If a building component lacks the ability to last 5 more years, then the building component is considered deficient.

• If a finish is showing wear and tear from normal use over an extended time, then the finish is considered in poor condition.

• If a surface is showing signs of damage and not located within the range of human activity, then it is assumed that there are other factors leading to its rapid deterioration such as water, air leaks, or other weathering which indicates the need for further investigations.

• The age of certain roofs for some buildings constructed prior to 1980 is not available. Unless otherwise noted, this report assumes roof replacement for all roofs. Detailed roof assessment is required to determine age and remaining life of materials. Foundation of roofing material replacement judgement is based on anticipated roof life of less than 5 years - assuming regular maintenance. Roof level seismic upgrade is typically recommended at all buildings.

• At Oak Creek Elementary School, District-provided reports were reviewed and utilized in the Oak Creek building envelope assessment.

• Roof replacements at many sites are due to the seismic upgrades to meet current ASCE 41-13 standards at roof level. These sites are noted in the architectural roof section of the cost estimate at each site.

Structural/Seismic Evaluation

• Major structural components for each building were assessed using the current seismic evaluation standard which is ASCE 41-13, Seismic Evaluation and Retrofit of Existing Buildings.

• This evaluation includes reviewing the existing building drawings and a site assessment of visible structural elements.

• Seismic evaluations are based on a modified ASCE 41-13 Tier 1 evaluation process, but should not be considered full Tier 1 evaluation. All buildings were assessed to a Life Safety Performance Level, except separate gymnasium buildings or gymnasium wings which were assessed to an Immediate Occupancy Performance Level to act as an emergency operations or recovery center.

• Tier 1 checklists were used as a guide for this assessment phase. Computational Tier 1 checklist items were not completed during this assessment phase.

> For example, the force of the building is not computed to determine the actual shear force on each shear wall, but experiential-based judgments were made to determine if shear walls were a likely deficiency.

• Each different building type (wood shear wall vs. concrete shear wall for example) has an individualized Tier 1 checklist which is based on common deficiencies of that building type.

• A FEMA 154 Rapid Visual Screening (RVS) is performed. These RVS scores were compared to both the DOGAMI (Oregon Department of Geology and Minerals Industries) 2006 RVS scores and the Froelich Consulting Engineers (FCE) 2008 RVS scores. The detailed comparison is documented in a memo dated 9/25/2015 and is included in the Appendix section in this report.

• A list of seismic structural deficiencies is determined for each different building and is included within the report.

• For buildings being considered for seismic rehabilitation, a comprehensive ASCE 41-13 Tier 1 or Tier 2 evaluation is recommended.

• KPFF provides approximate probable structural retrofit costs for each structure to Architectural Cost Consultants for inclusion in the repair cost estimates.

• Cost Estimates are based on KPFF's knowledge of retrofit costs for similar building types with similar deficiencies. A comprehensive evaluation and retrofit scheme will lead to a more accurate cost estimate.

Mechanical/Electrical/Plumbing Evaluations

- ASHRAE Applications Handbook is used to determine the anticipated life of equipment, but not solely used to determine if a piece of equipment should be replaced.
- Recommended replacement is determined based on the actual condition of the equipment, how well it appears to have been maintained, and how well it could function if proper maintenance is provided.
- Many systems, such as built up air handling units, can operate for 60 years or more if properly maintained and components replaced as necessary.
- For existing buildings, full coverage fire protection sprinklers is not a code requirement to bring the building up to the current code. Full coverage would be required in any new facility under the current code.
- Inefficient light fixtures such as incandescent type are typically noted to be replaced due to their inefficiency.
- Repair and/or replacement of electrical equipment and devices is also recommended if physical damage is observed and/or the current installation represents a violation of the National Electric Code (such as the location of receptacles within 6' of a sink without GFCI protection).
- Although in some instances improvements are recommended such as the addition of light fixtures, for the most part the focus is on replacement issues only and not recommended upgrades.
- If a significant amount of time passes prior to any renovations occurring, many of the items noted as having 5 year or less life expectancy should be revisited and evaluated for replacement at that time.
- Replacement of some equipment, such as old boilers, will most likely require asbestos abatement. Identifying or quantifying asbestos is not within our realm of expertise.
- Our scope includes visual inspection of equipment only. Functionality of equipment is assumed or determined by discussions with Lake Oswego School District staff and with building user group representatives.

Pool Specialties Evaluations

- The pool and pool equipment were evaluated based on current regulatory agency requirements (e.g. OAR, VGB, ADA, NFHS, USA Swimming, etc.) along with industry standards.
- Although many older facilities are allowed to be grandfathered in for certain code sections, it is important to understand the current requirements and how they affect repairs and renovations.
- Typically, large renovations to the pool shell or pool equipment require that the entire pool and pool systems be brought up to current standards.
- Recommended replacement is determined based on the actual condition of the equipment, how well it appeared to have been maintained, and how well it could function if proper maintenance is provided.
- Consideration will be given to the manufacturer's warranty period and the remaining life expectancy when providing repair and/or replacement recommendations.

1.6 Current & Projected Projects

LOSD does not have any projects in progress or planned at the time this report is prepared. Maintenance projects: two (2) new portables are being installed at River Grove Elementary School.

1.7 Facility Overview

The following is a matrix of all 17 sites documenting the existing systems and building facts combining the District-provided documentation and visual observations.

FACILITY INFORMATION					BUILDING INFORMATION													
TYPE	#	FACILITY NAME	ADDRESS	ASSESSMENT DATE	TOTAL BUILDING AREA (SF)	TOTAL ROOF AREA (SF)	NO. OF STORIES	YEAR BUILT	RENOVATION (DATE)	PRIMARY STRUCTURE	ROOF TYPE	PRIMARY MECHANICAL	PRIMARY MECHANICAL LIFECYCLE	ELECTRICAL CAPACITY	ELECTRICAL LIFECYLE	GENERATOR	GENERATOR LIFECYCLE	FCI
ELEMENTARY SCHOOLS	1	Forest Hills	1133 Andrews Road, Lake Oswego, OR 97034	11-Aug	50,695	55,080	1	1946	1990 2004 2013	W2	R2, R4, R6	M2	26	120/208V 1600A	50	12.5 KVA	25	0.41
	2	Hallinan	16800 Hawthorne Drive, Lake Oswego, OR 97034	13-Aug	46,712	51,208	1	1980	NONE	W2	R4, R5, R6	M8	20	120/208V 1200A	50	N/A	N/A	0.32
	3	Lake Grove	15777 Boones Ferry Road, Lake Oswego, OR 97034	11-Aug	61,652	66,129	1	1949	1990	W2	R2	M5	26	120/208V 1600A	50	N/A	N/A	0.38
	4	Oak Creek	55 Kingsgate Road, Lake Oswego, OR 97035	12-Aug	68,040	42,926	2	1991	NONE	W2	R3	M8	20	277/480V 800A	50	25 KVA	25	0.52
	5	River Grove	5850 McEwan Road, Lake Oswego, OR 97035	12-Aug	50,484	55,905	1	1968	1990	W2,RM1	R3, R4, R5, R6	M7	30	120/208V 1600A	50	N/A	N/A	0.37
	6	Westridge	3400 Royce Way, Lake Oswego, OR 97034	13-Aug	46,712	51,208	1	1980	NONE	W2	R4, R6	M8	20	120/208V 1200A	50	N/A	N/A	0.33
JR HIGH SCHOOLS	7	Lake Oswego Jr. High	2500 Country Club Road, Lake Oswego, OR 97034	3-Aug	106,093	135,082	1	1957	1990 2013	W2	R5, R6	M2	26	120/208V 1520A	50	N/A	N/A	0.41
	8	Lakeridge Jr. High	4700 Jean Road, Lake Oswego, OR 97035	6-Aug	122,610	137,242	1	1967 1968	1990	RM1	R5	M7	30	277/480V 800A	50	62.5 KVA	25	0.46
HIGH SCHOOLS	9	Lake Oswego High Old Gym	2501 Country Club Road, Lake Oswego, OR 97034	5-Aug	259,682	172,654	3	2005 1961	2010 2004	S1, S2, RM1	R4, R5	M4	20	277/480V 3000A	50	190 KVA	25	0.10
	10	Lakeridge High	1235 Overlook Drive, Lake Oswego, OR 97034	4-Aug	278,300	196,308	3	1970	1990 2004	RM1,S1	R4, R5	M4	20	277/480V 3000A	50	125 KVA	25	0.14
CLOSED SCHOOLS	11	Closed #1: Palisades	1500 Greentree Road, Lake Oswego, OR 97034	6-Aug	45,680	51,996	1	1959	1990	W2	R3, R5, R6	M2	26	120/208V 1200A	50	N/A	N/A	0.42
	12	Closed #2: Uplands	2055 SW Wembley Park Road, Lake Oswego, OR 97034	3-Aug	51,676	54,178	1	1961	1990	W2	R5, R6	M2	26	120/208V 1200A	50	N/A	N/A	0.39
OTHER BUILDINGS	13	Facilities Operations	4200 SW Douglas Way, Lake Oswego, OR 97035	7-Aug	10,049	7,509	2	1976	N/A	PC1	R2	M6	23	120/208V 400A	50	N/A	N/A	0.27
	14	Bus Barn	4301 SW Beasley Way, Lake Oswego, OR 97035	7-Aug	2,559	2,777	1	1969	N/A	RM1	R5, R7	M1	16	120/240V 400A	50	N/A	N/A	0.82
	15	Administration	2501 Country Club Road, Lake Oswego, OR 97034	7-Aug	7,613	7,990	1	1961	1988	W2	R5	M3	18	120/240V 400A	50	N/A	N/A	0.48
	16	Technology	2501 Country Club Road, Lake Oswego, OR 97034	28-Jul	10,150	11,372	2	1959	N/A	RM1	R6	M1	16	120/240V 600A	50	N/A	N/A	0.50
	17	Swimming Pool	2501 Country Club Road, Lake Oswego, OR 97034	28-Jul	13,260	18,695	1	1971 1991	NONE	RM1,S2A	R5, R6	M5	26	120/208V 600A	50	N/A	N/A	0.64

Facility Condition Index (FCI) = cost to repair (excluding site work) /cost to replace (excluding site work)

RVS Score:

RVS scores are Rapid Visual Screening ratings based on FEMA 154 standards and are intended to be used for long range planning purposes. A score of 2 or less suggests additional investigation by a design professional is needed.

STRUCTURAL						
DOGAMI RVS REPORT	NO. OF BUILDINGS	NO. OF STORIES	BUILDING TYPE	ASCE 41-13 LATERAL STRUCTURAL SYSTEM	RVS SCORE	COLLAPSE POTENTIAL [1]
0.5	1	1	Wood Frame with unknown sheathing shear walls	W2	-0.5	Very High
3.7	1	1	Wood Frame with plywood and gypsum board sheathing	W2	4.9	Low
0.9	1	1	Wood Frame with unknown sheathing shear walls	W2	1.5	Moderate
0.6	1	2	Wood Frame with plywood shear walls	W2	4.9	Low
0.9	1	1	Wood Frame with gypsum board sheathing, reinforced clay brick shear walls	W2,RM1	2.5,1.7	Low to Moderate
3.7	1	1	Wood Frame with plywood and gypsum board sheathing	W2	4.9	Low
0.9	1	1	Wood Frame with gypsum board sheathing	W2	2.5	Low
0.9	2	1	Lakeridge: Reinforced CMU shearwalls. Bryant: Reinforced clay brick shear walls	RM1	1.7	Moderate
n/a	7	3	Main Building: Steel braced frame and steel moment frame (MF), Reinf. CMU Gym Building: Reinf. CMU and steel MF	S1, S2, RM1	3.0, 1.4	Low to Moderate
n/a	5	3	Main Building: Steel braced frame and steel moment frame (MF), Reinf. CMU Gym Building: Reinf. CMU and reinf. Conc.	RM1,S1,S2,C2	1.5, 2.0	Low to Moderate
1.3	1	1	Wood Frame with gypsum board sheathing	W2	2.5	Low
1.3	1	1	Wood Frame with gypsum board sheathing	W2	2.5	Low
N/A	2	2	Main Building: Precast Concrete Tilt Panels. Shed: None	PC1, None	1.5	Moderate to Very High
N/A	1	1	Assumed Reinforced Masonry Shear Walls	RM1	1.7	Moderate
N/A	1	1	Wood Frame with gypsum board sheathing	W2	2.5	Low
N/A	1	2	Concrete Masonry Unit Shear Wall with Precast Concrete Columns and Wood Sheathed Roof	RM1	0.2	High
N/A	1	1	Concrete Masonry Unit Shear Wall and Steel Bar X Bracing with CMU Columns and Plywood Sheathed Roof	RM1/S2A	-1	Very High

Roof Type
R1 Membrane over metal deck
R2 Comp. Shingles
R3 Membrane over plywood deck
R4 Metal, Raised Seam
R5 TPO
R6 Ballast over membrane
R7 Asphalt membrane

Mechanical
M1 Package Rooftop Units
M2 Unit Ventilators (Classrooms), Constant Volume AHU (Common Spaces) - Heating Water, No cooling
M3 Forced air furnace - Gas heating/DX cooling, Packaged Rooftop
M4 AHU with VAV TU - Heating Water, Chilled Water
M5 Constant Volume AHU - Heating Water, No cooling
M6 Radiant Gas Heater
M7 Multi-zone AHU - Heating Water, No Cooling
M8 AHU with VAV TU - Heating Water, No Cooling

Lateral Structural System
C2 Concrete shear wall
W2 Wood frame commercial and industrial buildings with a floor area larger than 5,000 square feet
S1 Steel moment-resisting frame
S2 Braced steel frame
S2A Steel braced frame with flexible diapgram
RM1 Reinforced masonry with flexible floor and roof diaphragms
PC1 Tilt-up construction

Collapse Potential:

The Oregon Department of Geology and Mineral Industries (DOGAMI) developed a scale of RVS scores to help classify the general collapse potential risk associated with a range of scores. A score greater than 2.0 has a "Low" collapse potential, 1.1 to 2.0 has a "Moderate" collapse potential, 0.1 to 1.0 has a "High" collapse potential, and less than 1.0 has a "Very High" collapse potential.

1. The RVS scores were compared to both the DOGAMI (Oregon Department of Geology and Minerals Industries) 2006 RVS scores and the Froelich Consulting Engineers (FCE) 2008 RVS scores. The detailed comparison is documented in a memo dated 9/25/2015 and is included in the Appendix in this report.

There are conditions observed that are repeated over multiple sites. These items are outlined below, with recommendations.

TPO Roofing as a Replacement Roofing Material

Lakeridge Junior High

11 of the 17 sites have TPO roofing. The TPO roofing is to be a replacement roofing system applied within the last (3 to 14) years. Bubbling of the roofing material was consistently observed. The roofing condition inhibits drainage and results in ponding. There is evidence of regularly standing water. Brent Paul, LOSD Director of Facility Operations, confirmed that the roofing system is proving to be difficult to chase leaks. A pin hole can allow water into the single layer roofing system and the source can rarely be identified.

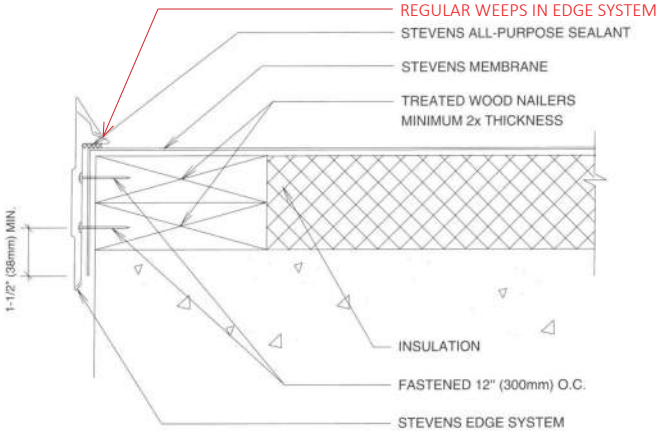
Recommendation: Implement a roofing maintenance plan that will replace the TPO roofs with an SBS built up roofing system, for durability, low maintenance, and longevity of materials.

TPO Parapet Flashing Detail

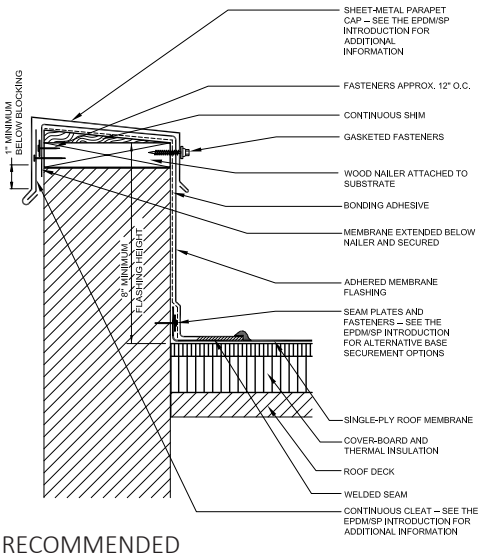
Lake Oswego High School

At the parapet edge, there is a consistent detail of a small metal edge cap that is clipped onto a cleat and sealed with a bead of all-purpose sealant. There is a weep system included in the metal edge cap that allows water to drain down the exterior surface of the parapet edge. This leads to regular staining of the parapet cap and potential water infiltration under the roofing membrane. The TPO roofing system on the parapet often appeared bubbled; not allowing water to drain onto the roof.

Recommendation: Replace the metal edge cap with a full sheet metal cap flashing to maintain drainage off parapet edges, at all buildings with this parapet flashing detail.



NOT RECOMMENDED
single ply roofing membrane flashing detail



RECOMMENDED
single ply roofing membrane flashing detail

Exposed Brick Course Proud of Roof Edge

Oak Creek Elementary School

Parapet does not extend out to cover the brick veneer. The building envelope relies on a bead of sealant between the top row of brick and the bottom of flashing for preventing water infiltration. A bead of sealant as the first and only line of defense requires regular and rigorous maintenance at these conditions.

Recommendation: Replace the cap flashing and build up the brick to align with the top of parapet; install new sheet metal cap flashing over the brick and parapet, and drain back onto the roof.

Lack of Window Head or Sill Flashing

Westridge Elementary School

Windows are missing head and sill flashing allowing water to penetrate the building envelope.

Recommendation: Install head and sill flashing at all exterior windows.

Inadequate Roofing Crickets

Lakeridge High School

All sites at LOSD have observed cricket deficiencies to adequately drain water off the roof. Distance to reach drains is too far, cricket slopes are not steep enough to move the water and, as a result, sediment builds up.

Recommendation: Replace and raise the slope of roofing crickets. At some locations, additional drains may be needed to shorten the drainage distance.

1.8 Additional Investigation

As part of next steps, additional investigation may be necessary to find out further detail of specific conditions that can be used in future project work. After a Master Plan is prepared and approved, areas of investigation can be prioritized based on the outcomes of the Master Plan. Specific observations have been made by the FCA assessment team and are as follows:

• Westridge Elementary- Roof structure has noticeable deflection. A temporary structural repair was performed on one roof truss joist in 2013. On October 15, 2015 destructive investigation was performed in a select location near the initial temporary support and water/termite related damage was visible to adjacent roof joists. Further investigation is necessary to determine the full extent and cause. When the roofing is replaced, structural sheathing condition should be investigated.

• Hallinan Elementary- The north masonry wall has cracked the entire height. Further investigation is needed to confirm if degradation has reached the interior wall. No evidence on interior surface damage could be observed.

• Pool Building- Further engineering investigation should occur to ensure that adequate ventilation and dehumidification is provided for the pool area.

• Pool Building- As a part of the engineering review of the pool area, the need for exhaust fans on the roof should be determined. If they are no longer needed, the fans should be removed and the holes should be patched.

• Pool Building- Some electrical panels located in an electrical room adjacent to the pool building were showing signs of surface rust on the exterior of the panel. These were not recommended for replacement; however, Heery recommends further investigation to review the interior of the panels to determine if rust has impacted the electrical conducting components.

• Lakeridge High School Utility Tunnel- The utility tunnel connecting the main school building to the gym area has standing water. Prior to repair work on MEP utilities being completed, an evaluation should occur to determine the source of the water with a plan for mitigation.

• Electrical capacity- At some of the evaluated schools, a recommendation to replace the main distribution panels (MDP) was made based on the age of the equipment. As a part of the MDP replacement, an evaluation of the building's current electrical demand should be completed to determine if capacity should be increased.

• Mechanical capacity- At some of the evaluated schools, a recommendation was made to overhaul air handling units (AHU). The recommendation is based on the age and physical condition of the units. In most cases, the duct work connected to these units appeared to be in adequate condition. Repairs were recommended for any obvious damage that was observed. Heery recommends that a TAB survey be conducted prior to the overhaul work on these AHUs.

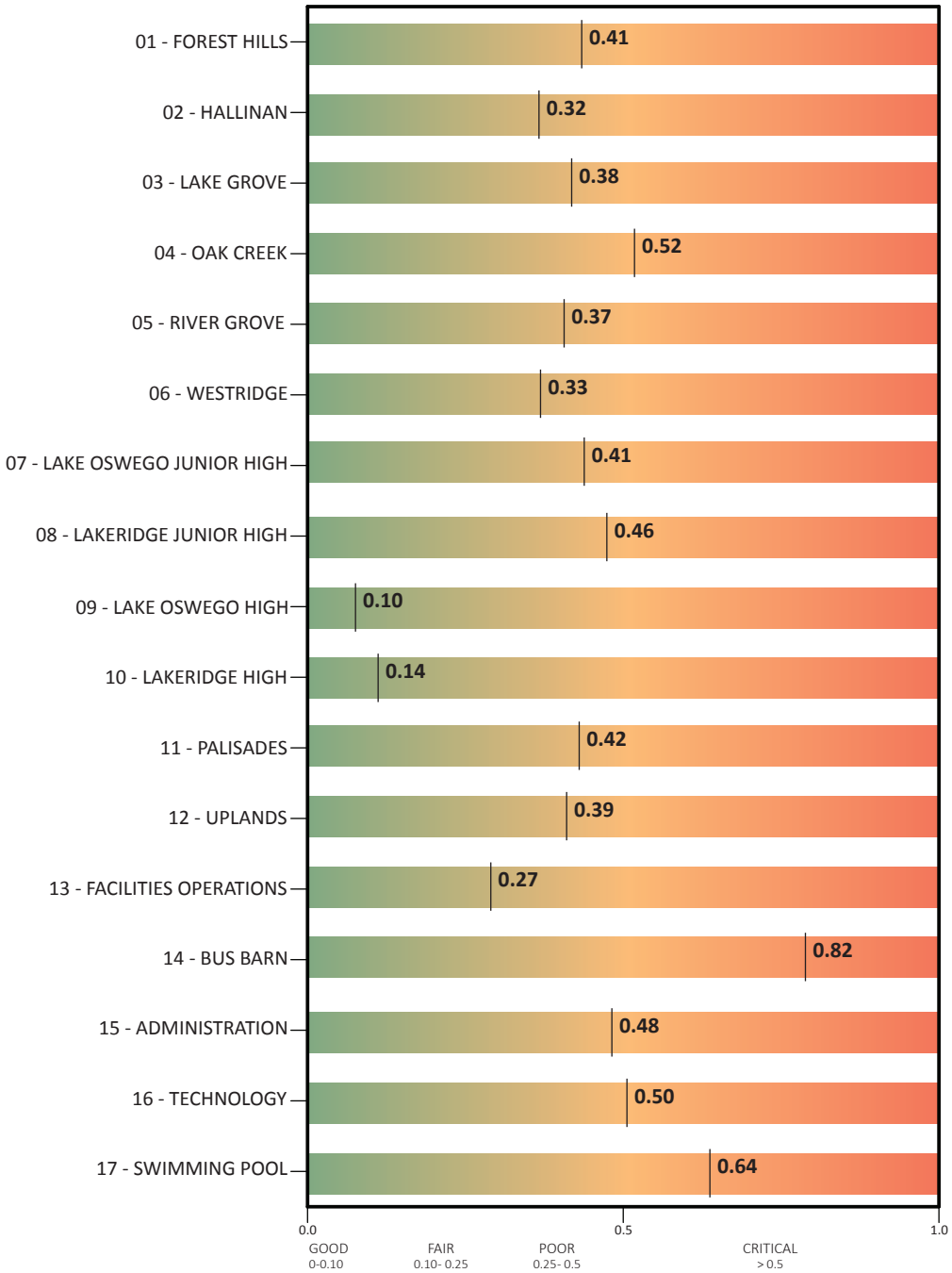
1.9 Outcomes

The following is a summary of the FCI numbers of the 17 facilities reviewed for this report.

The FCI numbers DO NOT include costs of the following items:

Site Improvements (repairs and site replacement)
Fire life safety components associated with building systems such as dampers, occupancy, fire rating of systems, etc.
Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible.
Concealed Systems: below grade, within walls or roofing systems
Contingencies, inflation, general conditions, permits and design fees

Facility Condition Index Summary



Lake Oswego by the Numbers

2015 enrollment: 7,023 students (certified 10/01/2015)

Average Year Built: 1971

Number of Facilities: 17
- Elementary Schools: 6
- Junior Highs: 2
- High Schools: 2
- Closed Schools: 2
- Other Facilities: 5

Total Building Area: 1,231,967 SF

The Facilities Condition Assessment (FCA) is based on the physical observation of building conditions and reviews of the existing building drawings and documentation provided by the District. This report provides a cost estimate that includes the facility condition index number (FCI) for each site. The outcomes of the FCA total cost of deficiencies is (not including site deficiencies): $96,653,134.

The Facility Condition Index (FCI) numbers range from 0.10-0.82.
The 3 facilities with the highest FCI were:

1. Bus Barn	FCI: 0.82
2. Pool Building	FCI: 0.64
3. Oak Creek Elementary School	FCI: 0.52

The four criteria for recommending replacement are:

- High FCI number
- Very high seismic risk
- Multiple floor levels and accessibility issues
- Poor layout for educational programs

The costs generated for replacement costs are based on current local industry standards of similar size and complexity. The costs to replace are as follows:
Elementary schools: $255/SF
Junior high schools: $270/SF
High schools: $320/SF
Operations: $165/SF
Bus Barn: $140/SF
Administrative Offices: $280/SF
Technology: $240/SF
Pool: $350/SF

Seismic

Of the total FCA cost of $97,800,149 (including $1,147,015 site improvements), seismic strengthening to meet the ASCE 41-13 standard accounted for the largest percentage, nearly 48%. That equates to $46,754,051 of seismic upgrades for all facilities.

Educational Adequacy

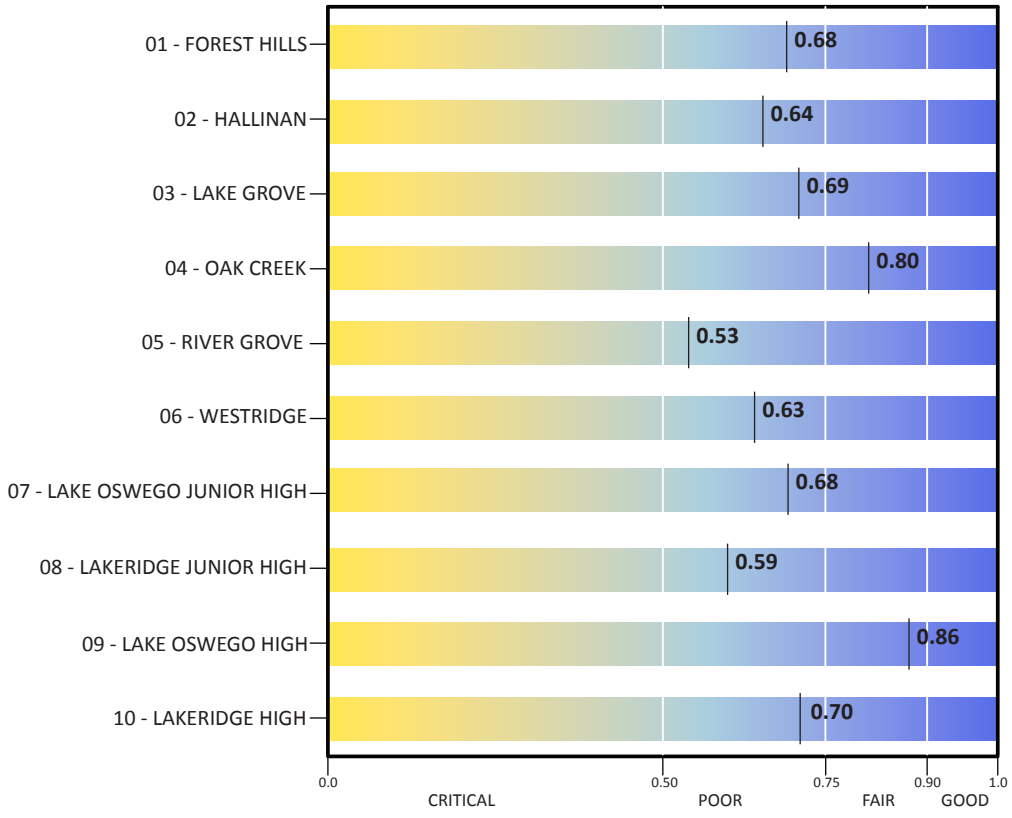
Based on the 2015 enrollment numbers provided by Lake Oswego School District, an educational adequacy assessment was performed. The sites assessed were the (6) elementary schools, (2) junior highs and (2) high schools. This is done to evaluate a building's ability to meet the district's educational needs. It will serve as a basis to help the District understand the gaps facilities and its educational standards and goals. The schools were assessed for (8) categories that affect the learning environment, as provided by the District. These (8) criteria are:

- Capacity
- Technology
- Instructional Aids
- Learning Environment
- Support for Programs
- Supervision and Security
- Physical Characteristics
- Relationship of Spaces

2015 Enrollment	7,023 students (based on District provided information)
Baseline Capacity*	6,974 students
Current enrollment is above by	49 students

*Baseline Capacity is calculated with the existing size of schools and recommended (District approved) area per student.

Educational Adequacy Ranking Summary



Summary

Architectural

- The majority of the buildings are in adequate condition in terms of maintaining a building envelope and a safe environment for student learning.
- Many roofs have been replaced with TPO which does not provide a long-lasting roof system.
- Seismic joints have been roofed over which inhibits seismic movement and pulls the roofing away from the building.
- Single pane glazing as well as exterior windows that do not have adequate flashing or have broken seals are recommended for replacement.
- Door hardware that allows access into classrooms from the exterior should be replaced. Interior finishes were recommended for replacement based on regular traffic, building envelope impact such as water staining, and code requirements.
- The (17) sites FCI results ranged from 0.10 to 0.82.
- Classrooms were assessed for educational adequacy based on the (8) criteria shared by the District.
- Each classroom was observed but evaluated as a whole when rated. Each school met more than 50% of the criteria.

Structural

- The majority of the buildings in the district do not meet Life Safety Performance Level standards based on ASCE 41-13, Seismic Evaluation and Retrofit of Existing Buildings.
- All buildings were assessed to a Life Safety Performance Level, except separate gymnasium buildings or gymnasium wings which were assessed to an Immediate Occupancy Performance Level to act as an emergency operations or recovery center.
- To meet current standards, the majority of buildings require roof-level seismic strengthening (diaphragm and connections of diaphragm to walls). There are also many buildings that require below roof level work.
- Below roof level work could involve strengthening existing shear walls for in-plane and out-of-plane seismic loads, strengthening braced frame connections and attaching floor level diaphragms to lateral elements.
- Most of the buildings were constructed prior to the advent of modern building codes.
- Seismic forces and seismic detailing requirements have changed substantially since most of the buildings were designed.

MEP

- The lighting for all buildings appears to have been updated to high efficiency T5, T8 or CFL type.
- The high schools (LOHS and LHS) had major projects in 2003/2004 and the MEP systems still appear to be in good physical condition.
- The MEP systems for most of the remaining buildings were overhauled or replaced as a part of a major project in 1990. Generally, the mechanical equipment at these schools is nearing the end of useful life and was recommended for replacement or an overhaul.
- Four schools (LJH, LOJH, Palisades and Uplands) are using the 1960s era boilers and piping for the building's heating system. These systems are at the end of useful life, which will require significant work to replace these systems.
- Original 60s era galvanized domestic water piping was noted at five schools (LJH, LOJH, Palisades, Uplands, and River Grove). A recommendation to replace this piping was made at these buildings, which will result in significant work on the plumbing system.
- Six of the schools (Uplands, Palisades, Westridge, Hallianan, River Grove, Lake Grove) are using pneumatic or local electronic control systems. These schools were recommended for conversion to a direct digital control (DDC) system. The cost associated with updating to a DDC system was based upon discussion with the District's current DDC provider (Clima-tech).
- Heery made an estimate of control points needed for each school, and an estimate of $550 per point was used to determine the cost for conversion.
- As a part of the 1990 projects, most of the branch panels in the electrical distribution system were replaced, and the original main distribution panels (MDP) were maintained in service. In this report, the original 60x era MDP are recommended for replacement.

Pool

- The pool is not meeting the current codes and industry standards. Facilities built around the same time are commonly in similar condition.
- Major renovations (e.g. pool deck replacement, pool main drain modification, pool slope correction) often require that the swimming pool and related systems all be brought up to current code standards.
- The life expectancy for a commercial swimming pool with a reinforced concrete shell is approximately 50 years. The current swimming pool is +/- 45 years old.
- The Terracon Aquatic Center Facility Condition Assessment (10/02/2015) report entails significantly more detail about the current condition of the swimming pool. From a longevity and value standpoint total replacement is strongly recommended.

1.10 How to Use This Manual

This report consists of 5 parts: Executive Summary, Facility Analysis, Educational Adequacy, Field Documents, and Appendix.

- Part 1: The Executive Summary provides an introduction to the overall process, methodologies, and overall findings.
- Part 2: The Facility Analysis provides an overview of each facility, Cost estimate summary and FCI number, structural deficiencies and detailed recommendations for improvements.
- Part 3: The Educational Adequacy provides recommendations for improvements for each school to meet the District's education standards.
- Part 4: The Field Documents section assembles all forms, marked-up drawings and other documents produced by the assessment team for this report.
- Part 5: The Appendix includes meeting minutes.

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Part 2 - Facility Analysis

2.1 Summary

The Facility Analysis documents the assessment findings into a facility-by-facility format that allows for an in-depth understanding of each facility's condition and the individual items that are associated with the repair and renovation costs. The following documentation has been prepared for each of the District's 17 facilities:

- Facility Fact Sheet
- Cost Estimate Summary
- Structural Deficiencies List

Facility Fact Sheet

The Facility Fact Sheet provides an overview for each facility including a map, a representative photo, a facility summary, a Facility Cost Repair Allocation chart which shows the percentage of the overall building repair cost that is allocated to different systems, and a Facility Condition Index (FCI) diagram with the overall FCI number. This sheet is accompanied by a floor plan(s) to provide more detail into each facility's layout.

Cost Estimate Summary

The Cost Estimate Summary itemizes the site and building deficiencies and the associated costs for their equivalent replacement. The cost estimate was prepared by a professional estimator, Architectural Cost Consultants, issued on September 09, 2015. The costs are derived from current labor rates and cost of construction materials. Soft costs such as design and permitting are not included in the estimate. The estimate is broken down by system and by trade to provide an in-depth understanding of facility condition and the costs to restore each to a safe condition. The overall FCI number is calculated from this list as it compares the two overall costs: the cost to repair / the cost to replace.

Structural Reviews

Structural reviews included a review of available structural drawings, walkthroughs of the buildings and preliminary seismic evaluations to determine likely seismic deficiencies. Estimated probable costs per square foot for seismic rehabilitation of these deficiencies are provided for each site. Both structural and nonstructural deficiencies listed for each site are included in the estimate. The dollar per square foot amounts assume that seismic rehabilitation is not occurring in conjunction with other upgrade work and includes an allotment for repairing architectural features after the structural work is complete. These costs are based on previous seismic rehabilitation studies of other campuses of similar building construction types and ages. Note that these estimates exclude the cost of re-roofing (membrane, shingles, etc.) as this cost is included in the architectural section. Non-seismic related structural deficiencies observed on site are also listed. These items are listed under "Other Structural Deficiencies". The costs to repair these items are not included in the seismic cost per square foot estimates but are itemized in the Cost Estimate Summary.

The structural and nonstructural seismic assessments were based on checklists from ASCE 41-13, Seismic Evaluation and Retrofit of Existing Buildings. A list of building type definitions used in ASCE 41-13 is provided in Table 1 for reference. Seismically separated Gymnasiums and Gymnasium wings were assessed using the Immediate Occupancy Performance Objective. All other structures were assessed using the Life Safety Performance Objective. These assessments are high level and used the Tier 1 checklists as guidance. A complete Tier 1 evaluation was beyond the scope of this facility condition assessment and was not performed for this report. There are a number of items in the checklists that are marked as unknown. These items should be confirmed during a complete Tier 1 evaluation before implementing a

retrofit plan. Should any of these structures be chosen for a seismic rehabilitation grant application, comprehensive ASCE 41-13 evaluations will be required at that time. The results of comprehensive evaluations are anticipated to indicate retrofit work within the cost per square foot estimates provided in this assessment.

It is unknown if liquefaction is a hazard at these sites. We recommend that liquefaction potential be confirmed with a geotechnical engineer as this would affect all building foundations. All cost estimates provided assume liquefaction is not present.

ASCE 41 Building Types	
Abbreviation	Description
W1	Wood Light Frame
W1A	Multi-Story, Multi-Unit Residential Wood Frame
W2	Wood Frame, Commercial and Industrial
S1	Steel Moment Frame with Stiff Diaphragm
S1A	Steel Moment Frame with Flexible Diaphragm
S2	Steel Braced Frame with Stiff Diaphragm
S2A	Steel Braced Frame with Flexible Diaphragm
S3	Steel Light Frame
S4	Dual System with Backup Steel Moment Frame and Stiff Diaphragm
S5	Steel Frame with Infill Masonry Shear Wall and Stiff Diaphragm
S5A	Steel Frame with Infill Masonry Shear Wall and Flexible Diaphragm
C1	Concrete Moment Frame
C2	Concrete Shear Wall with Stiff Diaphragm
C2A	Concrete Shear Wall with Flexible Diaphragm
C3A	Concrete Frame with Infill Masonry Shear Wall and Stiff Diaphragm
C3A	Concrete Frame with Infill Masonry Shear Wall and Flexible Diaphragm
PC1	Precast or Tilt-Up Concrete Shear Wall with Flexible Diaphragm
PC1A	Precast or Tilt-Up Concrete Shear Wall with Stiff Diaphragm
PC2	Precast Concrete Frame with Shear Wall
PC2A	Precast Concrete Frame Without Shear Wall
RM1	Reinforced Masonry Bearing Wall
RM1A	Reinforced Masonry Bearing Wall with Stiff Diaphragm
URM	Unreinforced Masonry Bearing Wall with Flexible Diaphragm
URMA	Unreinforced Masonry Bearing Wall with Stiff Diaphragm

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Map of Facilities

ELEMENTARY SCHOOLS

1 Forest Hills
1133 Andrews Rd

2 Hallinan
16800 Hawthorne Drive

3 Lake Grove
15777 Boones Ferry Rd

4 Oak Creek
55 Kingsgate Rd

5 River Grove
5850 McEwan Rd

6 Westridge
3400 Royce Way

JUNIOR HIGH SCHOOLS

7 Lake Oswego Jr. High
2500 Country Club Rd

8 Lakeridge Jr. High
4700 Jean Rd

HIGH SCHOOLS

9 Lake Oswego High
2501 Country Club Rd

10 Lakeridge High
1235 Overlook Drive

CLOSED SCHOOLS

11 Palisades
1500 Greentree Rd

12 Uplands
2055 SW Wembley Park Rd

FACILITIES

13 Facilities Operations
4200 SW Douglas Way

14 Bus Barn
4301 SW Beasley Way

15 Administration
2455 Country Club Rd

16 Technology
2477 Country Club Rd

17 Swimming Pool
2400 Hazel Rd

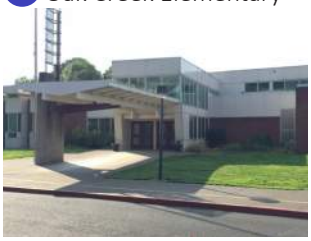
Facilities Overview

1 Forest Hills Elementary

2 Hallinan Elementary

3 Lake Grove Elementary

4 Oak Creek Elementary



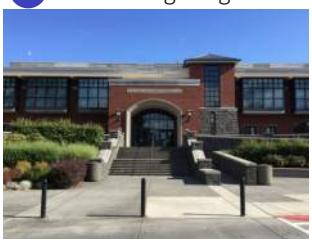
5 River Grove Elementary

6 Westridge Elementary

7 Lake Oswego Jr. High

8 Lakeridge Jr. High

9 Lake Oswego High



10 Lakeridge High

11 Palisades

12 Uplands

13 Facilities Operations

14 Bus Barn

15 Administration

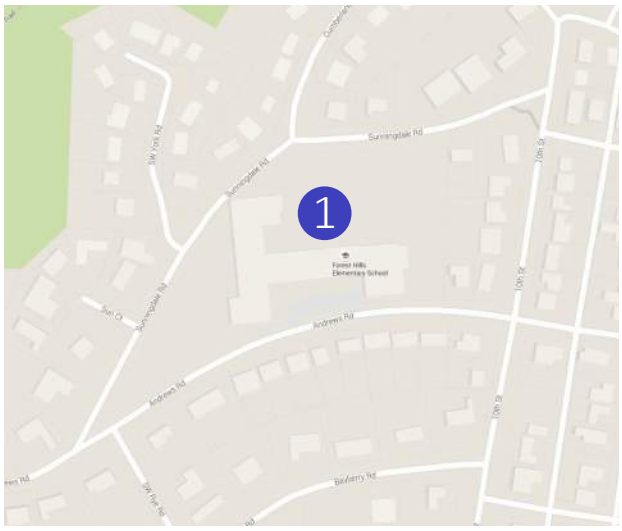
16 Technology

17 Swimming Pool

FACT SHEET

1133 Andrews Rd.
Lake Oswego, OR 97034

1 FOREST HILLS ELEMENTARY



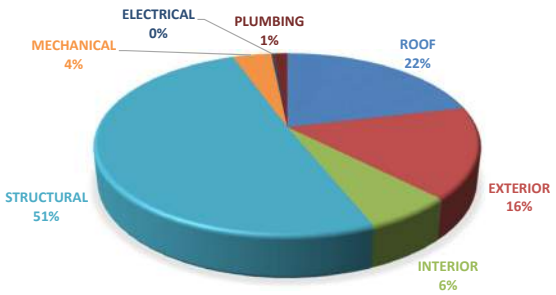
YEAR BUILT REMODELS	1946 1990, 2004, 2013
BUILDING AREA	50,695 SF
TOTAL HEIGHT	21’
NUMBER OF FLOORS	1
OCCUPANCY	E-1
PRIMARY STRUCTURE	WOOD FRAME
ROOF TYPE	BALLAST, SHINGLE, STANDING SEAM
FLOOR FINISHES	CARPET TILE, VCT
CEILING FINISHES	ACT, GYP. BOARD
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	UNIT VENTILATORS IN CLASSROOMS, CONSTANT VOLUME AHU IN COMMON SPACES

FACILITY SUMMARY

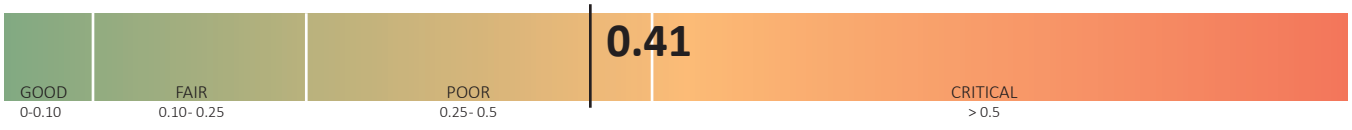
Forest Hills Elementary School is comprised of 452 students in grades from kindergarten to fifth grade (K-5). The main entryway is approached from Andrews Road.

There is extensive painting and carpet replacement required inside the building. Large areas of exterior brick need to be cleaned and repointed. Roof truss bolts need to be replaced throughout the school.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)



DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	1	FOREST HILLS ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	49580 sf	$20.00	$991,600
	Replace shingle roofing	900 sf	$5.00	$4,500
	Replace sheet metal roofing	4965 sf	$20.00	$99,300
	Replace sheet metal flashing	130 lf	$18.00	$2,340
	Reconfigure gutter to drain into lower gutter rather than adjacent roof membrane	6 ea	$750.00	$4,500
	Replace roof drains	8 ea	$1,200.00	$9,600
	Provide new SBS BUR roofing at entry areas and sheet metal accessories, to meet current energy code	200 sf	$53.00	$10,600
	Install splash block	10 ea	$75.00	$750
	Replace downspout	1 ea	$200.00	$200
	Reconnect downspout	1 ea	$100.00	$100
	Install roof drain and associated piping	1 ea	$3,000.00	$3,000
			TOTAL COST	$1,126,490
ARCHITECTURAL EXTERIOR	Provide concrete slab @ side entry porch, connect to retaining wall	350 sf	$33.00	$11,550
	Repaint HM double door and frame	12 ea	$250.00	$3,000
	Replace window system with storefront system	4650 sf	$60.00	$279,000
	Replace window system with storefront system	1200 sf	$60.00	$72,000
	Replace octagonal windows (60sf ea)	7 ea	$4,000.00	$28,000
	Replace brick masonry	120 sf	$35.00	$4,200
	Repoint brick masonry	14000 sf	$25.00	$350,000
	Replace gutter and downspout	50 lf	$15.00	$750
	Replace plywood siding w/ medium grade rain screen	1500 sf	$16.00	$24,000
	Clean brick masonry	14000 sf	$2.00	$28,000
	Replace wood fascia boards	1650 lf	$2.00	$3,300
	Replace masonry control joints	50 lf	$15.00	$750
	Reseal all gutter splices	135 ea	$10.00	$1,350
	Replace sealant joints	25 lf	$10.00	$250
	Replace wood trim	200 lf	$10.00	$2,000
	Repaint siding	500 sf	$1.50	$750
	Brick lintel replacement	23 lf	$90.00	$2,070
	Re-attach roof insulation in attic	15290 sf	$1.00	$15,290
	Repair floor slab in mechanical access tunnel	1900 sf	$15.00	$28,500
			TOTAL COST	$854,760
ARCHITECTURAL INTERIOR	Replace broadloom carpet with carpet tile; new rubber base to match (E)	17,129 sf	$6.50	$111,339
	Replace carpet tile; install new rubber base	2,112 sf	$7.00	$14,784
	Replace VCT flooring; new rubber base to match (E)	1,427 sf	$4.50	$6,422
	Refinish wood flooring	440 sf	$3.00	$1,320
	Replace sheet flooring; new rubber base to match (E)	1,680 sf	$8.00	$13,440
	Repaint wall	27,220 sf	$1.00	$27,220
	Patch and repaint gypsum plaster wall	136 sf	$2.00	$272
	Replace 1x1 glue-on ceiling tile	4,967 sf	$7.00	$34,769
	Replace 2x2 glue-on ceiling tile	6,672 sf	$7.00	$46,704
	Replace 2x4 lay-in ceiling tile	56 sf	$8.00	$448
	Patch and repaint gypsum board ceiling	270 sf	$10.00	$2,700
	Repair damaged p-lam casework	16 sf	$150.00	$2,400
	Replace door knob with lever	75 ea	$500.00	$37,500
	Refinish wood door and frame	20 ea	$500.00	$10,000
	Add ADA water drinking fountain	1 ea	$3,000.00	$3,000
	Add unisex ADA restroom, complete	1 sum	$20,000.00	$20,000
			TOTAL COST	$332,317

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	1	FOREST HILLS ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
SITE	Repave entry sidewalk	100 sf	$9.00	$900
	Recaulk sidewalk	50 lf	$5.00	$250
			TOTAL COST	$1,150
STRUCTURAL	Clean and paint corrugated metal deck	1900 sf	$15.00	$28,500
	Replace roof truss bolts	61698 sf	$5.00	$308,490
	Repair roof around expansion/firewalls	790 sf	$5.00	$3,950
	Seismic rehabilitation work as the sole building upgrade (does not include re-roof costs)	50,695 sf	$45.00	$2,281,275
	Seismic rehabilitation at roof level of the covered play structure	4,965 sf	$10.00	$49,650
	Replace 25% of the covered play structure roof skirt	74 lf	$4.00	$296.00
			TOTAL COST	$2,672,161
MECHANICAL	Repair 3.3K CFM single zone constant volume, overhaul and reuse DDC controls	1 ea	$9,000.00	$9,000
	Repair 260 CFM single zone constant volume, overhaul and reuse DDC controls	1 ea	$4,500.00	$4,500
	Repair 3.6K CFM single zone constant volume, overhaul	1 ea	$8,000.00	$8,000
	2K CFM single zone constant volume, overhaul	1 ea	$4,000.00	$4,000
	800 CFM single zone constant volume, overhaul and reuse DDC controls	1 ea	$5,500.00	$5,500
	Repair single zone constant volume AHU, overhaul and reuse DDC controls	1 ea	$9,000.00	$9,000
	Replace 1.5 ton window AC, replace with ductless split system	1 ea	$2,700.00	$2,700
	Replace roof top centrifugal exhaust fan	4 ea	$9,200.00	$36,800
	Replace 1000 CFM hot water unit ventilators, reuse DDC controls	9 ea	$8,000.00	$72,000
	Replace 1250 CFM hot water unit ventilators, reuse DDC controls	1 ea	$9,000.00	$9,000
	Repair not water convectors: Update to DDC controls	22 points	$550.00	$12,100
	Replace kitchen exhaust fan	1 ea	$23,000.00	$23,000
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$205,600
ELECTRICAL	Replace 120/208V 1600A Main Distribution Switchgear	1 ea	$11,800.00	$11,800
	Add surge suppression at Main Distribution Switchgear	1 ea	$1,100.00	$1,100
	Repair exterior lighting: Canopy fixtures on in daytime. Add lighting controls.	1 ea	$2,200.00	$2,200
			TOTAL COST	$15,100
PLUMBING	Repair floor mounted urinals: Add DDC control to flush based on schedule	11 ea	$2,100.00	$23,100
	Repair wall hung lavatories: update fixture to 0.5 gpm	10 ea	$1,600.00	$16,000
	Replace floor mounted toilets, update to 1.6 gpf standard	13 ea	$1,600.00	$20,800
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$69,900

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$5,276,328
	TOTAL COST TO REPLACE	$12,927,225
	=FCI	0.41

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $255/SF.

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October 02, 2015

1_Forest Hills Elementary

Constructed in 1946, with additions in later years, 1990 playground canopy next to the gym, and 2002 (North end classroom).
Wood Framed (W2) Building with Flexible Diaphragm Roof. The majority of the roofs are pitched timber trusses with smaller areas of flat roof with glulam beams supported by wood framed walls.
Building Risk Category II
ASCE 41-13 **Life Safety** Performance Level

Main Building Seismic Retrofit Cost Per Square Foot
$45/sf (does not include costs for re-roofing)

Covered Play Structure Seismic Retrofit Cost Per Square Foot
$10/sf (does not include costs for re-roofing)

The original structural drawings could not be located. The oldest drawings provided were 1990 remodel and playground canopy drawings. The structure consists of wood framed shear walls with roof trusses over the typical gabled areas at 2'-0" on center and straight sheathing. Other areas use glulam beams and timber purlins to support the sheathing. Use of structural panel sheathings at shear walls and roof diaphragms could not be confirmed and walls are assumed to be gypsum sheathing at best while roofs are assumed to be straight sheathing. Some fin walls occur on the west face of the building are made of brick URM and do not have adequate support.

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Unblocked straight sheathed diaphragm spans greater than 40 feet.
- Connections of diaphragms to lateral system likely need retrofit.
- Connection of roof girders and ties to exterior walls and columns likely need retrofit.
- Sheathing of wall and capacity unknown and may need retrofit.
- Lateral system connection to foundation unknown.
- Covered play structure lateral system is lacking and structure is too close to gym for seismic separation.
- Entry canopies to be strengthened and attached to the main building.
- URM walls at entries to be strengthened or removed.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Mechanical equipment in boiler room and attic – not braced to structure.
- Gas lines to mechanical equipment – do not have flexible connections.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.
- Out of plane capacity of brick veneer unknown.
- Pendulum light fixtures to be braced.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

STRUCTURAL REPORT

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

- Brick veneer in some locations at the exterior show signs of deterioration. The brick should be repaired and the underlying wood structure checked for rot and water damage. Reference the architectural portion of the cost estimate for extents.
- Water damage is evident on the underside of the covered play structure roof and skirt adjacent to the gym. Assume up to 25% of the structure will need to be replaced, if not removed or replaced as part of a seismic upgrade.
- Corrugated metal deck forms above the mechanical access tunnels under the building in some locations show rust and deterioration. The floor slabs should be verified to confirm the deck is not needed structurally to span tunnel and the metal should be cleaned and painted. Assume 1,900 sf of floor needs repair at $15/sf.
- Many of the connections in the roof trusses have single bolts which may not be appropriate by today's design standards. The trusses should be reviewed in depth to determine if strengthening is required. Assume $5/ sf over the area of the roof.
- The peaked roof areas between trusses near the library have tension rods below to help span to supports. These members and their connections should be reviewed for compliance with current standards. This repair can be considered part of the roof truss repair in the previous item.
- Minor differential deflection of the roof on either side of an assumed expansion/firewall on the north side of the building should be repaired to prevent roofing cracks. Assume an area of 790 sf at an additional $5/ sf for repair.
- There are signs of distress in the retaining wall and slab connection at the masonry covered entry at the southwest corner of the classroom wing. In addition to the seismic retrofit of the canopy at the retaining wall at the south face should be doweled into a new concrete slab and the wall should be reviewed for adequacy. Assume an area of 350 sf at an additional $5/ sf for repair.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

PHOTOS OF DEFICIENCIES
FOREST HILLS

Brick Veneer Cracking

Irregular Timber Beam

Fall Prone Contents

Lack of Lateral Support at Building End

Hard Connected Gas Line

Pendant Supports

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
FOREST HILLS

Plank Sheathing without Plywood

Seismically Deficient Play Canopy Adjacent to Gym

Roof Deflection at Building Joint

Seismically Deficient URM Side Entry with Roof

Seismically Deficient Entry Canopy

Seismically Deficient URM Side Entry

PHOTOS OF DEFICIENCIES
FOREST HILLS

Seismically Deficient URM SW Entry

Possible Vertical Irregularity

Unrestrained Flammable Cabinet

Unrestrained Gym Equipment

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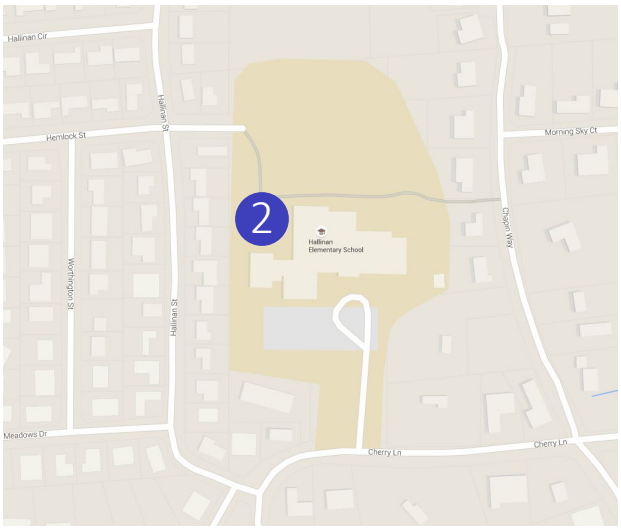
FACT SHEET

16800 Hawthorne Dr.
Lake Oswego, OR 97034

2 HALLINAN ELEMENTARY



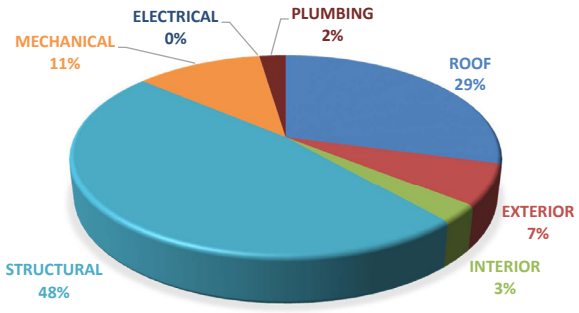
YEAR BUILT	1980
REMODELS	NONE
BUILDING AREA	46,712 SF
TOTAL HEIGHT	21’
NUMBER OF FLOORS	1
OCCUPANCY	E-1
PRIMARY STRUCTURE	WOOD FRAME
ROOF TYPE	TPO, BALLAST, STANDING METAL SEAM
FLOOR FINISHES	CARPET TILE, VCT, CERAMIC TILE, CONCRETE
CEILING FINISHES	ACT, GYP. BOARD
PARTITION TYPE	GYP. BOARD OVER METAL STUD
HVAC TYPE	AHU WITH VAV TU

FACILITY SUMMARY

Hallinan Elementary was designed to have its academic programs surround a centralized library along with a wing of classrooms on the east end. The school serves 435 students from kindergarten through fifth grade.

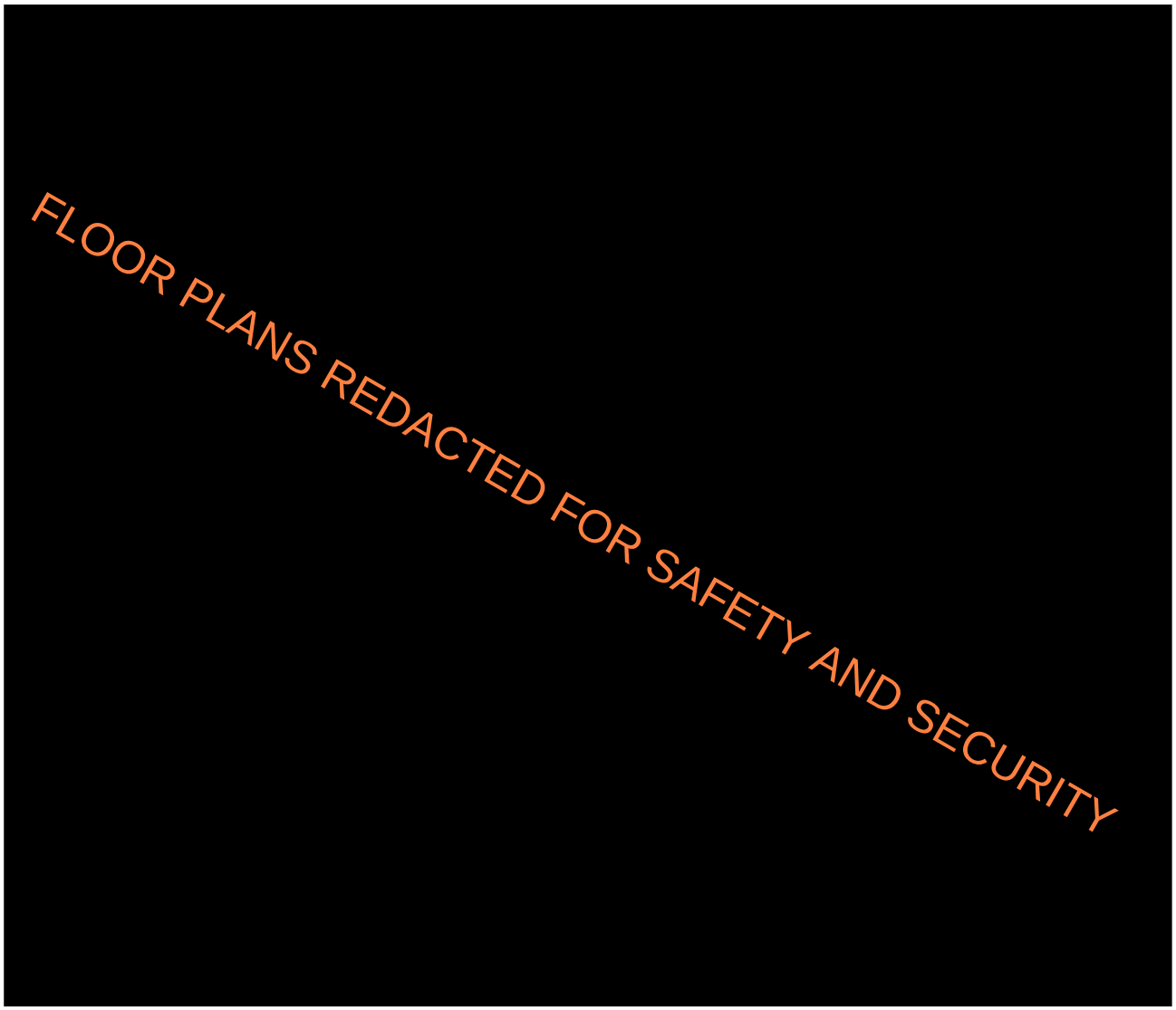
Crickets need to be raised on the roof in order to drain properly along with simple maintenance such as removing debris. The exterior masonry walls have to be cleaned and repointed and all mechanical equipment needs to be updated to DDC controls.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS



COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	2	HALLINAN ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	46,082 sf	$20.00	$921,640
	Provide new SBS BUR roofing and sheet metal accessories (uninsulated)	5126 sf	$16.00	$82,016
	Refinish steel ladder	2 ea	$500.00	$1,000
	Repaint concrete wall	462 sf	$2.00	$924
	Clean out gutter	26 lf	$7.00	$182
	Replace skylight with new curbs at 8" high	20 ea	$2,500.00	$50,000
	Provide sleeve for antennae conduit	20 lf	$30.00	$600
	Provide safety rails at roof hatch	1 ea	$1,500.00	$1,500
	Reinstall roof hatch 180 degrees to allow for better access	1 ea	$2,000.00	$2,000
	Provide reglet flashing	203 lf	$12.00	$2,436
	Replace downspout	2 ea	$200.00	$400
	Install splash block	4 ea	$75.00	$300
	Replace conduit lines and install 8" high blocks	100 lf	$40.00	$4,000
	Replace gutter	239 lf	$16.00	$3,824
	Replace/relocate ladder (10 ft high) , patch metal panel wall	1 ea	$2,500.00	$2,500
	Refinish louver (15x7). Remove corrosion and paint	1 ea	$100.00	$100
	Clean metal panels	242 sf	$1.00	$242
	Relocate conduit on blocks away from parapet edge	89 lf	$20.00	$1,780
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
			TOTAL COST	$1,100,444
ARCHITECTURAL EXTERIOR	Repoint brick masonry	1,000 sf	$25.00	$25,000
	Replace all acoustic panels underside of covered playground (4'x8')	5,500 sf	$9.00	$49,500
	Repaint wood trusses (60' long)	32 ea	$400.00	$12,800
	Replace door knob with lever handle	9 ea	$500.00	$4,500
	Repaint wood wall above brick in covered playground	850 sf	$1.50	$1,275
	Clean brick masonry	2,060 sf	$2.00	$4,120
	Replace brick masonry	132 sf	$35.00	$4,620
	Clean metal panels	1,080 sf	$1.00	$1,080
	Replace masonry control joints	90 lf	$15.00	$1,350
	Replace exterior handrails	160 lf	$50.00	$8,000
	Replace single pane windows, include sill flashing (6' x 7')	4 ea	$2,500.00	$10,000
	Install fire sprinkler escutcheons	4 ea	$75.00	$300
	Replace gyp bd soffit	290 sf	$20.00	$5,800
	Replace single pane sidelight glazing w/ insul glass, (6' x 8'), paint frame	23 ea	$1,500.00	$34,500
	Replace masonry wall and wall backup material	680 sf	$45.00	$30,600
	Replace downspout (15')	2 ea	$200.00	$400
	Replace 5x5 aluminum windows. Provide head and sill flashing	15 ea	$1,500.00	$22,500
	Replace 10x5 aluminum window. Provide head and sill flashing	11 ea	$3,000.00	$33,000
	Clean downspout (15')	1 ea	$100.00	$100
			TOTAL COST	$249,445
ARCHITECTURAL INTERIOR	Patch and repaint gypsum plaster wall	10 sf	$2.00	$20
	Repaint gypsum plaster wall	30,771 sf	$1.00	$30,771
	Replace 1x1 glue-on ceiling tile	2,094 sf	$7.00	$14,658
	Replace carpet tile; install new rubber base	3,131 sf	$7.00	$21,917
	Replace one 3'x7' acoustic wall panel	1 ea	$400.00	$400
	Replace hardware on wood door	18 ea	$750.00	$13,500
	Replace ceramic floor tile; install new base	160 sf	$24.00	$3,840
	Repaint gypsum plaster ceiling	761 sf	$1.20	$913
	Replace wood door and HM frame	11 ea	$1,800.00	$19,800
			TOTAL COST	$105,819

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	2	HALLINAN ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT		

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
SITE				
			TOTAL COST	$0
STRUCTURAL	Replace masonry wall	20 sf	$100.00	$2,000
	Add deflection head at partition walls	100 sf	$25.00	$2,500
	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	51,208 sf	$35.00	$1,792,280
			TOTAL COST	$1,796,780
MECHANICAL	Repair 9.6K CFM Indoor VAV AHU: Update to DDC and overhaul SF/RF-1	1 ea	$8,000.00	$8,000
	Repair 4.3K CFM Indoor CAV AHU: Update to DDC and overhaul SF/RF-2	1 ea	$7,500.00	$7,500
	Repair 20.4K CFM Indoor VAV AHU: Update to DDC and overhaul SF/RF-3	1 ea	$8,000.00	$8,000
	Repair 7.4K CFM Indoor VAV AHU: Update to DDC and overhaul SF/RF-4	1 ea	$8,000.00	$8,000
	Repair 2.1K CFM Hot Water Fan Coil Unit: Update to DDC FC-1	1 ea	$7,000.00	$7,000
	Replace 200 CFM hot water fan coil unit FC-2	1 ea	$3,800.00	$3,800
	Replace 800 CFM Cabinet exhaust fans, add DDC control	4 ea	$3,300.00	$13,200
	Replace VAV with hot water reheat, replace pneumatically controlled TU with DDC	21 ea	$5,500.00	$115,500
	Replace pneumatic controls with DDC controls	231 points	$550.00	$127,050
	Replace 880 CFM hot water unit heater	2 ea	$2,100.00	$4,200
	Replace 882 MBH Gas hot water boiler, replace with condensing boiler	2 ea	$31,800.00	$63,600
	Replace In-line centrifugal to variable volume with VFD drive	2 ea	$3,400.00	$6,800
	Replace 3K CFM gas fired makeup air unit	1 ea	$6,200.00	$6,200
	Replace kitchen exhaust fan	1 ea	$27,700.00	$27,700
	Replace kitchen cooler condensing unit, relocate out of boiler room	2 ea	$5,200.00	$10,400
	Replace 1.5 Ton window AC with ductless split system	1 ea	$2,400.00	$2,400
	Repair kitchen hood: Note says 'Out of Service'	1 ea	$1,700.00	$1,700
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$431,050
ELECTRICAL	Add surge suppression at main distribution panel	1 ea	$1,100.00	$1,100
			TOTAL COST	$1,100
PLUMBING	Replace 50 gal electric water heater	1 ea	$1,350.00	$1,350
	Repair wall hung lavatory: Upgrade to low flow aerators	18 ea	$1,600.00	$28,800
	Replace wall hung toilet, update with 1.6 gpf	22 ea	$1,600.00	$35,200
	Repair irrigation in garden, overwaters and drains towards building	1 ea	$400.00	$400
	Replace floor mounted urinals, update to 1 gpf	4 ea	$1,600.00	$6,400
	Replace drinking fountain	3 ea	$2,100.00	$6,300
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$88,450

All rates current as of September 2015. See Cost Analysis for itemized price listings.	TOTAL COST TO REPAIR	$3,773,088
	TOTAL COST TO REPLACE	$11,911,560
	=FCI	0.32

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $255/SF.

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

2_Hallinan Elementary

Constructed in 1980. Wood framing with concrete tilt-up panels at gym and some CMU with #5@32 vert and #5@48 horiz. Tectum panel diaphragm at gym and wood structural panel diaphragms elsewhere.
Building Risk Category III
ASCE 41-13 **Immediate Occupancy** Performance Level for gym portion
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$35/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Interior wood walls in the main building do not include wood structural panels or shear wall hold-downs.
- Wood structural panel diaphragms need to be installed in the gym building and the connection from diaphragm to tilt-up panel should be strengthened.
- Wood structural panel diaphragms likely need increased nailing for seismic resistance.
- Diaphragm chords and collectors should be strengthened.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.
- Partition walls – many partial height walls are not internally braced with structural steel.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

- Cracking in masonry walls in the music rooms. This does not appear to be an immediate structural concern. The total length of cracks is assumed to be 10 feet or less.
- The roof has possible deflection issues in some areas. Finishes below these areas are cracking. This does not appear to be an immediate structural concern. As a repair option, a deflection head could be added at partition walls. Assume 100 linear feet of wall needs a deflection head.
- Brick veneer in some locations throughout the exterior of the building is deteriorated, indicating water infiltration that is likely deteriorating the wood structural panels. Since these walls are not designated shear walls, it is not an immediate structural concern but the panels should be replaced to increase the longevity of the building. Reference the architectural portion of the cost estimate for extents.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
HALLINAN

Crack in Masonry Wall

Cracking at Exterior Veneer

Fall Prone Contents

Inadequate Diaphragm Connection

PHOTOS OF DEFICIENCIES
HALLINAN

Unbraced Partial Height Walls

Unbraced Pipes

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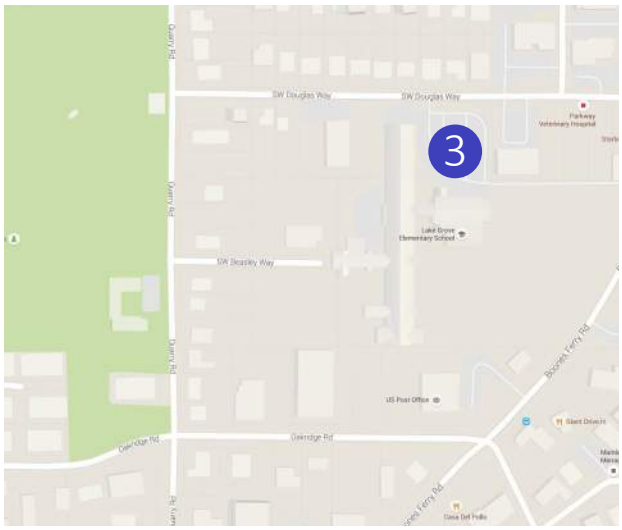
FACT SHEET

15777 Boones Ferry Rd.
Lake Oswego, OR 97035

3 LAKE GROVE ELEMENTARY



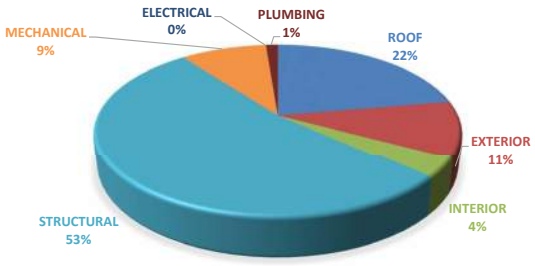
YEAR BUILT REMODELS	1949 1990
BUILDING AREA	61,652 SF
TOTAL HEIGHT	25’
NUMBER OF FLOORS	1
OCCUPANCY	E-1
PRIMARY STRUCTURE	WOOD FRAME
ROOF TYPE	SHINGLE
FLOOR FINISHES	CARPET TILE, VCT, CERAMIC TILE
CEILING FINISHES	ACT, GYP. BOARD
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	CONSTANT VOLUME AHUs

FACILITY SUMMARY

Lake Grove Elementary is comprised in the form of a long hallway of classrooms with the gym anchored on the east alongside the main entrance. The school serves 416 students from kindergarten to fifth grade.

Extensive seismic repairs are strongly recommended, including replacement of all single bolts in roof trusses. Small areas of sheet metal and asphalt shingle roofing are in need of replacement.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	3 LAKE GROVE ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	58595 sf	$20.00	$1,171,900
	Replace shingle roofing	2663 sf	$5.00	$13,315
	Replace metal roofing and substrate	4871 sf	$28.00	$136,388
	Repair gutter	5 lf	$12.00	$60
	Repair gutter splices	215 ea	$10.00	$2,150
			TOTAL COST	$1,323,813.00
ARCHITECTURAL EXTERIOR	Repair HM door and frame	16 ea	$900.00	$14,400
	Replace window perimeter seals	7,000 lf	$5.00	$35,000
	Replace metal panel infill	1,800 sf	$30.00	$54,000
	Repaint 1x6 wood trim at brick	3,100 lf	$1.50	$4,650
	Replace wood trim	470 lf	$10.00	$4,700
	Repoint glass block	300 sf	$25.00	$7,500
	Repaint soffit and fascia	3,300 sf	$1.50	$4,950
	Replace metal flashing	140 lf	$18.00	$2,520
	Replace mechanical louver	100 sf	$50.00	$5,000
	Replace plywood siding with medium grade rain screen	1,400 sf	$15.00	$21,000
	Replace sheet metal siding	600 sf	$25.00	$15,000
	Masonry lintel replacement	50 sf	$90.00	$4,500
	Repoint brick masonry	13100 sf	$25.00	$327,500
	Clean brick masonry	13100 sf	$2.00	$26,200
	Replace brick masonry	950 sf	$35.00	$33,250
	Replace storefront windows	135 sf	$60.00	$8,100
	Replace wood soffit	200 sf	$20.00	$4,000
	Replace door weatherstripping	4 lf	$5.00	$20
	Replace HM door and frame	21 ea	$1,800.00	$37,800
	Clean out brick weeps	1380 lf	$10.00	$13,800
			TOTAL COST	$623,890.00
ARCHITECTURAL INTERIOR	Replace broadloom carpet with carpet tile; new rubber base to match (E)	8,410 sf	$6.50	$54,665
	Replace carpet tile; install new rubber base	5,235 sf	$7.00	$36,645
	Replace VCT flooring; new rubber base to match (E)	3,165 sf	$4.50	$14,243
	Refinish wood flooring	475 sf	$3.00	$1,425
	Replace sheet flooring; new rubber base to match (E)	120 sf	$8.00	$960
	Repaint wall	35,760 sf	$1.00	$35,760
	Patch/Repaint walls	106 sf	$2.00	$212
	Replace damaged 4'x8' fabric wrapped acoustical wall panel	19 ea	$600.00	$11,400
	Replace 1x1 glue-on ceiling tile	4,521 sf	$7.00	$31,647
	Replace 2x4 lay-in ceiling tile	812 sf	$8.00	$6,496
	Patch and repaint gypsum board ceiling	420 sf	$10.00	$4,200
	Repaint gyp board ceiling	2320 sf	$1.20	$2,784
	Replace plywood ceiling	385 sf	$15.00	$5,775
	Replace door knob with lever	15 ea	$500.00	$7,500
	Repaint door and frame	102 ea	$150.00	$15,300
	Replace broken wood door hinges	1 ea	$150.00	$150
			TOTAL COST	$229,161.50

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	3	LAKE GROVE ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
SITE	Repave side yard	22500 sf	$3.00	$67,500
			TOTAL COST	$67,500.00
STRUCTURAL	Replace 25% of the covered play structure roof skirt	74 lf	$4.00	$296.00
	Clean and paint corrugated metal deck	2740 sf	$15.00	$41,100
	Replace single bolts in roof trusses	56966 sf	$5.00	$284,830
	Repair roof around expansion/firewalls	2260 sf	$5.00	$11,300
	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	61,350 sf	$45.00	$2,760,750
	Seismic rehabilitation at roof level of the covered play structure	4,779 sf	$10.00	$47,790
			TOTAL COST	$3,146,066.00
MECHANICAL	Repair 8.4K CFM constant volume AHU multiple zones: Overhaul, update to DDC controls and convert to VAV	1 ea	$9,000.00	$9,000
	Repair 8.8K CFM constant volume AHU multiple zones: Overhaul, update too DDC controls and convert to VAV	1 ea	$9,000.00	$9,000
	Repair 11.9K CFM constant volume AHU multiple zones: Overhaul, update too DDC controls and convert to VAV	1 ea	$9,000.00	$9,000
	Repair 10.1K CFM constant volume AHU multiple zones: Overhaul, update too DDC controls and convert to VAV	1 ea	$9,000.00	$9,000
	Replace hot water coil, convert to VAV TU	45 ea	$1,700.00	$76,500
	Replace cabinet centrifugal exhaust fan (above ceiling)	4 ea	$16,800.00	$67,200
	Repair 3K CFM constant volume single zone AHU: Overhaul, update DDC controls	1 ea	$4,500.00	$4,500
	Repair 3K CFM constant volume single zone AHU: Overhaul, update DDC controls	2 ea	$4,500.00	$9,000
	Replace 3100 MBH hot water boiler, update to condensing hot water boilers	2 ea	$61,000.00	$122,000
	Replace base mounted centrifugal heating water pump, update to DDC controls	2 ea	$6,200.00	$12,400
	Replace 1K CFM hot water unit ventilator, update DDC controls	2 ea	$8,000.00	$16,000
	Replace low point drain valves	2 ea	$750.00	$1,500
	Convert HVAC systems to DDC	358 points	$550.00	$196,900
			TOTAL COST	$542,000.00
ELECTRICAL	Add surge suppression at main distribution panel	1 ea	$1,100.00	$1,100
	Add surge suppression at main distribution panel	1 ea	$1,100.00	$1,100
			TOTAL COST	$2,200.00
PLUMBING	Replace floor mounted toilets with 1.6 gpf	21 ea	$1,600.00	$33,600
	Repair lavatory: update fixture to 0.5 gpm	18 ea	$1,600.00	$28,800
	Repair downspout: Reattach loose supports	1 ea	$375.00	$375
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$72,775.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$5,939,906
	TOTAL COST TO REPLACE	$15,721,260
	=FCI	0.38

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $255/SF.

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

3_Lake Grove Elementary

Constructed in 1949, with additions in later years without documentation, and the 1990 playground canopy next to the gym.
Wood Framed (W2) Building with Flexible Diaphragm Roof with small section of Brick URM (unreinforced masonry). The majority of the roofs are pitched timber trusses with smaller areas of flat roof with glulam beams supported by wood framed walls.
Building Risk Category III
ASCE 41-13 **Life Safety** Performance Level

Main Building Seismic Retrofit Cost Per Square Foot
$45/sf (does not include costs for re-roofing)

Covered Play Structure Seismic Retrofit Cost Per Square Foot
$10/sf (does not include costs for re-roofing)

The original structural drawings could not be located. The oldest drawings provided were 1990 remodel and playground canopy drawings. The structure consists of wood framed shear walls with roof trusses over the typical gabled areas at 2'-0" on center and straight sheathing. Other areas use glulam beams and timber purlins to support the sheathing. Use of structural panel sheathings at shear walls and roof diaphragms could not be confirmed and walls are assumed to be gypsum sheathing while roofs are assumed to be straight sheathing. An area of the structure at the west end of the original wing has brick unreinforced masonry (URM) walls around an incinerator room with a chimney that will require strengthening.

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Unblocked straight sheathed diaphragm spans greater than 40 feet.
- Connections of diaphragms to lateral system likely to need retrofit.
- Connection of roof girders and ties to exterior walls and columns likely need retrofit.
- Sheathing of wall and capacity unknown and may need to be retrofit.
- Lateral system connection to foundation unknown.
- Covered play structure lateral system is lacking and structure is too close to gym for seismic separation.
- Entry canopies to be strengthened and attached to the main building.
- Brick URM walls section at the incinerator room to be strengthened or removed.
- Glass block and brick unreinforced masonry walls in two areas of the building to be strengthened or removed.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Mechanical equipment in boiler room and attic – not braced to structure.
- Gas lines to mechanical equipment – do not have flexible connections.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

STRUCTURAL REPORT

October 02, 2015

- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.
- Out of plane capacity of brick veneer unknown.
- Suspended Ceilings to be braced.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

- Brick veneer in some locations at the exterior show signs of deterioration. The brick should be repaired and the underlying wood structure checked for rot and water damage. Reference the architectural portion of the cost estimate for extents.
- Water damage is evident on the underside of the covered play structure roof and skirt adjacent to the gym. Assume up to 20% of the structure will need to be replaced, if not removed or replaced as part of a seismic upgrade.
- Corrugated metal deck forms above the mechanical access tunnels under the building in some locations show rust and deterioration. The floor slabs should be verified to confirm the deck is not needed structurally to span tunnel and the metal should be cleaned and painted. Assume 2,740 sf of floor needs repair at $15/sf.
- Many of the connections in the roof trusses have single bolts which may not be appropriate by today's design standards. The trusses should be reviewed in depth to determine if strengthening is required. Assume $5/ sf over the area of the roof.
- Minor differential deflection of the roof on either side of assumed expansion/firewalls in three locations of the building should be repaired to prevent roofing cracks. Assume an area of 2,260 sf at an additional $5/ sf for repair.

PHOTOS OF DEFICIENCIES
LAKE GROVE

CMU Wall without Seismic Restraints

Fall Prone Contents

Deflecting Side Entry Canopy

Hard Connected Gas Line & Fall Prone Equipment

Deterioration at Base of Wall

Hard Connected Gas Line

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
LAKE GROVE

Pendant Supports

Seismically Deficient Play Canopy Adjacent

Roof Deflection at Building Joint

Suspended Equipment & Sprinkler Clearance

Seismically Deficient Entry Canopy

Unknown Lateral Connection Deflecting Side Entry Canopy

PHOTOS OF DEFICIENCIES
LAKE GROVE

Unknown Sheathing Behind Veneer at Shear Wall

Unreinforced Glass Block Wall

Unreinforced Brick Chimney

Unrestrained Gym Equipment

Unreinforced Brick Wall

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FACT SHEET

55 Kingsgate Rd.
Lake Oswego, OR 97035

4

OAK CREEK ELEMENTARY

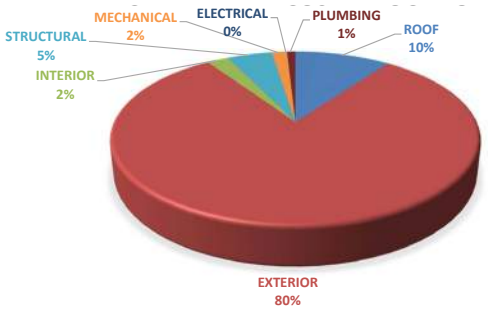
YEAR BUILT	1991
REMODELS	NONE
BUILDING AREA	68,040 SF
TOTAL HEIGHT	43’
NUMBER OF FLOORS	2
OCCUPANCY	A-2.1, A-3, B-2, E-1
PRIMARY STRUCTURE	WOOD FRAME
ROOF TYPE	MEMBRANE OVER PLYWOOD DECK
FLOOR FINISHES	CARPET TILE, VCT
CEILING FINISHES	ACT, GYP. BOARD
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	AHU WITH VAV TU

FACILITY SUMMARY

Oak Creek Elementary serves approximately 539 students from kindergarten through fifth grade. Oak Creek is set within a hill from the landscape to the south on Melrose street.

The exterior single-pane glazed windows should be replaced to be double-pane along with the brick masonry due to deterioration. Most of all interior carpet tile is to be replaced because of wear throughout the years.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	4 OAK CREEK ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	37472 sf	$20.00	$749,440
	Provide new SBS BUR roofing and sheet metal accessories (uninsulated)	5454 sf	$16.00	$87,264
	Replace metal panel roofing, combine areas into larger roof	600 sf	$35.00	$21,000
	Replace wall mounted ladder	1 ea	$2,500.00	$2,500
	Install new wall mounted ladder	7 ea	$2,500.00	$17,500
	Replace mech equip curbs with 8" high PT curbs	160 lf	$40.00	$6,400
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
			TOTAL COST	$909,104.00
ARCHITECTURAL EXTERIOR	Replace brick masonry (brick masonry, weather barrier, gypsum sheathing, insulation)	55,900 sf	$40.00	$2,236,000
	Replace metal panel (metal panel, weather barrier, gypsum sheathing)	67,000 sf	$35.00	$2,345,000
	Replace curtain wall system (curtain wall, glazing, gaskets and seals)	4,800 sf	$60.00	$288,000
	Replace storefront windows	31,906 sf	$60.00	$1,914,360
	Replace perimeter sealant	85,000 lf	$5.00	$425,000
	Replace soffit associated with metal panel system	1,200 lf	$25.00	$30,000
	Replace door knob with lever handle	10 ea	$500.00	$5,000
	Provide drip edge in metal panel system over doorways	13 ea	$20.00	$260
	Provide overhang over doorway (30 sf ea)	4 ea	$3,000.00	$12,000
	Repaint underside of covered playground wood beams, joints and deck	4,435 sf	$2.50	$11,088
	Repair foundation vapor barrier pulling away from building	20 sf	$500.00	$10,000
			TOTAL COST	$7,276,707.50
ARCHITECTURAL INTERIOR	Replace VCT flooring; new rubber base to match (E)	2,396 sf	$4.50	$10,782
	Repaint gypsum plaster wall	16,512 sf	$1.00	$16,512
	Replace 2x2 ceiling tile	1,592 sf	$8.00	$12,736
	Repaint gypsum plaster ceiling	534 sf	$1.20	$641
	Replace carpet tile; install new rubber base	14,081 sf	$7.00	$98,567
	Repaint HM door and frame	35 ea	$150.00	$5,250
	Replace 2x4 lay-in ceiling tile	349 sf	$8.00	$2,792
	Replace 1x1 ceiling tile	3970 sf	$8.00	$31,760
	Paint concrete wall	1,440 sf	$1.00	$1,440
	Replace wood door and frame	4 ea	$1,800.00	$7,200
	Replace carpet panel wall	2114 sf	$7.00	$14,798
	Replace 2x4 plastic light fixture lens	1 ea	$200.00	$200
	Replace toilet partition	1 ea	$750.00	$750
			TOTAL COST	$203,427.80

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	4	OAK CREEK ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
SITE	Repaint guardrails and handrails	775 lf	$8.00	$6,200
	Place sealant between sidewalk and building	100 lf	$5.00	$500
			TOTAL COST	$6,700.00
STRUCTURAL	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	37,472 sf	$10.00	$374,720
	Seismic rehabilitation at roof level of the covered play structure	5,454 sf	$10.00	$54,540
			TOTAL COST	$429,260.00
MECHANICAL	Repair indoor VAV AHU-HW ASU-1: Clean interior of unit and coil	1 ea	$5,000.00	$5,000
	Repair indoor Multi-zone AHU - DX ASU-2: Clean interior of unit and coil	1 ea	$5,000.00	$5,000
	Repair indoor VAV AHU-HW ASU-3: Clean interior of unit and coil	1 ea	$5,000.00	$5,000
	Repair indoor single zone AHU - HW ASU-4: Clean interior of unit and coil	1 ea	$5,000.00	$5,000
	Replace condensing units in kitchen coolers	2 ea	$4,200.00	$8,400
	Replace kitchen make-up air unit with gas heat	1 ea	$3,700.00	$3,700
	Replace 1357 MBH Hot water Natural gas boiler with associated condensing units	2 ea	$31,000.00	$62,000
	Replace In-line centrifugal hot water pumps with variable volume VFD driven	2 ea	$8,000.00	$16,000
	Replace condensing unit for DX cooling; DX controls to be integrated into DDC	1 ea	$29,500.00	$29,500
	Architectural Finishes Allowance	1 ls	$5,000.00	$5,000
			TOTAL COST	$144,600.00
ELECTRICAL	Repair switchgear: add drip pan	1 ea	$1,700.00	$1,700
	Repair surge suppression: Add central surge suppression	1 ea	$1,100.00	$1,100
	Repair exterior lighting: Replace photo sensor	1 ea	$1,100.00	$1,100
			TOTAL COST	$3,900.00
PLUMBING	Replace 75 gal gas water heater	1 ea	$2,450.00	$2,450
	Replace 82 gal electric water heater	1 ea	$2,950.00	$2,950
	Replace wall hung urinal with 1 gpf fixture	3 ea	$1,600.00	$4,800
	Replace wall hung lavatory with 0.5 gpm fixture	14 ea	$1,600.00	$22,400
	Replace wall hung toilet with 1.6 gpf standard fixture	21 ea	$1,600.00	$33,600
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$76,200.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$9,043,199
	TOTAL COST TO REPLACE	$17,350,200
	=FCI	0.52

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $255/SF.

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

4_Oak Creek Elementary

Constructed in 1991. Wood framing with some concrete shear walls. Wood structural panel diaphragms throughout.
Building Risk Category III
ASCE 41-13 **Immediate Occupancy** Performance Level for gym portion
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$10/sf (does not include costs for re-roofing)

Covered Play Structure Seismic Retrofit Cost Per Square Foot
$10/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Wood structural panel diaphragms may need additional nailing and blocking to increase capacity.
- Diaphragm chords and collectors may need to be strengthened.
- Bracing should be added to the covered play structure and the diaphragm connections to columns should be strengthened.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

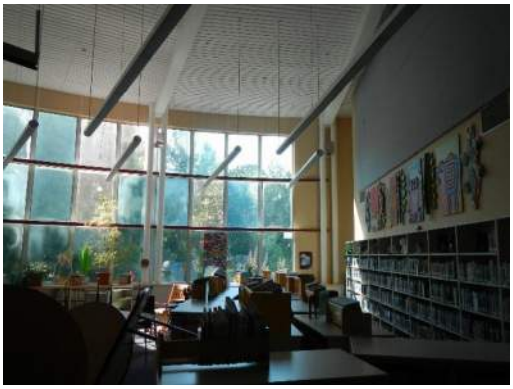
The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation.

- None observed on site.

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
OAK CREEK

Canopy Connection to Building



Pendulum Lights

Cracks in Concrete Walls

Unbraced Ceiling Tiles

Fall Prone Equipment

Unbraced Piping

FACT SHEET

5850 McEwan Rd.
Lake Oswego, OR 97035

5 RIVER GROVE ELEMENTARY

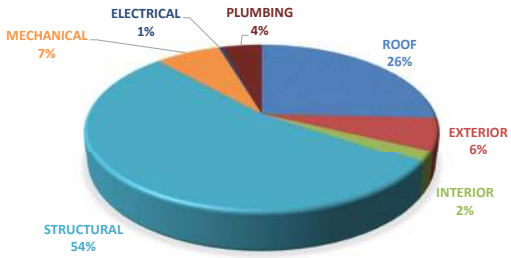
YEAR BUILT	1968
REMODELS	1990
BUILDING AREA	50,484 SF
TOTAL HEIGHT	22’
NUMBER OF FLOORS	1
OCCUPANCY	E-1
PRIMARY STRUCTURE	CLAY BRICK, WOOD FRAME
ROOF TYPE	TPO, BALLAST, STANDING METAL SEAM
FLOOR FINISHES	CARPET TILE
CEILING FINISHES	ACT, GYP. BOARD
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	MULTI-ZONE AHU

FACILITY SUMMARY

River Grove Elementary serves 500 students from kindergarten to fifth grade. The school was designed to have a hub of classrooms in one hallway with two classroom wings on each end.

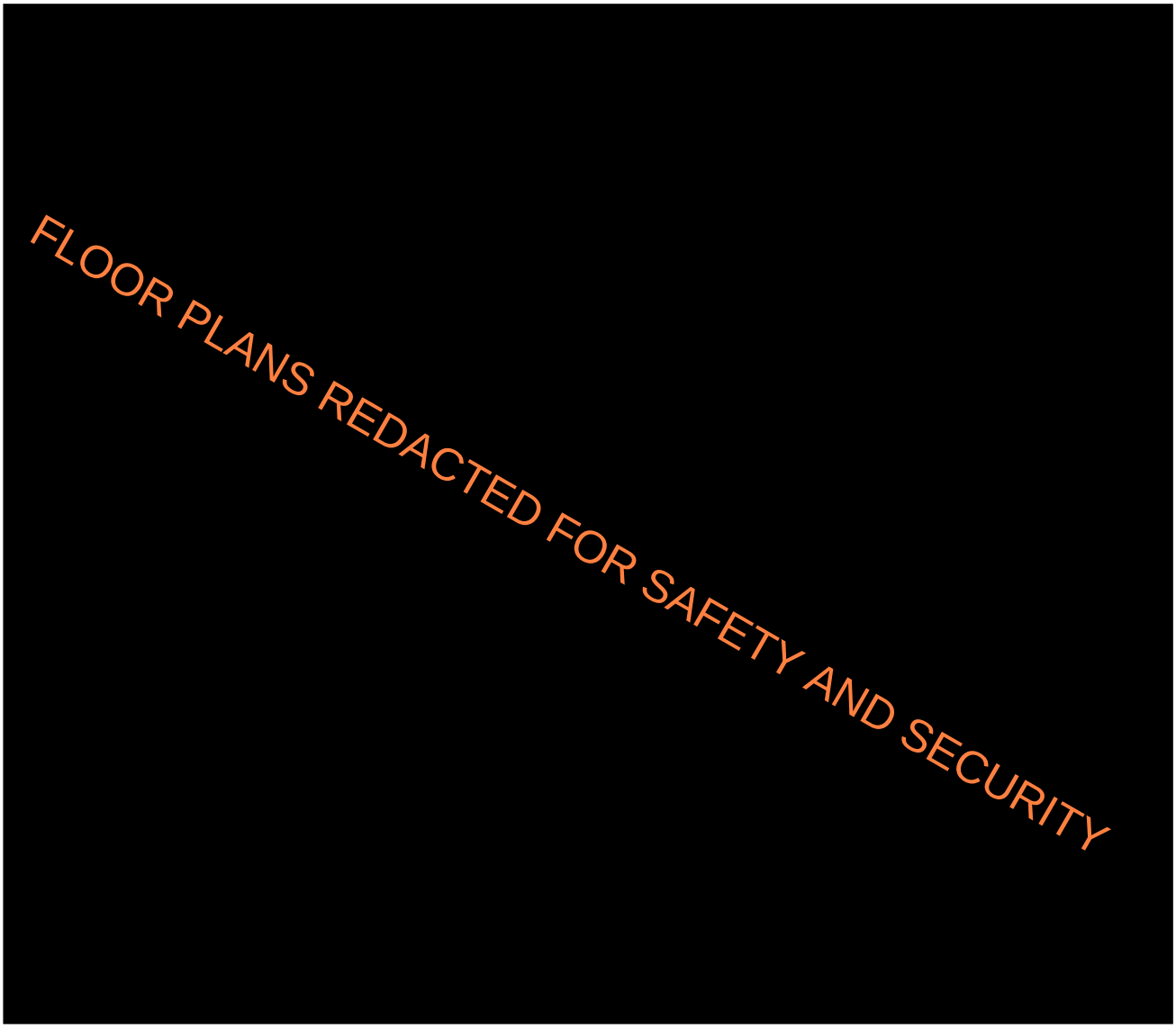
Most of the exterior brick masonry should be cleaned and soffits repainted. The interior carpet tile is to be replaced and some hollow metal doors need to be updated to have lever handles.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS



COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	5 RIVER GROVE ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	49393 sf	$20.00	$987,860
	Provide new SBS BUR roofing and sheet metal accessories (uninsulated)	6512 sf	$16.00	$104,192
	Replace vertical metal panel and flashing	300 sf	$50.00	$15,000
	Repaint metal panels	5000 sf	$3.00	$15,000
	Repair gutter	10 lf	$12.00	$120
	Reseal gutter splices	70 ea	$10.00	$700
	Replace roof drains	12 ea	$1,200.00	$14,400
	Replace counter flashing	1100 lf	$18.00	$19,800
	Reinstall conduit in metal sleeves and installed on 8" high PT blocks	200 lf	$40.00	$8,000
	Replace mech equip curbs with 8" high PT curbs	200 ea	$40.00	$8,000
	Replace scupper flashing	17 ea	$500.00	$8,500
	Reinstall junction box and conduit into roof mounted post. Reinstall conduit on 8" high PT	1 ea	$2,500.00	$2,500
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
	Provide safety rails at roof hatch	1 ea	$1,500.00	$1,500
	Replace roof hatch interior ladder	1 ea	$2,000.00	$2,000
				$1,212,572.00
ARCHITECTURAL EXTERIOR	Replace brick masonry	30 sf	$35.00	$1,050
	Clean brick masonry	13,500 sf	$2.00	$27,000
	Replace masonry control joints	28 lf	$15.00	$420
	Add cow tongue to drainage leader extension	4 ea	$150.00	$600
	Replace metal panel (metal panel, weather barrier, gypsum sheathing)	24 sf	$35.00	$840
	Replace curtain wall perimeter seals	1,200 lf	$5.00	$6,000
	Replace curtain wall gaskets	600 sf	$5.00	$3,000
	Repaint T&G soffit	10,400 sf	$1.75	$18,200
	Repair wood soffit panels	400 sf	$15.00	$6,000
	Repair soffit trim	270 lf	$10.00	$2,700
	Replace curtain wall system	800 sf	$10.00	$8,000
	Replace wood soffit	1000 sf	$20.00	$20,000
	Replace storefront windows	3105 sf	$60.00	$186,300
	Replace door knob with lever handle	12 ea	$500.00	$6,000
	Replace brick due to graffiti removal	200 sf	$35.00	$7,000
	Plug holes in brick at soffit	2 ea	$50.00	$100
	Cut back vegetation from building	5 ea	$10.00	$50
	Repaint hm door and frame	21 ea	$125.00	$2,625
			TOTAL COST	**$295,885.00**
ARCHITECTURAL INTERIOR	Replace VCT flooring; new rubber base to match (E)	350 sf	$4.50	$1,575
	Repaint gypsum plaster wall	7,800 sf	$1.00	$7,800
	Replace 2x4 lay-in ceiling tile	2,121 sf	$8.00	$16,968
	Replace 1x1 acoustic ceiling tile	3,118 sf	$8.00	$24,944
	Repaint gypsum plaster ceiling	119 sf	$1.20	$143
	Replace carpet tile; install new rubber base	4,950 sf	$7.00	$34,650
	Repaint HM door and frame	21 ea	$150.00	$3,150
	Replace door knob with lever	11 ea	$500.00	$5,500
	Replace FRP	456 sf	$8.00	$3,648
	Replace wood door	2 ea	$1,400.00	$2,800
	Replace wood door hardware for new lever	15 ea	$500.00	$7,500
	Replace wood handrail at stage	10 lf	$40.00	$400
			TOTAL COST	**$109,077.80**

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	5	RIVER GROVE ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
SITE	Repave parking lot	28760 sf	$3.00	$86,280.00
	Re-stripe parking lot	28760 sf	$0.05	$1,438.00
			TOTAL COST	$87,718.00
STRUCTURAL	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	44,450 sf	$50.00	$2,222,500
	Seismic rehabilitation work in the Gym as the sole building upgrade (not including costs for re-roofing)	4,943 sf	$45.00	$222,435
	Seismic rehabilitation at roof level of the covered play structure (does not include costs for re-roofing)	6,512 sf	$10.00	$65,120
	Repair roof truss chords	4400 sf	$5.00	$22,000
			TOTAL COST	$2,532,055.00
MECHANICAL	Replace 4K CFM - Roof Top Multi-zone AHU, convert to VAV system MZ-1	1 ea	$21,000.00	$21,000
	Replace 4K CFM - Roof Top Multi-zone AHU, convert to VAV system MZ-2	1 ea	$21,000.00	$21,000
	Replace 5.7K CFM - Roof Top Multi-zone - Gas Heat, convert to VAV system MZ-3	1 ea	$26,000.00	$26,000
	Replace 5.7K CFM - Roof Top Multi-zone - Gas Heat, convert to VAV system MZ-4	1 ea	$26,000.00	$26,000
	Replace 9.5K CFM - Roof Top Multi-zone, convert to VAV system MZ-5	1 ea	$36,000.00	$36,000
	Replace 3.5K CFM - Roof Top Single Zone RTBF-1	1 ea	$15,500.00	$15,500
	Replace 1.3K CFM - Roof Top Single Zone DF-1	1 ea	$8,000.00	$8,000
	Replace roof Top Centrifugal exhaust fan EF-1	1 ea	$18,000.00	$18,000
	Replace roof Top Centrifugal exhaust fan EF-2 dishwasher exhaust fan	1 ea	$6,200.00	$6,200
	Replace electric wall heaters	4 ea	$2,100.00	$8,400
	Repair DDC/Local Electronic, update to DDC controls	138 points	$550.00	$75,900
	Replace 1000MBH - Hot Water Gas Boiler B-1	1 ea	$18,000.00	$18,000
	Replace 600MBH - Hot Water Gas Boiler B-2	1 ea	$13,000.00	$13,000
	Replace In-Line Centrifugal, update to variable volume with VFD	3 ea	$4,900.00	$14,700
	Replace In-Line Centrifugal EF-1 Bldg A Addition RR	1 ea	$3,400.00	$3,400
	Replace Roof Top Centrifugal exhaust fan EF-2 Bldg A Addition RR	1 ea	$3,400.00	$3,400
	Replace In-Line Centrifugal exhaust fan EF-3 Bldg A Addition RR	1 ea	$3,400.00	$3,400
	Architectural Finishes Allowance	1 ls	$20,000.00	$20,000
			TOTAL COST	$337,900.00
ELECTRICAL	Replace 1600A-208/120V Switchgear	1 ea	$11,800.00	$11,800
	Add surge protection at main distribution panel	1 ea	$1,100.00	$1,100
	Replace 120/208V 200A distribution panel M	1 ea	$6,900.00	$6,900
			TOTAL COST	$19,800.00
PLUMBING	Replace 80 gal hot water heater	1 ea	$2,950.00	$2,950
	Replace galvanized steel domestic water piping	2000 lf	$60.00	$120,000
	Repair lav fixtures: update to 0.5 gpm, some have flow aerators	30 ea	$1,600.00	$48,000
	Replace WC fixtures, update to 1.6 gpf	10 ea	$1,600.00	$16,000
	Repair urinals: Pod C has leaked in the past	1 ea	$1,600.00	$1,600
	Repair hose bibbs: Leaking in Pods A & C	2 ea	$200.00	$400
	Replace 50 gal electric hot water heater	2 ea	$1,050.00	$2,100
	Replace access doors above urinals, replace dry rot behind framing	2 ea	$1,100.00	$2,200
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$203,250.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$4,710,540
	TOTAL COST TO REPLACE	$12,873,420
	=FCI	0.37

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $255/SF.

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

5_River Grove Elementary

Constructed in 1967 and remodeled in 1990. Clay brick exterior shear walls (minimal reinforcement) with wood interior bearing walls and wood framing. Tectum panel diaphragms in gym and wood structural panel diaphragms elsewhere.
Building Risk Category III
ASCE 41-13 **Immediate Occupancy** Performance Level for gym portion
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$50/sf (does not include costs for re-roofing)

Gymnasium Seismic Retrofit Cost Per Square Foot
$45/sf (does not include costs for re-roofing)

Covered Play Structure Seismic Retrofit Cost Per Square Foot
$10/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Reinforcing steel – there is not adequate reinforcing steel in the exterior clay brick shear walls for in-plane or out-of-plane forces.
- The wood structural panel diaphragm connections to walls should be strengthened.
- Interior wood walls in the main building do not include wood structural panels or shear wall hold-downs.
- Wood structural panel diaphragms likely need additional nailing to increase capacity.
- Wood structural panel diaphragms need to be installed in place of Tectum panels in the gym.
- The gym consists of approximately 20 foot tall wood structural panel shear walls with brick veneer. These walls need to be either replaced with concrete or CMU shear walls, or blocking should be added to nail all panel edges in the wall to increase shear capacity. Additionally, shear wall hold downs should be added.
- Diaphragm chords and collectors should be added.
- Bracing should be added to the covered plate structure and the diaphragm connections to columns should be strengthened.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.
- Edge clearance for ceilings – free edges of suspended ceilings do not have a ¾ inch clearance between the ceiling and the adjacent wall.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

STRUCTURAL REPORT

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

- Edge support for ceilings – free edges of suspended ceilings are not supported by two inch wide closure angles.
- There is an unreinforced masonry chimney on the roof above the cafeteria that should be removed.

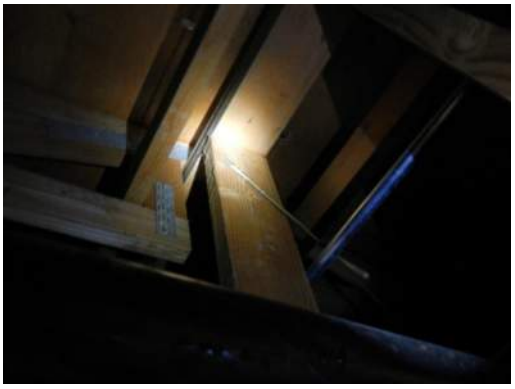
Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation.

- Some roof truss top chords are continuing over and bearing on the stud wall top plates with no positive connection, and the bottom chords have been cut to allow the wall to travel through. The bottom chord should be connected with strapping. These roof trusses cover 4400 sf at an estimated repair cost of $5/sf.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

PHOTOS OF DEFICIENCIES
RIVER GROVE



Discontinuous Bottom Chord of Truss

Kitchen – Fall Prone Contents

Fall Prone Shelving

Unbraced Piping in Corridor

Unbraced Piping

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
RIVER GROVE

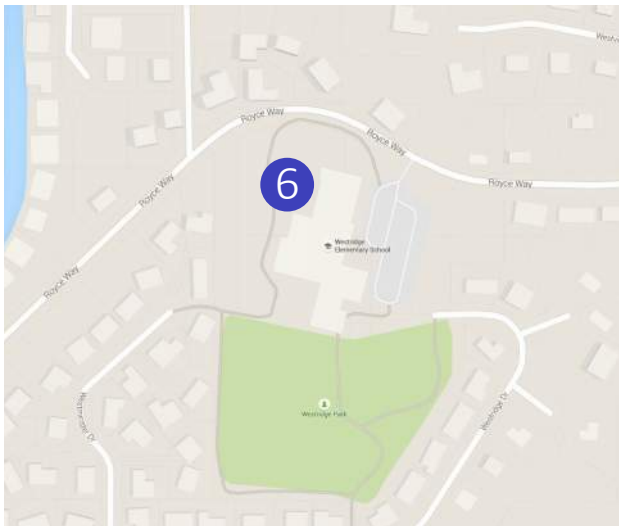
Unknown Diaphragm Connection

FACT SHEET

3400 Royce Way
Lake Oswego, OR 97034

6

WESTRIDGE ELEMENTARY



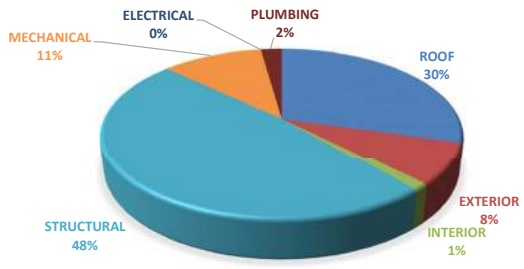
YEAR BUILT	1980
REMODELS	NONE
BUILDING AREA	46,712 SF
TOTAL HEIGHT	21’
NUMBER OF FLOORS	1
OCCUPANCY	E-1
PRIMARY STRUCTURE	WOOD FRAME
ROOF TYPE	BALLAST, STANDING METAL SEAM
FLOOR FINISHES	CARPET TILE, VCT, CERAMIC TILE, CONCRETE
CEILING FINISHES	ACT, GYP. BOARD
PARTITION TYPE	GYP. BOARD OVER METAL STUD
HVAC TYPE	AHU WITH VAV TU

FACILITY SUMMARY

Westridge Elementary school’s design and layout are identical to Hallinan Elementary, but its orientation is different according to the topography of the landscape. The school serves 481 students from kindergarten to fifth grade.

Crickets should be replaced in order to raise the slope of the roof to drain. The exterior brick is to be cleaned and re-pointed. All mechanical equipment should be updated to meet DDC.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	6 WESTRIDGE ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	46082 sf	$20.00	$921,640
	Provide new SBS BUR roofing and sheet metal accessories (uninsulated)	5126 sf	$16.00	$82,016
	Refinish steel ladder	2 ea	$500.00	$1,000
	Install splash block	2 ea	$75.00	$150
	Replace gutter	442 lf	$16.00	$7,072
	Replace downspout	3 ea	$200.00	$600
	Replace reglet flashing	772 lf	$12.00	$9,264
	Replace chain-link fence & add roller barrier (anti-climbing)	28 lf	$90.00	$2,520
	Replace 4x4 wood-framed canopy member	15 lf	$15.00	$225
	Replace scupper flashing	2 ea	$500.00	$1,000
	Reinstall conduit in metal sleeves and installed on 8" high PT blocks	250 lf	$40.00	$10,000
	Replace flashing and cap (18" high), raise parapet 2"	85 lf	$40.00	$3,400
	Replace skylight with new curbs at 8" high	20 ea	$2,500.00	$50,000
	Replace scupper flashing	1 ea	$500.00	$500
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
	Replace cedar shake siding	3592 sf	$15.00	$53,880
			TOTAL COST	$1,168,267.00
ARCHITECTURAL EXTERIOR	Replace sealant at concrete/brick wall	60 lf	$10.00	$600
	Replace door knob with lever. Plug holes in door and install lever at ADA height.	4 ea	$600.00	$2,400
	Replace door knob with lever handle	3 ea	$500.00	$1,500
	Remove rust from ledger angle and repaint	24 lf	$30.00	$720
	Remove corrosion & repaint metal louvers - allowance	1 sum	$2,000.00	$2,000
	Replace drip flashing over door	7 lf	$25.00	$175
	Clean and re-point brick masonry	3,310 sf	$27.00	$89,370
	Replace masonry control joints	150 lf	$15.00	$2,250
	Replace cracked brick	1,160 sf	$35.00	$40,600
	Repaint wood joist structure underneath covered play area (60' long)	32 ea	$400.00	$12,800
	Replace cedar shake siding	4,540 sf	$15.00	$68,100
	Repaint siding	1,100 sf	$1.50	$1,650
	Replace sheet metal transition flashing	54 lf	$20.00	$1,080
	Install handrail at staircase, anchor into masonry wall	15 lf	$40.00	$600
	Repaint hm door and frame	21 ea	$125.00	$2,625
	Replace HM door and frame, pair	2 ea	$3,600.00	$7,200
	Replace single pane sidelight glazing (6' x 8')	21 ea	$1,500.00	$31,500
	Replace single pane windows, include sill flashing (6' x 7')	4 ea	$2,500.00	$10,000
	Replace sidewalk at buiding, slope away from building	400 sf	$9.00	$3,600
	Provide sealant and flashing around in-wall air conditioners	2 ea	$300.00	$600
	Replace gyp bd soffit	32 sf	$20.00	$640
	Replace 5x5 windows	3 ea	$1,500.00	$4,500
	Replace 4x4 windows	14 ea	$1,000.00	$14,000
	Replace 8x4 windows	12 ea	$2,000.00	$24,000
			TOTAL COST	$322,510.00
ARCHITECTURAL INTERIOR	Repaint gypsum plaster wall	17,760 sf	$1.00	$17,760
	Replace 1x1 glue-on ceiling tile	1,368 sf	$7.00	$9,576
	Repaint 2x4 tectum ceiling panel	4,492 sf	$1.50	$6,738
	Repaint HM door	7 ea	$75.00	$525
	Replace wood door hardware for new lever	27 ea	$500.00	$13,500
			TOTAL COST	$48,099.00

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	6	WESTRIDGE ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
SITE	Repave parking lot	38500 sf	$3.00	$115,500.00
	Re-stripe parking lot	38500 sf	$0.05	$1,925.00
			TOTAL COST	$117,425.00
STRUCTURAL	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	51,208 sf	$35.00	$1,792,280
	Replace masonry wall	1160 sf	$100.00	$116,000
	Add deflection head at partition walls	100 lf	$25.00	$2,500
	Structural repair for water-related damage	30 lf	$100.00	$3,000
	Architectural Finishes Allowance	1 ls	$5,000.00	$5,000
			TOTAL COST	$1,913,780.00
MECHANICAL	Repair 9.6K CFM Indoor VAV AHU: Update to DDC and overhaul SF/RF-1	1 ea	$8,000.00	$8,000
	Repair 4.3K CFM Indoor CAV AHU: Update to DDC and overhaul SF/RF-2	1 ea	$7,500.00	$7,500
	Repair 20.4K CFM Indoor VAV AHU: Update to DDC and overhaul SF/RF-3	1 ea	$8,000.00	$8,000
	Repair 7.4K CFM Indoor VAV AHU: Update to DDC and overhaul SF/RF-4	1 ea	$8,000.00	$8,000
	Repair 2.1K CFM Hot Water Fan Coil Unit: Update to DDC FC-1	1 ea	$7,000.00	$7,000
	Replace 200 CFM hot water fan coil unit FC-2	1 ea	$3,800.00	$3,800
	Replace 800 CFM Cabinet exhaust fans, add DDC control	4 ea	$3,300.00	$13,200
	Replace VAV with hot water reheat, replace pneumatically controlled TU with DDC	21 ea	$5,500.00	$115,500
	Convert HVAC systems to DDC	231 points	$550.00	$127,050
	Replace 880 CFM hot water unit heater	2 ea	$2,100.00	$4,200
	Replace 882 MBH Gas hot water boiler, replace with condensing boiler	2 ea	$31,800.00	$63,600
	Replace In-line centrifugal to variable volume with VFD drive	2 ea	$3,400.00	$6,800
	Replace 3K CFM gas fired makeup air unit	1 ea	$6,200.00	$6,200
	Replace kitchen exhaust fan	1 ea	$27,700.00	$27,700
	Replace kitchen cooler condensing unit, relocate out of boiler room	2 ea	$5,200.00	$10,400
	Replace 1.5 Ton window AC with ductless split system	1 ea	$2,400.00	$2,400
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$429,350.00
ELECTRICAL	Add surge protection at main distribution panel	1 ea	$1,100.00	$1,100
			TOTAL COST	$1,100.00
PLUMBING	Replace 50 gal electric water heater	1 ea	$1,050.00	$1,050
	Repair wall hung lavatory: Upgrade to low flow aerators	18 ea	$1,600.00	$28,800
	Replace wall hung toilet, update with 1.6 gpf	22 ea	$1,600.00	$35,200
	Repair storm drains (downspouts): Reattach a few straps to downspout	1 ea	$375.00	$375
	Replace floor mounted urinals, update to 1 gpf	4 ea	$1,600.00	$6,400
	Replace drinking fountain	3 ea	$2,100.00	$6,300
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$88,125.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$3,971,231
	TOTAL COST TO REPLACE	$11,911,560
	=FCI	0.33

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $255/SF.

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October 02, 2015

6_Westridge Elementary

Constructed in 1980. Wood framing with concrete tilt-up panels at gym and some CMU with #5@32 vert and #5@48 horiz. Tectum panel diaphragm at gym and wood structural panel diaphragms elsewhere.
Building Risk Category III
ASCE 41-13 **Immediate Occupancy** Performance Level for gym portion
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$35/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Interior wood walls in the main building do not include wood structural panels or shear wall hold-downs.
- Wood structural panel diaphragms need to be installed in the gym building and the connection from diaphragm to tilt-up panel should be strengthened.
- Wood structural panel diaphragms likely need increased nailing for seismic resistance.
- Diaphragm chords and collectors should be strengthened.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.
- Partition walls – many partial height walls are not internally braced with structural steel.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

- Cracking in masonry walls in the music rooms. This does not appear to be an immediate structural concern. The total length of cracks is assumed to be 10 feet or less.
- The roof has possible deflection issues in some areas. Finishes below these areas are cracking. This does not appear to be an immediate structural concern. As a repair option, a deflection head could be added at partition walls. Assume 100 linear feet of wall needs a deflection head.
- Brick veneer in some locations throughout the exterior of the building is deteriorated, indicating water infiltration that is likely deteriorating the wood structural panels. Since these walls are not designated shear walls, it is not an immediate structural concern but the panels should be replaced

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

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to increase the longevity of the building. Reference the architectural portion of the cost estimate for extents.

- On October 17, 2015 kpff, along with Inline Commercial Contractors, performed destructive demolition to understand the extent of the water-related related damage to the ends of roof truss joists and sill plates at the low roof level near the reading amphitheater area. The damage was determined to be localized. A memo is currently being written to document the exploration and will be on file with the Lake Oswego School District for future reference. Kpff recommends a roof replacement as soon as possible to prevent similar damage in other locations. The structural repair for the localized damages is expected to cost approximately $5,000-$10,000 including architectural finishes.

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PHOTOS OF DEFICIENCIES
WESTRIDGE

Brick Veneer Cracking

Location of Cracked Beam

Cracked Finishes

Unbraced Partial Height Wall

Fall Prone Contents

Unbraced Piping

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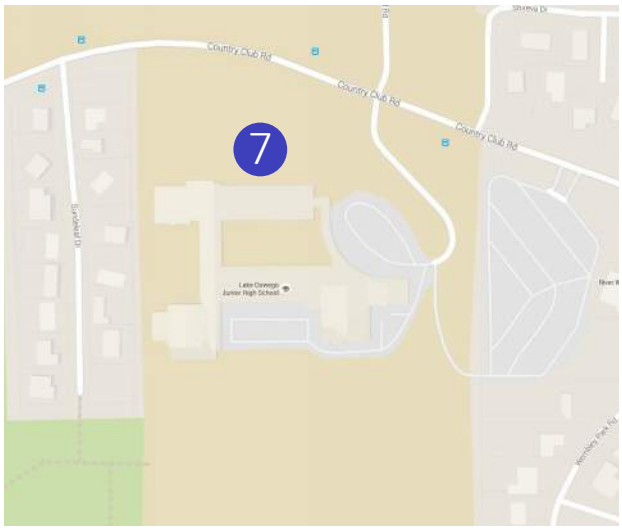
FACT SHEET

2500 Country Club Rd.
Lake Oswego, OR 97034

7

LAKE OSWEGO JR. HIGH



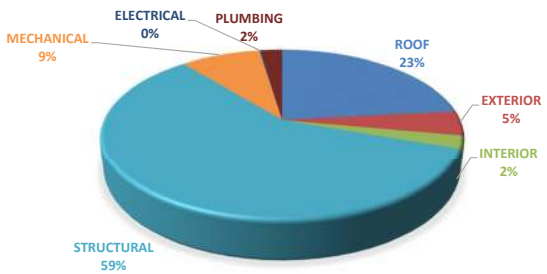
YEAR BUILT	1957
REMODELS	1990, 2013
BUILDING AREA	106,093 SF
TOTAL HEIGHT	25’
NUMBER OF FLOORS	1
OCCUPANCY	E-1
PRIMARY STRUCTURE	WOOD FRAME
ROOF TYPE	TPO, BALLAST
FLOOR FINISHES	CARPET TILE, VCT, POLISHED CONCRETE
CEILING FINISHES	ACT, GYP. BOARD, PLASTER, WOOD PANEL
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	UNIT VENTILATORS IN CLASSROOMS, CONSTANT VOLUME AHU IN COMMON

FACILITY SUMMARY

Lake Oswego Junior High’s current enrollment is approximately 920 students from sixth through eighth grades. The school has two main classroom wings that are anchored by the cafeteria and gymnasium.

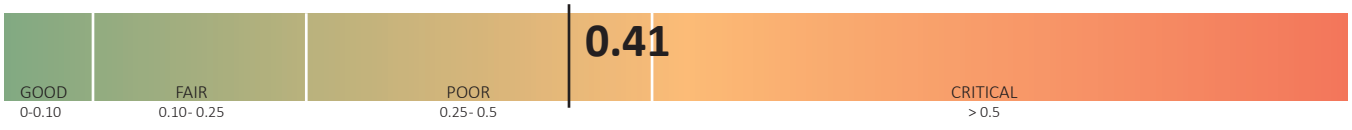
All ballast roofs on the building should be replaced with SBS built-up roofing. The TPO roofing needs to be repaired and re-sloped throughout. Extensive mechanical repairs are required.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX

= COST TO REPAIR ($)/COST TO REPLACE($)



DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	7	LAKE OSWEGO JUNIOR HIGH	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	135,082 sf	$20.00	$2,701,640
	Rebuild awning structure over door	200 sf	$20.00	$4,000
	Provide roof access hatch with safety rail	2 ea	$3,750.00	$7,500
	Provide roof access ladder	4 ea	$2,000.00	$8,000
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
			TOTAL COST	$2,746,140.00
ARCHITECTURAL EXTERIOR	Replace sliding glass door with HM door and sidelight	2 ea	$3,000.00	$6,000
	Repaint exterior CMU wall	15,300 sf	$1.50	$22,950
	Replace single pane aluminum windows (4' x 7')	290 ea	$1,500.00	$435,000
	Provide window sill and head flashing	1,160 lf	$20.00	$23,200
	Replace wood soffit	605 sf	$20.00	$12,100
	Repaint T&G soffit	3,500 sf	$1.75	$6,125
	Replace downspouts	3 ea	$200.00	$600
	Replace back door canopy (2'x3')	3 ea	$1,000.00	$3,000
	Clean and re-point brick masonry	135 sf	$27.00	$3,645
	Clean out brick weeps	866 lf	$10.00	$8,660
	Repair underground tunnel access concrete curb and door (5'x5')	8 ea	$2,000.00	$16,000
			TOTAL COST	$537,280.00
ARCHITECTURAL INTERIOR	Replace carpet tile; install new rubber base	7235 sf	$7.00	$50,645
	Replace VCT flooring; new rubber base to match (E)	2870 sf	$4.50	$12,915
	Replace sheet flooring; new rubber base to match (E)	3790 sf	$8.00	$30,320
	Repaint wall	23570 sf	$1.00	$23,570
	Patch/Repaint walls	180 sf	$2.00	$360
	Replace damaged 4'x8' fabric wrapped acoustical wall panel	18 ea	$600.00	$10,800
	Replace 1x1 glue-on ceiling tile	12587 sf	$7.00	$88,109
	Replace 2x4 lay-in ceiling tile	180 sf	$8.00	$1,440
	Replace tectum ceiling tile	3170 sf	$9.00	$28,530
	Repaint 2x4 tectum ceiling panel	8000 sf	$1.50	$12,000
	Repaint gyp board ceiling	4850 sf	$1.20	$5,820
	Repair damaged wood casework	70 lf	$150.00	$10,500
	Replace door knob with lever	6 ea	$500.00	$3,000
	Replace wall protection panels	320 sf	$8.00	$2,560
	Reattach 1x4 pendant light fixture to ceiling	60 ea	$50.00	$3,000
	Replace handrail	10 lf	$40.00	$400
			TOTAL COST	$283,969.00
SITE	Slope site away from building	4500 sf	$3.00	$13,500
	Re-paint curbs - allowance	200 lf	$5.00	$1,000
	Repave parking lot	69300 sf	$3.00	$207,900
	Re-stripe parking lot	69300 sf	$0.05	$3,465.00
			TOTAL COST	$225,865.00

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	7	LAKE OSWEGO JUNIOR HIGH	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
STRUCTURAL	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	116,032 sf	$50.00	$5,801,600
	Seismic rehabilitation work in the Gym as the sole building upgrade (not including costs for re-roofing)	19,050 sf	$55.00	$1,047,750
	Repair concrete slab (cracking) in kitchen	8 lf	$25.00	$200
	Clean and paint corrugated metal deck	3000 sf	$15.00	$45,000
			TOTAL COST	$6,894,550.00
MECHANICAL	Replace 1.5 ton window AC, replace with ductless split systems	4 ea	$3,300.00	$13,200
	Replace steam fin tube radiator, reuse new DDC control valve, 42 fl	1 ea	$4,500.00	$4,500
	Replace 1250 CFM steam unit ventilator, reuse DDC controls	9 ea	$9,000.00	$81,000
	Replace 1000 CFM Steam unit ventilator, reuse DDC controls	27 ea	$8,000.00	$216,000
	Replace 3 Ton - Packaged Roof Top - DX and Gas AHU, reuse ductwork	2 ea	$8,000.00	$16,000
	Replace roof top centrifugal exhaust fan, add DDC on/off control	11 ea	$18,000.00	$198,000
	Replace 1800 CFM - Heating Ventilator - Steam Coil AHU	1 ea	$12,000.00	$12,000
	Replace 4600 CFM - Heating Ventilator - Steam Coil AHU	1 ea	$31,000.00	$31,000
	Replace 10,000 CFM - Heating Ventilator - Steam Coil AHU, overhaul with new dampers & heating coil	1 ea	$62,000.00	$62,000
	Replace 7,000 CFM - Heating Ventilator - Steam Coil AHU, overhaul with new dampers & heating coil	1 ea	$41,000.00	$41,000
	Replace 6,500 CFM - Heating Ventilator - Steam Coil AHU, overhaul with new dampers & heating coil	1 ea	$36,000.00	$36,000
	Replace ,500 CFM - Heating Ventilator - Steam Coil AHU	1 ea	$3,700.00	$3,700
	Replace carbon steel steam distribution pipe, update to hot water piping	2500 lf	$55.00	$137,500
	Replaced steam-gas fired boiler B-1, replace with hot water boiler	1 ea	$66,000.00	$66,000
	Replaced steam-gas fired boiler B-2, replace with hot water boiler	1 ea	$66,000.00	$66,000
	Replace DX-split Kitchen Cooler	2 ea	$3,400.00	$6,800
	Repair metal duct air distribution	30 lf	$35.00	$1,050
	Replace belt on new exhaust fans installed in 2012	2 ea	$350.00	$700
	Architectural Finishes Allowance	1 ls	$15,000.00	$15,000
			TOTAL COST	$1,007,450.00
ELECTRICAL	Replace 1520A - 120/208V Switchgear	1 ea	$11,800.00	$11,800
	Replace Distribution panel from former shop equip panel	1 ea	$6,900.00	$6,900
	Add surge protection at main distribution panel	1 ea	$1,100.00	$1,100
			TOTAL COST	$19,800.00
PLUMBING	Repair 100 gal gas water heater: add seismic bracing	1 ea	$1,900.00	$1,900
	Replace 80 gal gas water heater	1 ea	$3,200.00	$3,200
	Replace galvanized domestic piping	3000 lf	$60.00	$180,000
	Repair wall hung lavatories, update fixture to 0.5 gpm	17 ea	$1,600.00	$27,200
	Replace floor mounted toilets, update to 1.6 gpf standard	25 ea	$1,600.00	$40,000
	Replace floor mounted urinals, update to 1 gpf standard	1 ea	$1,600.00	$1,600
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$263,900.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$11,753,089
	TOTAL COST TO REPLACE	$28,645,110
	=FCI	0.41

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $270/SF.

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7_Lake Oswego Junior High

Constructed in 1956 and remodeled in 1957 and 1990. Wood framing with CMU with little reinforcement and concrete columns at gym. Tectum panel diaphragm at gym and straight sheathing diaphragms elsewhere.
Building Risk Category III
ASCE 41-13 **Immediate Occupancy** Performance Level for gym portion
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$50/sf (does not include costs for re-roofing)

Gymnasium Building Seismic Retrofit Cost Per Square Foot
$55/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Reinforcing steel – there is not adequate reinforcing steel in the masonry shear walls in the gym for in-plane or out-of-plane forces.
- Masonry shear stress check-likely not compliant for gym shear walls.
- Wall anchorage – the exterior masonry shear walls in the gym are not adequately braced for out-of-plane forces at each floor level.
- Interior wood walls in the main building do not include wood structural panels or shear wall hold-downs.
- Wood structural panel diaphragms need to be installed throughout the structure in place of straight sheathing and Tectum panels.
- Diaphragm chords and collectors should be added.
- Corrugated metal in east and west walls of gym should be replaced with CMU infill.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.
- Edge clearance for ceilings – free edges of suspended ceilings do not have a ¾ inch clearance between the ceiling and the adjacent wall.
- Edge support for ceilings – free edges of suspended ceilings are not supported by two inch wide closure angles.
- One exterior canopy outside of the cafeteria should be replaced.
- There is an unreinforced masonry chimney on the roof above the cafeteria that should be removed.

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STRUCTURAL REPORT

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Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

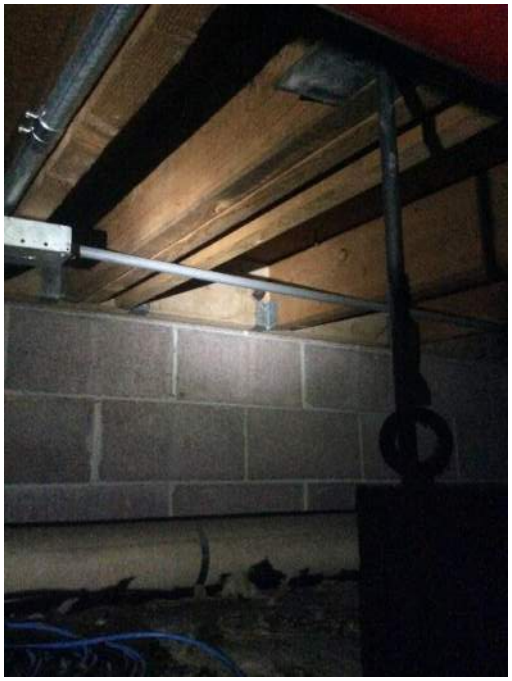
- Cracking in concrete slab in the kitchen. This does not appear to be an immediate structural concern. The crack is less than 8 feet in length.
- Corrugated metal deck forms above the mechanical access tunnels under the building in some locations show rust and deterioration. The floor slabs should be verified to confirm the deck is not needed structurally to span tunnel and the metal should be cleaned and painted. Assume 3000 sq ft of floor needs repair at $15/ sq ft.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

PHOTOS OF DEFICIENCIES
LAKE OSWEGO JR. HIGH

Canopy to be Removed

Fall Prone Contents



Inadequate Diaphragm Connection

Inadequate Joist Connection

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
LAKE OSWEGO JR. HIGH

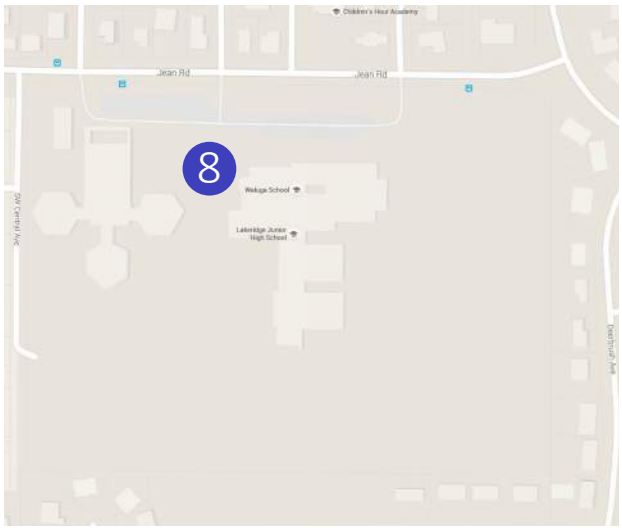
Remove Straight Sheathing

Tank to be Braced from Wall

FACT SHEET

4700 Jean Rd.
Lake Oswego, OR 97035

8 LAKERIDGE JR. HIGH SCHOOL



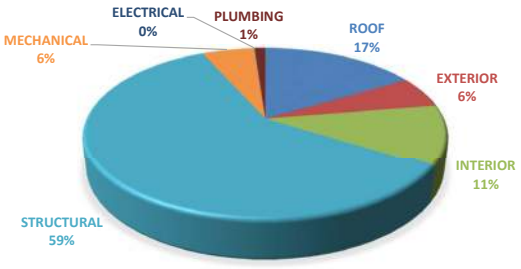
YEAR BUILT REMODELS	1967, 1968 1990
BUILDING AREA	122,610 SF
TOTAL HEIGHT	22’
NUMBER OF FLOORS	1
OCCUPANCY	E-1
PRIMARY STRUCTURE	CMU SHEAR WALL, WOOD FRAME
ROOF TYPE	TPO, STANDING METAL SEAM
FLOOR FINISHES	CARPET TILE, VCT
CEILING FINISHES	ACT, GYP. BOARD
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	MULTI-ZONE AHU

FACILITY SUMMARY

Lakeridge Junior High serves 789 students from sixth through eighth grades. To satisfy increased enrollment as a result of its transition to a grades 6-8 school, the middle school incorporates most of its former neighbor elementary school, Bryant.

The roof should be maintained to clean all drains and remove debris. Most of all the interior gypsum plaster walls should be repainted as well as replacing acoustical ceiling tiles in many of the classrooms.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	8	LAKERIDGE JUNIOR HIGH	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	**Lakeridge Junior High**			
	Reinstall conduit in metal sleeves and installed on 8" high PT blocks	150 lf	$40.00	$6,000
	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	88,597 sf	$20.00	$1,771,940
	Replace scupper flashing	1 ea	$500.00	$500
	Reinstall antennae to be secured on walk pad	5 lf	$500.00	$2,500
	Replace vertical metal panel and flashing	24 lf	$50.00	$1,200
	Provide roof hatch ladder and safety rail	1 ea	$3,000.00	$3,000
	Replace roof drains	31 ea	$1,200.00	$37,200
	Provide overflow drain and associated piping	31 ea	$3,000.00	$93,000
	Provide roof access hatch with safety rail	1 ea	$3,750.00	$3,750
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
	Install new wall mounted ladder	6 lf	$2,500.00	$15,000
	Cut back trees	1 allowance	$500.00	$500
	Replace wall mounted ladder	2 ea	$2,500.00	$5,000
	Bryant School			
	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	13695 sf	$20.00	$273,900
	Provide new SBS BUR roofing and sheet metal accessories (uninsulated)	5550 sf	$16.00	$88,800
	Replace shingle roofing	29400 sf	$5.00	$147,000
	Replace mech equip curbs with 8" high PT curbs	3 ea	$40.00	$120
	Replace scupper flashing	24 ea	$500.00	$12,000
	Replace gutter	342 lf	$16.00	$5,472
	Provide roof hatch ladder and safety rail	3 ea	$3,000.00	$9,000
	Replace wood fascia, 1x6 painted	380 lf	$12.00	$4,560
	Replace roof drains	3 ea	$1,200.00	$3,600
	Provide safety rails at roof hatch	3 ea	$1,500.00	$4,500
	Replace wall mounted ladder	1 ea	$2,500.00	$2,500
	Cut back trees	1 allowance	$500.00	$500
	Replace roof hatch gate on existing safety rails	1 ea	$300.00	$300
			TOTAL COST	**$2,516,842.00**

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	8	LAKERIDGE JUNIOR HIGH	2015 FACILITY ASSESSMENT		

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL EXTERIOR	**Lakeridge Junior High**			
	Repaint T&G soffit	90 sf	$1.75	$158
	Remove rust and repaint ledger angle	78 lf	$30.00	$2,340
	Replace window sill flashing	260 lf	$20.00	$5,200
	Replace single pane glazing, (8' x 4')	12 ea	$2,000.00	$24,000
	Replace single pane glazing (12'x8')	25 ea	$5,800.00	$145,000
	Replace single pane glazing (8'x8')	6 ea	$3,900.00	$23,400
	Replace single pane storefront (11' high)	86 lf	$660.00	$56,760
	Replace door knob with lever handle	2 ea	$500.00	$1,000
	Repaint hm door and frame	2 ea	$125.00	$250
	Replace concrete apron	15 sf	$40.00	$600
	Replace masonry control joints	20 lf	$15.00	$300
	Replace wood fascia at overhang in its entirety, 30" high	1,162 lf	$4.00	$4,648
	Replace intermediate wood mullion between alum windows, 1x4	8 lf	$50.00	$400
	Repaint intermediate wood mullion between alum windows, 1x6	8 lf	$15.00	$120
	Replace damaged louvers in brick wall	2 ea	$1,000.00	$2,000
	Replace brick masonry	225 sf	$35.00	$7,875
	Repair chipped concrete to cover exposed rebar	20 sf	$50.00	$1,000
	Replace HM door and frame	4 ea	$1,800.00	$7,200
	Replace brick sill	33 lf	$50.00	$1,650
	Replace wood soffit	3,150 sf	$20.00	$63,000
	Clean and re-point brick masonry	2,080 sf	$27.00	$56,160
	Replace sealant at stone panel joint	16 lf	$5.00	$80
	Relocate ADA push pad at door	1 ea	$500.00	$500
	Remove rust from underside of covered walkway, repaint	1,920 sf	$6.00	$11,520
	Provide window flashing at head	444 lf	$20.00	$8,880
	Place sealant between sidewalk and building	100 lf	$5.00	$500
	Replace asphalt paving to uncover weeps	500 sf	$8.00	$4,000
	Bryant School			
	Replace wood soffit	12,160 sf	$20.00	$243,200
	Replace single pane glazing, (8' x 7')	53 ea	$1,200.00	$63,600
	Replace single pane storefront (11' high)	56 lf	$660.00	$36,960
	Cut back vegetation from building	95 lf	$10.00	$950
	Provide metal sleeve for draped conduit on building, secure to building	162 lf	$30.00	$4,860
	Clean metal panels	660 sf	$1.00	$660
	Replace pair hm doors with full glazing, panic bars and card access	1 ea	$5,000.00	$5,000
	Replace wood door/frame with hm door/frame	25 ea	$1,800.00	$45,000
	Replace pair wood doors and frame with HM doors	1 ea	$3,600.00	$3,600
	Replace sidewalk at buiding, slope away from building	780 sf	$9.00	$7,020
	Replace 1x6 wood trim at brick	284 lf	$10.00	$2,840
	Repaint 1x6 wood trim at brick	360 lf	$1.50	$540
	Replace brick masonry	150 sf	$35.00	$5,250
	Repaint hm door and frame	4 ea	$125.00	$500
	Repaint underside of wood roof and framing in covered playground	5550 sf	$1.75	$9,713
	Repaint vertical wood panels in covered playground	5500 sf	$1.75	$9,625
	Replace wood bench, 8 ft long	3 ea	$800.00	$2,400
	Replace round soffit vents, 30 per side	180 ea	$25.00	$4,500
	Replace brick mortar	1 lf	$25.00	$25
			TOTAL COST	**$874,783.00**

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	8	LAKERIDGE JUNIOR HIGH	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL INTERIOR	**Lakeridge Junior High**			
	Replace carpet tile; install new rubber base	39,608 sf	$7.00	$277,256
	Refinish concrete floor	1,795 sf	$1.50	$2,693
	Replace VCT flooring; new rubber base to match (E)	6,417 sf	$4.50	$28,877
	Replace 1x1 glue-on ceiling tile	2,561 sf	$7.00	$17,927
	Replace 2x4 lay-in ceiling tile	12,123 sf	$8.00	$96,984
	Repaint gypsum plaster ceiling	66 sf	$1.20	$79
	Repaint gypsum plaster wall	54,924 sf	$1.00	$54,924
	Repaint CMU wall	918 sf	$1.00	$918
	Replace CMU wall	16,120 sf	$50.00	$806,000
	Replace FRP	198 sf	$8.00	$1,584
	Replace wood door and HM frame	46 ea	$1,800.00	$82,800
	Replace HM door and frame	18 ea	$1,800.00	$32,400
	Replace built-in wood casework	6,895 sf	$15.00	$103,425
	Replace wood flooring	1,187 sf	$15.00	$17,805
	Bryant School			
	Repaint wall	7610 sf	$1.00	$7,610
	Replace ceramic floor tile; install new base	66 sf	$24.00	$1,584
	Replace carpet tile; install new rubber base	6470 sf	$7.00	$45,290
	Install missing wall base	350 lf	$2.50	$875
	Replace relite frame and glazing (3'-8" x 7')	13 ea	$750.00	$9,750
	Replace 1x1 glue-on ceiling tile	12150 sf	$7.00	$85,050
	Replace 2x4 lay-in ceiling tile	1269 sf	$8.00	$10,152
	Replace wood door and HM frame	5 ea	$1,800.00	$9,000
	Repaint door frame	3 ea	$75.00	$225
	Replace damaged casework	58 lf	$300.00	$17,400
	Replace ceramic wall tile	600 sf	$24.00	$14,400
			TOTAL COST	**$1,725,007.20**
SITE	Connect building to storm water system	2922 lf	$50.00	$146,100
	Repair field irrigation system	8650 sf	$1.50	$12,975
	Re-pave area to slope away from building	2,700 sf	$9.00	$24,300
	Replace asphalt paving to uncover weeps	500 sf	$8.00	$4,000
	Regrade soils to slope away from building	78 lf	$15.00	$1,170
	Place sealant between sidewalk and building	100 lf	$5.00	$500
	Repave parking lot	79,500 sf	$3.00	$238,500
	Re-stripe parking lot	79,500 sf	$0.05	$3,975
			TOTAL COST	**$431,520.00**
STRUCTURAL	Install retrofit helical piles @ perimeter, assume 4'-6 o.c., 25' deep	1500 ea	$1,400.00	$2,100,000
	Seismic rehabilitation of the covered play structure	5,582 sf	$10.00	$55,820
	Lakeridge Junior High			
	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	81,582 sf	$50.00	$4,079,100
	Seismic rehabilitation work in the Gym as the sole building upgrade (not including costs for re-roofing)	7,015 sf	$45.00	$315,675
	Bryant School			
	Seismic rehabilitation work at roof level as the sole building upgrade (does not include costs for re-roofing)	48,645 sf	$50.00	$2,432,250
			TOTAL COST	**$8,982,845.00**

LAKE OSWEGO SCHOOL DISTRICT	8	LAKERIDGE JUNIOR HIGH	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
MECHANICAL	Replace Multi-zone AHU, update with VAV system MZ-1	1 ea	$21,000.00	$21,000
	Replace Multi-zone AHU, update with VAV system MZ-2	1 ea	$21,000.00	$21,000
	Replace Multi-zone AHU, update with VAV system MZ-3	1 ea	$21,000.00	$21,000
	Replace Multi-zone AHU, update with VAV system MZ-4	1 ea	$21,000.00	$21,000
	Replace Multi-zone AHU, update with VAV system MZ-5	1 ea	$21,000.00	$21,000
	Repair Multi-zone AHU, overhaul MZ-6	1 ea	$11,000.00	$11,000
	Repair Multi-zone AHU, overhaul MZ-7	1 ea	$11,000.00	$11,000
	Repair Multi-zone AHU, overhaul MZ-8	1 ea	$11,000.00	$11,000
	Repair Multi-zone AHU, overhaul AH-1	1 ea	$11,000.00	$11,000
	Repair Multi-zone AHU, overhaul AH-2	1 ea	$11,000.00	$11,000
	Repair Multi-zone AHU, overhaul AH-3	1 ea	$11,000.00	$11,000
	Repair Multi-zone AHU, overhaul AH-4	1 ea	$11,000.00	$11,000
	Repair Multi-zone AHU, overhaul AH-5	1 ea	$11,000.00	$11,000
	Replace hot water unit ventilators, reuse DDC controls	6 ea	$3,200.00	$19,200
	Replace 2 ton window AC, replace with ductless split system	6 ea	$3,800.00	$22,800
	Replace roof top centrifugal exhaust fans	3 ea	$5,200.00	$15,600
	Replace electric heat unit ventilators with higher efficiency system	2 ea	$3,700.00	$7,400
	Replace roof top make-up air unit	1 ea	$4,900.00	$4,900
	Replace 10K MBH gas fire tube hot water boiler	1 ea	$182,000.00	$182,000
	Replace 5.25K MBH gas fire tube hot water boiler	1 ea	$106,000.00	$106,000
	Replace carbon steel heating water piping	5000 lf	$55.00	$275,000
	Replace base mounted centrifugal hydronic pumps	2 ea	$3,700.00	$7,400
	Architectural Finishes Allowance	1 ls	$15,000.00	$15,000
			TOTAL COST	$848,300.00
ELECTRICAL	Replace switchgear	1 ea	$11,800.00	$11,800
	Add surge protection at main distribution panel	1 ea	$1,100.00	$1,100
	Add exterior lighting controls	1 ea	$2,200.00	$2,200
	Add 120/208V distribution panel at Pod D building	1 ea	$6,900.00	$6,900
			TOTAL COST	$22,000.00
PLUMBING	Repair copper domestic piping: Add insulation in HW piping in building b mech room	100 lf	$25.00	$2,500
	Repair floor mounted urinals, add DDC controls to flush toilets (7 separate RRs)	25 ea	$1,600.00	$40,000
	Repair wall hung lavatories: Update fixture to 0.5 gpm	26 ea	$1,600.00	$41,600
	Replace floor mounted toilets, update to 1.6 gpf standard	38 ea	$1,600.00	$60,800
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$154,900.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$15,124,677
	TOTAL COST TO REPLACE	$33,104,700
	=FCI	0.46

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $270/SF.

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

8_Lakeridge Junior High

Constructed in 1964. CMU shear walls (minimal reinforcement) with some wood framing and concrete tilt-up panels at gym area. Tectum panel diaphragms at gym and wood structural panel diaphragms elsewhere.
Bryant Elementary constructed in 1967. Clay brick exterior shear walls (minimal reinforcement) with wood interior bearing walls and wood framing. Wood structural panel diaphragms.
Building Risk Category III
ASCE 41-13 **Immediate Occupancy** Performance Level for gym portion
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$50/sf (does not include costs for re-roofing)

Gymnasium Building Seismic Retrofit Cost Per Square Foot
$45/sf (does not include costs for re-roofing)

Bryant Building Seismic Retrofit Cost Per Square Foot
$50/sf (does not include costs for re-roofing)

Covered Play Structure Seismic Retrofit Cost Per Square Foot
$10/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Reinforcing steel – there is not adequate reinforcing steel in the masonry shear walls in the gym and main structure for in-plane or out-of-plane forces.
- The wood structural panel diaphragm connections to walls should be strengthened.
- Interior wood walls in the main building do not include wood structural panels or shear wall hold-downs.
- Wood structural panel diaphragms likely need additional nailing to increase capacity.
- Wood structural panel diaphragms need to be installed in place of Tectum panels in the gym.
- Diaphragm chords and collectors should be added.
- Wood shear walls should be added to the Bryant buildings and attached to the clay brick exterior walls as furring walls.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.
- Edge clearance for ceilings – free edges of suspended ceilings do not have a ¾ inch clearance between the ceiling and the adjacent wall.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

STRUCTURAL REPORT

kpff Consulting Engineers | STRUCTURAL

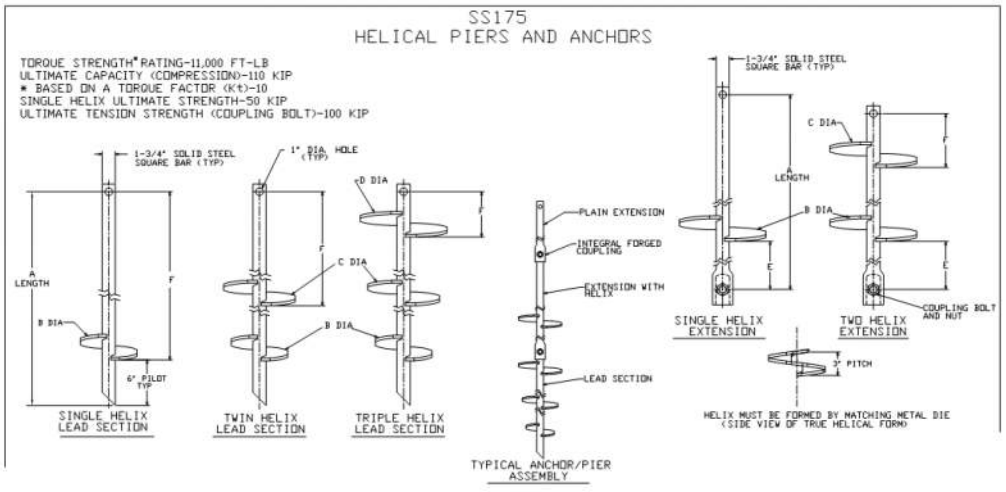
October 02, 2015

- Edge support for ceilings – free edges of suspended ceilings are not supported by two inch wide closure angles.
- There is an unreinforced masonry chimney on the roof above the cafeteria that should be removed.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information

- The following applies to both the Lakeridge Jr. High building and the Bryant building: There are several cracks in the plaster and likely the masonry shear walls throughout the structure. There are also cracks in the exterior brick and brick veneer. The total crack length is approximately 200 to 250 feet throughout the structure. These are likely due to the expansive soils on site per discussions with facilities personnel and previous geotechnical and engineering reports. These cracks should be repaired. To prevent re-occurrence of cracking, foundations should be mitigated per the following:
    - Helical piles capable of resisting uplift loads should be installed at approximately 4.5 ft o.c. next to continuous footings. This equates to approximately 1500 piles. Each helical pile will likely be 20 feet long. Basis of estimate was the SS175 helical pier with 100 kips of uplift capacity (see below).



KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

PHOTOS OF DEFICIENCIES
LAKERIDGE JR. HIGH

Cracks in Masonry Walls

Post to Girder Inadequate Connection

Inadequate Diaphragm to Wall Connection

Unbraced Ceiling Tiles

Inadequate Joist Connection to Wall

STRUCTURAL REPORT

kpff

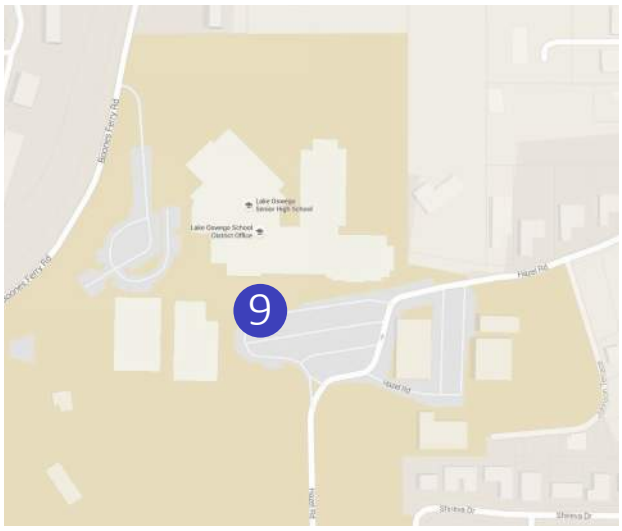
PHOTOS OF DEFICIENCIES
LAKERIDGE JR. HIGH

URM Chimney

FACT SHEET

2501 Country Club Rd.
Lake Oswego, OR 97034

9 LAKE OSWEGO HIGH SCHOOL



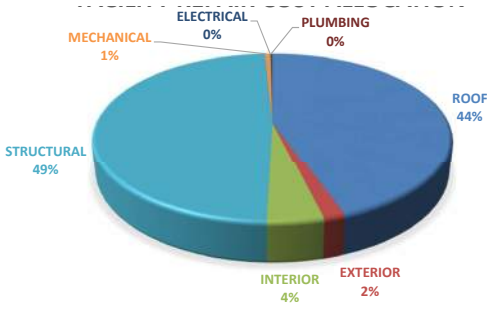
YEAR BUILT	2005 (Old Gym: 1961)
REMODELS	2010 (Old Gym: 2004)
BUILDING AREA	259,682 SF
TOTAL HEIGHT	62’
NUMBER OF FLOORS	3
OCCUPANCY	A-2, A-2.1, A-3, B, E-1
PRIMARY STRUCTURE	STEEL FRAME
ROOF TYPE	TPO, STANDING METAL SEAM
FLOOR FINISHES	CARPET TILE, VCT
CEILING FINISHES	ACT, GYP. BOARD, PLASTER, WOOD PANEL
PARTITION TYPE	GYP. BOARD OVER METAL STUD
HVAC TYPE	AHU WITH VAV TU

FACILITY SUMMARY

Lake Oswego High School population is 1,340 students from ninth to twelfth grades.

Crickets should be replaced and added to areas where the slope of the roof is to be raised to drain properly. There are leaking downspouts along the exterior that need repairs. There are damaged classroom doors that need to be repaired as well.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	9	LAKE OSWEGO HIGH SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	**Main Building**			
	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	131294 sf	$20.00	$2,625,880
	Repair wall mounted sesimic joint and associated roofing per line type	4215 lf	$18.00	$75,870
	Clean and repair downspout and scupper	1 ea	$200.00	$200
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
	Clean out gutter	74 lf	$7.00	$518
	Clean drains	36 ea	$200.00	$7,200
	Replace roof drains	2 ea	$1,200.00	$2,400
	Replace roofing in roof drain sump	455 sf	$20.00	$9,100
	Provide reglet flashing	16 lf	$12.00	$192
	Replace scupper flashing	3 ea	$500.00	$1,500
	Replace corroded chains at roof hatch guardrails	2 ea	$200.00	$400
	Replace skylight curbs for skylights slope to drain	40 lf	$40.00	$1,600
	Raise curb behind skylight 8"; add reglet flashing and counter flashing over adjacent skylight curb	20 lf	$50.00	$1,000
	Reinstall conduit in metal sleeves and installed on 8" high PT blocks	400 lf	$40.00	$16,000
	Infill 8" deep trough, apply roofing and extend roof drains to roof surface and install drain bowls.	140 sf	$50.00	$7,000
	Repair wall mounted seismic joint and associate roofing per line type	290 lf	$25.00	$7,250
	Replace sheet metal trough between metal roofs, slope to drain	82 sf	$20.00	$1,640
	Install new wall mounted ladder	1 ea	$2,500.00	$2,500
	Athletics			
	Move concrete pavers away from edge	165 lf	$10.00	$1,650
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
	Clean out gutter	380 lf	$7.00	$2,660
	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	41360 sf	$20.00	$827,200
			TOTAL COST	**$3,641,760.00**

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL EXTERIOR	**Athletics**			
	Clean precast fascia	2,700 lf	$10.00	$27,000
	Repaint hm door and frame	48 ea	$125.00	$6,000
	Repair damaged HM door	1 ea	$1,000.00	$1,000
	Repair damaged strorefront doors	4 ea	$1,000.00	$4,000
	Remove peeling paint and repaint all exterior guard rails and railings	1,170 lf	$8.00	$9,360
	clean rust and paint exterior staircase (2 stories tall, 5' wide, one landing)	1 ea	$1,500.00	$1,500
	Replace gutter	140 lf	$16.00	$2,240
	Install window head flashing	12 lf	$20.00	$240
	Repaint downspouts	13 ea	$50.00	$650
	Clean rust and repaint metal awning	250 sf	$6.00	$1,500
	Patch concrete pilaster base	4 sf	$75.00	$300
	Clean and paint stucco soffit	1000 sf	$2.00	$2,000
	Replace flashing (outside wrestling)	45 lf	$18.00	$810
	Provide Kalwall flashing on all side of opening of CMU wall	70 lf	$20.00	$1,400
	Replace control joint caulk, provide continuous line	30 lf	$15.00	$450
	Replace HM door and frame	1 ea	$1,800.00	$1,800
	Repair storefront mullion	1 ea	$500.00	$500
	Replace stucco wall	32 sf	$30.00	$960
	Main Building			
	Clean precast fascia	4,215 lf	$10.00	$42,150
	Repaint HM double door and frame	3 ea	$250.00	$750
	Repaint hm door and frame	2 ea	$125.00	$250
	Clean rust and paint steel frame at window bays	500 lf	$12.00	$6,000
	Clean rust and paint steel frame at underside of window bays	150 lf	$12.00	$1,800
	Fix leaking gutters seams/welds	4 lf	$50.00	$200
	Fix leaking downspouts	2 ea	$200.00	$400

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	9	LAKE OSWEGO HIGH SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
	Replace wood fascia boards	30 lf	$2.00	$60
	Repair damaged flashing	217 lf	$20.00	$4,340
	Patch and paint stucco soffit (water damage)	650 sf	$10.00	$6,500
	Remove peeling paint and repaint all exterior guard rails and railings	214 lf	$8.00	$1,712
	Patch cracked chipped concrete column base (4" tall)	1 ea	$500.00	$500
	Clean and paint canopy structure and lintel in wall (canopy size: 6'-6" x 13'-0")	3 ea	$400.00	$1,200
	Replace dented corrugated metal panel	40 sf	$15.00	$600
	Replace metal fascia trim (12" tall)	8 lf	$25.00	$200
	Replace window gasket, 4' long	2 ea	$100.00	$200
	Replace precast concrete wall cap to cover brick wall	28 lf	$50.00	$1,400
	Replace mortar in brick along reglet flashing (roof plan west)	44 lf	$25.00	$1,100
	Remove patched sealant at wall tile (roof plan west)	1600 sf	$2.00	$3,200
			TOTAL COST	$134,272.00
ARCHITECTURAL INTERIOR	**Athletics**			
	Replace carpet tile; install new rubber base	536 sf	$7.00	$3,752
	Resurface flooring	4890 sf	$3.00	$14,670
	Replace sheet flooring; new rubber base to match (E)	32 sf	$8.00	$256
	Install transition strip	9 lf	$5.00	$45.00
	Repaint wall	16070 sf	$1.00	$16,070
	Patch and repaint gypsum plaster wall	730 sf	$2.00	$1,460
	Replace 1x1 glue-on ceiling tile	500 sf	$7.00	$3,500
	Replace 2x4 lay-in ceiling tile	368 sf	$8.00	$2,944
	Repaint gyp board ceiling	1000 sf	$1.20	$1,200
	Repaint steel handrail	120 lf	$5.00	$600
	Repaint HM door and frame	94 ea	$150.00	$14,100
	Repaint toilet stall partition door	8 ea	$50.00	$400
	Main Building			
	Replace carpet tile; install new rubber base	22,809 sf	$7.00	$159,663
	Replace sheet flooring; new rubber base to match (E)	15 sf	$8.00	$120
	Refinish sheet flooring	200 sf	$3.00	$600
	Replace VCT flooring; new rubber base to match (E)	1257 sf	$4.50	$5,657
	Repair damaged weld rod	21 lf	$10.00	$210
	Replace damage cove base	1 lf	$20.00	$20
	Install transition strip	9 lf	$5.00	$45.00
	Repaint stage floor	4750 sf	$1.00	$4,750
	Repaint wall	41,173 sf	$1.00	$41,173
	Patch and repaint gypsum plaster wall	4057 sf	$2.00	$8,114
	Replace damaged 4'x8' fabric wrapped acoustical wall panel	8 ea	$600.00	$4,800
	Replace 2x4 lay-in ceiling tile	1080 sf	$8.00	$8,640
	Replace 2x2 glue-on ceiling tile	188 sf	$7.00	$1,316
	Repair damaged spray-applied fireproofing to ceiling	20 sf	$10.00	$200
	Paint rusting metal	150 sf	$2.00	$300
	Repaint toilet stall partition door	9 ea	$50.00	$450
	Repair damaged wood paneling	570 sf	$20.00	$11,400
	Repair damaged wood trim	4 lf	$15.00	$60
	Repair damaged 4'x4' wood orchestra pit divider	5 ea	$250.00	$1,250
	Repair damaged wood door	28 ea	$700.00	$19,600

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	9	LAKE OSWEGO HIGH SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
	Repaint door frame	217 ea	$75.00	$16,275
	Repaint HM door	13 ea	$75.00	$975
	Replace door knob with lever	1 ea	$500.00	$500
	Repaint steel handrail	90 lf	$5.00	$450
	Repair damaged p-lam countertop	46 sf	$30.00	$1,380
	Replace damaged 2x4 light cover	2 ea	$50.00	$100
	Replace damaged whiteboard	1 ea	$500.00	$500
	Replace broken light switch	1 ea	$50.00	$50
	Replace wood door	2 ea	$1,400.00	$2,800
	Replace broken single-pane glass	16 sf	$25.00	$400
			TOTAL COST	$350,794.50
SITE	Clean and repaint stairs	300 sf	$5.00	$1,500
	Repaint guardrails and handrails	214 lf	$8.00	$1,712
	Repair concrete steps	30 sf	$50.00	$1,500
			TOTAL COST	$4,712.00
STRUCTURAL	Bottom exposed WF beam around perimeter of window "pop-outs" on 2nd floor is showing signs of rust. Scrape and paint to prevent further rusting.	153 ea	$50.00	$7,650
	Cracking in concrete slab in stair towers observed, patch	50 sf	$10.00	$500
	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	131294 sf	$25.00	$3,282,350
	Seismic rehabilitation work in the Gym as the sole building upgrade (not including costs for re-roofing)	41360 sf	$17.00	$703,120
			TOTAL COST	$3,993,620.00
MECHANICAL	Repair condensing units: Repair refrigerant line insulation	20 lf	$18.75	$375
	Repair 2K MBH Condensing hot water boiler: Replace piping	20 lf	$43.75	$875
	Repair roof top AHU: Clean and paint exterior of unit	10 ea	$4,500.00	$45,000
	Architectural Finishes Allowance	1 ls	$2,000.00	$2,000
			TOTAL COST	$48,250.00
ELECTRICAL	Replace distribution panels in gym	2 ea	$6,900.00	$13,800
	Repair main electrical gear: Add drip pan	1 ea	$1,350.00	$1,350
	Architectural Finishes Allowance	1 ls	$500.00	$500
			TOTAL COST	$15,650.00
PLUMBING	Repair drinking fountain, hot water discharging at drinking fountain.	1 ea	$1,100.00	$1,100
			TOTAL COST	$1,100.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$8,185,447
	TOTAL COST TO REPLACE	$83,098,240
	=FCI	0.10

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $320/SF.

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9_Lake Oswego High

Main Building constructed in 2004. Building is divided into five seismically separated structures. The entire building is framed with steel framing with composite decking for the floors and steel joists and metal deck at the roofs. Lateral systems: Two structures are steel braced frame. One of the structures is steel braced frames in one direction and steel RBS moment frames in the other direction. The Auditorium structure is reinforced CMU with steel braced frames and steel RBS moment frames.

Gymnasium Building constructed in 2002 and 1960 (Old Gym). Building is divided into two seismically separated structures. The New Gym is a CMU wall building with long span joists and a metal roof diaphragm. Lower portions attached to the New Gym and constructed at the same time have composite metal deck over steel framed floors and metal deck over steel joist roofs. Some of the single story steel roofs added adjacent to the New Gym have steel RBS moment frames as additional lateral support. The Old Gym is a CMU wall building with a plywood sheathing and glulam beam/wood joist roof. There is a daylight basement below the Old Gym with concrete walls supporting a concrete pan joist gym floor.

Building Risk Category III
ASCE 41-13 **Immediate Occupancy** Performance Level for gymnasium building
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$25/sf (does not include costs for re-roofing)

Gymnasium Building (including canopy over grandstands) Seismic Retrofit Cost Per Square Foot
$17/sf (does not include costs for re-roofing)
*If the gymnasium would be considered for the Life Safety Performance Level, it would be $8/sf

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Main Building:
  - Connections of metal deck diaphragms to lateral system to be verified and retrofit.
  - The number of moment frames along line Q and 33 in the Commons building to be confirmed adequate. There is only one bay along these lines instead of at least two.
  - Crossties are missing at metal deck roof.
  - The end connections of each brace should be retrofitted to meet current design practices which will allow a ductile failure of the braces instead of a brittle failure.
  - The beams in each braced frame bay should be strengthened to resist the vertical load resulting from the simultaneous yielding and buckling of the brace pairs.
  - The stairwell roof pop-ups should be further investigated or studied. These higher roofs to not appear to have a direct lateral load transfer system to the lower roof and do not have independent lateral systems.

- Gymnasium Building:
  - Unblocked plywood diaphragm spans greater than 40 feet at the old gym (1960).
  - Metal diaphragm spans more than 40 feet at the new gym (2002).
  - Connections of metal deck diaphragms to lateral system to be verified and retrofit.

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October 02, 2015

- Connection of roof girders and ties to exterior walls and columns to be retrofit at the old gym.
- Connection of sheathing at wood trusses to lateral system on the east side of old gym is unknown and should be verified and retrofitted.
- New gym CMU walls do not meet height to thickness limits and need to be reviewed and possibly retrofitted for Immediate Occupancy.
- Old gym CMU walls do not meet height to thickness limits and have too little reinforcement spaced at more than 4' on center and need to be retrofit.
- Grandstand canopy does not have adequate lateral system and the location and method of attachment to the old gym CMU wall is questionable. A retrofit of the lateral system is needed.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Fire suppression piping likely not braced in the original gymnasium.
- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Edge clearance for ceilings – free edges of suspended ceilings do not have a ¾ inch clearance between the ceiling and the adjacent wall.
- Edge support for ceilings – free edges of suspended ceilings are not supported by two inch wide closure angles.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are typically braced. A few were not, including the trophy cabinet at the entry. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced. Some kitchen equipment was not braced or anchored.
- Theater clouds – a few braces were observed to be missing
- Basketball backboards lacked proper bracing.
- There is a large duct above the side of the stage that was not braced.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

- Bottom exposed WF beam around perimeter of window "pop-outs" on 2nd floor is showing signs of rust. Scrape and paint to prevent further rusting. 6 pop-out boxes with exposed perimeter length of 25.5 ft each. Is not a structural issue at this point, but will become one if not protected correctly. Only about ½ are showing signs of visible rust from the ground. Recommending repairing all to prevent future rust.
- Cracking in concrete slab in stair towers observed but is not a structural issue.

PHOTOS OF DEFICIENCIES
LAKE OSWEGO HIGH

Rust on Pop-out Steel Framing

Ceiling Edge Clearance Deficient

Theater Scopes - Few Braces Missing

Trophy Cabinet Not Anchored

Sprinkler Head Clearance Deficient

In-line Equipment Not Braced

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FACT SHEET

1234 Overlook Dr.
Lake Oswego, OR 97034

10 LAKERIDGE HIGH SCHOOL

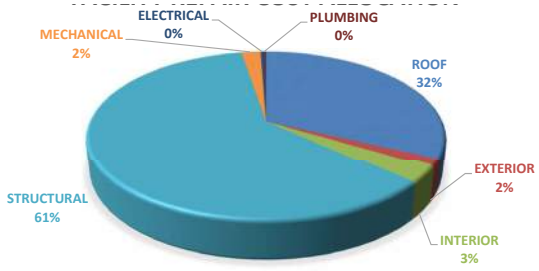
YEAR BUILT	1970
REMODELS	1990, 2004
BUILDING AREA	278,300 SF
TOTAL HEIGHT	54’
NUMBER OF FLOORS	3
OCCUPANCY	A-2, A-2.1, A-3, E-1
PRIMARY STRUCTURE	STEEL FRAME, WOOD FRAME
ROOF TYPE	TPO, STANDING METAL SEAM
FLOOR FINISHES	POLISHED CONCRETE, CARPET TILE
CEILING FINISHES	ACT, GYP. BOARD
PARTITION TYPE	GYP. BOARD OVER METAL STUD
HVAC TYPE	AHU WITH VAV TU

FACILITY SUMMARY

Lakeridge High School serves 1,151 students from ninth to twelfth grades.

The roof needs to be provided tapered insulation and crickets to raise the slope in order to drain properly. The stucco wall on the exterior should be cleaned. The interior carpet is ready for a replacement as well as all classroom walls need to be repainted.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	10	LAKERIDGE HIGH SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	196308 sf	$20.00	$3,926,160
	Provide new SBS BUR roofing and sheet metal accessories (without insulation) for covered walkways	6850 sf	$16.00	$109,600
	Clean through wall scupper	6 ea	$100.00	$600
	Clean out gutter	383 lf	$7.00	$2,681
	Repair gutter	144 lf	$12.00	$1,728
	Clean drains	39 ea	$200.00	$7,800
	Replace roof drains	2 ea	$1,200.00	$2,400
	Replace overflow drain	2 ea	$1,200.00	$2,400
	Provide sheet metal cover over seismic joint transition	4 lf	$25.00	$100
	Install splash block	4 ea	$75.00	$300
	Remove splash block	1 ea	$25.00	$25
	Install splash block	2 ea	$75.00	$150
	Replace counter flashing	50 lf	$18.00	$900
	Replace reglet flashing	30 lf	$12.00	$360
	Replace mech equip curbs with 8" high PT curbs	3 ea	$40.00	$120
	Replace mech equip curb rails to be 8" high and reposition rails, patch roofing	5 ea	$3,000.00	$15,000
	Install steel sleeve post support	1 ea	$500.00	$500
	Install new wall mounted ladder	4 ea	$2,500.00	$10,000
	Replace bellows seismic joint and associated roofing	360 lf	$25.00	$9,000
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
	Install new cover plate on electrical box	1 ea	$50.00	$50
			TOTAL COST	$4,114,874.00
ARCHITECTURAL EXTERIOR	Repair water damaged stone tiles, provide flashing	32 sf	$40.00	$1,280
	Clean and repair metal columns	10 ea	$100.00	$1,000
	Replace wood soffit	1 ea	$20.00	$20
	Replace single pane aluminum windows (8'x6')	30 ea	$2,200.00	$66,000
	Replace single pane storefront (66'x14')	1 ea	$55,440.00	$55,440
	Repair stucco wall at overflow scuppers	80 sf	$15.00	$1,200
	Clean and re-paint stucco wall	15,300 sf	$2.50	$38,250
	Repair bay window concrete roof (8'x2'-6")	11 ea	$600.00	$6,600
	Repair wood soffit panels	128 sf	$15.00	$1,920
	Replace metal panels (4'x8')	4 ea	$960.00	$3,840
	Repaint wood structure at awning (2 2x10's)	150 lf	$4.00	$600
	Fix covered walkway column foundation - re-level, fix roof	200 sf	$50.00	$10,000
	Provide seismic joint separation to the bottom of wall	1 sum	$500.00	$500
	Provide proper flashing and enclosure at cantilevered CMU wall bottom	1 sum	$2,500.00	$2,500
	Replace leaking window, fix water damage inside (sf)	1 sum	$5,000.00	$5,000
	Repair water damaged wall	1 sum	$7,500.00	$7,500
			TOTAL COST	$201,650.00

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	10	LAKERIDGE HIGH SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL INTERIOR	Replace sheet flooring; new rubber base to match (E)	2035 sf	$8.00	$16,280
	Replace carpet on stairs	750 sf	$9.00	$6,750
	Replace carpet tile; install new rubber base	16687 sf	$7.00	$116,809
	Replace ceramic floor tile; install new base	12 sf	$24.00	$288
	Install transition strip	20 lf	$5.00	$100
	Repaint stage floor	2650 sf	$1.00	$2,650
	Replace FRP	1880 sf	$8.00	$15,040
	Repaint wall	69,979 sf	$1.00	$69,979
	Patch and repaint gypsum plaster wall	2924 sf	$2.00	$5,848
	Replace damaged wall protection	250 sf	$8.00	$2,000
	Replace 1x1 glue-on ceiling tile	707 sf	$7.00	$4,949
	Replace 2x4 lay-in ceiling tile	2454 sf	$8.00	$19,632
	Repaint gyp board ceiling	2010 sf	$1.20	$2,412
	Repair damaged toilet stall partition	3 ea	$500.00	$1,500
	Repair damaged wood paneling	384 sf	$20.00	$7,680
	Replace wood window sill	60 sf	$15.00	$900
	Repair damaged wood door	26 ea	$700.00	$18,200
	Repaint door frame	5 ea	$75.00	$375
	Repaint HM door and frame	18 ea	$150.00	$2,700
	Replace damaged 2x4 light cover	8 ea	$50.00	$400
	Replace broken horizontal blinds	60 sf	$7.00	$420
	Replace countertop	768 sf	$60.00	$46,080
	Refinish concrete floor	6545 sf	$1.50	$9,818
	Replace countertop with solid surface countertop (art room)	121 sf	$70.00	$8,470
	Replace doors with new doors and 3mm edge banding (art room)	65 sf	$10.00	$650
	Replace ceiling sheathing at roof drain (art room)	70 sf	$10.00	$700
	Clean and re-point CMU wall	700 sf	$25.00	$17,500
	Gym Wing			
	Replace acoustical panel	32 sf	$18.75	$600
	Provide ADA restroom (sink, toilet, grab bars, mirror, light, fan, all walls and finishes)	2 ea	$20,000.00	$40,000
	Replace 2x4 lay-in ceiling tile	400 sf	$8.00	$3,200
	Replace water damaged exposed spray on insulation on wall	100 sf	$5.00	$500
	Clean and re-point CMU wall	20 sf	$25.00	$500
	Clean and repaint ceiling at water damage area	280 sf	$2.00	$560
	Repaint CMU wall	25 sf	$1.00	$25
			TOTAL COST	$423,514.50
SITE	Slope site away from building	730 sf	$3.00	$2,190
	Re-pave area to slope away from building	430 sf	$9.00	$3,870
	Re-paint curbs	135 lf	$5.00	$675
	Replace stair, ramp and retaining wall, provide proper drainage	640 sf	$30.00	$19,200
	Provide drainage at crack and re-pave parking lot	470 sf	$6.00	$2,820
	Clean and repaint stairs	100 sf	$5.00	$500
			TOTAL COST	$29,255.00
STRUCTURAL	Replace slab/sidewalk over tunnel between main b building and gym building. Replace sidewalk/tunnel lid with 1.5" metal deck with 3.5" concrete fill on top. New ledger angles each side of tunnel. Tunnel is 4ft x 70ft long.	1 ea	$7,500.00	$7,500
	Roof ladder anchorage connection spalling concrete. Reattach ladder	1 ea	$200.00	$200
	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	215873 sf	$34.00	$7,339,682
	Seismic rehabilitation work in the Gym as the sole building upgrade (not including costs for re-roofing)	62427 sf	$6.00	$374,562
	Cover covered walkways	6850 sf	$10.00	$68,500
			TOTAL COST	$7,790,444.00

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	10	LAKERIDGE HIGH SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
MECHANICAL	Repair Huntair 16.5K CFM roof unit: Repair fallen/damaged sensor in unit	1 ea	$8,500.00	$8,500
	Repair Huntair 6.5K CFM roof unit: Replace VFD keypads (unreadable)	1 ea	$8,500.00	$8,500
	Repair Huntair 2.4K CFM roof unit: SF motor bearing failing	1 ea	$8,500.00	$8,500
	Repair AHU in mech rm: New motors and starters SU-D2/RF-D2	1 ea	$11,000.00	$11,000
	Repair AHU in mech rm: New motors and starters SU-D2/EF-D3	1 ea	$11,000.00	$11,000
	Repair SU-D2/SU-D3: Insulate CHW pipes, clean OA intake screens	1 ea	$5,500.00	$5,500
	Repair AHU in mech rm: New starter and belt SU-F2	1 ea	$10,000.00	$10,000
	Repair SF-A2/RF-A2/EF-A2 AHU: New motors and starters	1 ea	$11,000.00	$11,000
	Repair AHU roof units: Recommend painting entire unit to protect from corrosion	1 ea	$11,000.00	$11,000
	Repair AHU SF-G5, EF-G4, EF-G5: New starters	1 ea	$11,000.00	$11,000
	Repair AHU SF-G3/RF-G3: New motors and starters	1 ea	$11,000.00	$11,000
	Repair AHU SF-G1/RF-G1: Repair damaged damper shaft, new motors and starters	1 ea	$11,000.00	$11,000
	Repair AHU SF-G2/RF-G2: New starters and motors	1 ea	$11,000.00	$11,000
	Repair AHU SF-G6/RF-G6/EF-G6: New starters and motors	1 ea	$11,000.00	$11,000
	Repair 2000 MBH Condensing Hot Water Boilers: Repair control issues with B-4,5	5 ea	$11,000.00	$55,000
	Repair roof top centrifugal exhaust fans: Repair EF belts, replace corroded sleeves and are turned off	3 ea	$3,800.00	$11,400
	Hot water fan coil units FCU-G2, FCU-G3: Evidence of a leak, location could not be found	1 ea	$850.00	$850
	Repair ductless split system: Replace battery operated thermostat	5 ea	$1,450.00	$7,250
	Repair ductless split system, outdoor condensing units: Replace pipe insulation	20 lf	$18.75	$375
	Add exhaust fan for custodial closet behind D wing NE stairs	1 ea	$2,400.00	$2,400
	Repair AHU in mech rm: New motor and starter for SF-G4	1 ea	$8,000.00	$8,000
	Repair carbon steel heating water piping: Pipe rack in tunnel to gym needs to be replaced	1000 lf	$30.00	$30,000
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$265,275.00
ELECTRICAL	Replace compact fluorescents with LED	30 ea	$325.00	$9,750
	Replace 120/208V 800A Distribution panel	1 ea	$2,900.00	$2,900
	Replace 277/480V 1200A Distribution panel	2 ea	$13,200.00	$26,400
	Replace 120/208V 600A Distribution panel	1 ea	$2,650.00	$2,650
	Replace 480V 200A Distribution Panel	2 ea	$3,900.00	$7,800
	Replace 480V 400A Distribution Panel	1 ea	$6,900.00	$6,900
	Replace 120/208V 100A Branch Panel	1 ea	$2,400.00	$2,400
			TOTAL COST	$58,800.00
PLUMBING	Replace copper domestic piping	1000 lf	$12.00	$12,000
	Repair sink in Wing B HomeEc: Sink has low flow issue	1 ea	$850.00	$850
	Repair drinking fountain: Low/no flow issue	1 ea	$850.00	$850
	Architectural Finishes Allowance	1 ls	$5,000.00	$5,000
			TOTAL COST	$18,700.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$12,873,258
	TOTAL COST TO REPLACE	$89,056,000
	=FCI	0.14

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $320/SF.

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October 02, 2015

10_Lakeridge High

Constructed in 1971. Steel braced frames, steel moment frames, reinforced concrete shear walls, and reinforced masonry shear walls with steel open web joists, wood framing, and steel beams. Diaphragms are wood structural panels, concrete over metal deck, and metal roof deck.
Building Risk Category III
ASCE 41-13 **Immediate Occupancy** Performance Level for gym portion
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$34/sf (does not include costs for re-roofing)

Gymnasium Building Seismic Retrofit Cost Per Square Foot
$6/sf (does not include costs for re-roofing)

Covered Walkway Seismic Retrofit Cost Per Square Foot
$10/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Most of the diaphragms throughout the buildings need strapping and connection strengthening both to framing and lateral elements.
- The mezzanine adjacent to the new gym addition needs an additional shear element, and its connection to the reinforced masonry shear walls should be strengthened.
- The old main gym and old auxiliary gym should be seismically separated at the walkway between.
- The A wing, B Wing, D wing, and F wing need additional shear elements to reduce the diaphragm span.
- The connections between moment frames and diaphragms and connections to other lateral elements in the D wing should be strengthened.
- The C Wing has a vertical discontinuity in the diaphragm between the moment frames and masonry shear walls. This should be remedied. Moment frames are likely deficient.
- The braced frames in the auditorium fly tower in the A wing have inadequate end connections and beams considering unbalanced loading from brace buckling. These end connections and beams should be strengthened.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Fire suppression piping was not braced (possibly OK in parts of 2002 addition, not all visible).
- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Edge support for ceilings – free edges of suspended ceilings are not supported by two inch wide closure angles.
- Edge clearance for ceilings – free edges of suspended ceilings do not have a ¾ inch clearance between the ceiling and the adjacent wall.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

STRUCTURAL REPORT

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October 02, 2015

- Large skylight in the library is a likely falling hazard due to age of glazing.
- Covered walkways require seismic joints and minimal work for bracing.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet is typically braced. Most were not braced/anchored (bookshelves, cabinets). Most of the bookshelves in the main area of the library were anchored, storage rooms were not. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced. Some kitchen equipment was not braced or anchored.
- Theater clouds – a few braces were observed to be missing.
- Basketball backboards lacked proper bracing.
- Flexible couplings were not able to be observed at seismic joints.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

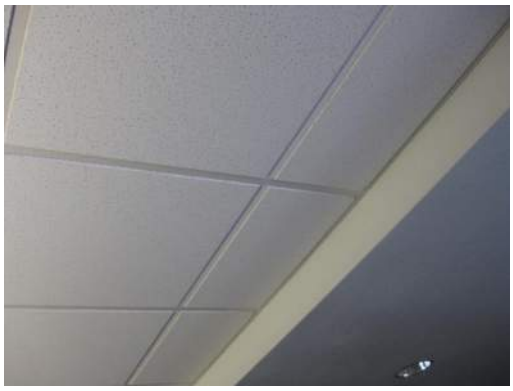
- Replace slab/sidewalk over tunnel between main building and gym building. Replace sidewalk/tunnel lid with 1.5" metal deck with 3.5" concrete fill on top. New ledger angles each side of tunnel. Tunnel is 4ftx70ft long.
- Roof ladder anchorage connection spalling concrete – reattach ladder (1 location).
- Cracking in ramp/sidewalk at the top of a retaining wall. Retaining wall appeared to be undamaged. Cracking likely caused from settlement in soil below ramp/sidewalk.
- Water damage observed on underside of roof in original gymnasium.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

PHOTOS OF DEFICIENCIES
LAKERIDGE HIGH

Sprinkler Head Clearance Not Adequate

Overhead Glazing Falling Hazard



Ceiling Edge Clearance Deficient

Partition Wall Attached to Unbraced Bottom Truss Chord

Unbraced Fire Suppression Piping

Spalling at Ladder Anchorage

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
LAKERIDGE HIGH

Cracking Ramp & Sidewalk

Unbraced Bookshelf

Backboard Braced to bottom of Truss – Deficiency

Unbraced Tall Cabinet – Falling Hazard

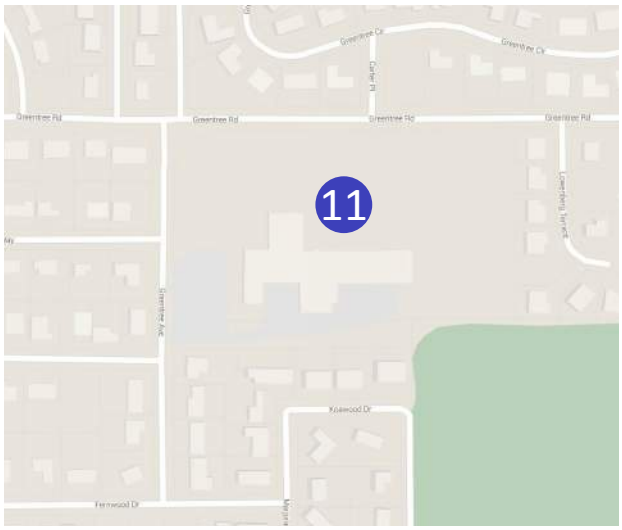
Unbraced Tall Refrigerator – Falling Hazard

FACT SHEET

1500 Greentree Rd.
Lake Oswego, OR 97034

11

PALISADES



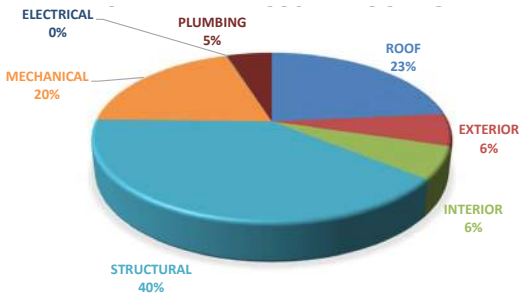
YEAR BUILT	1959
REMODELS	1990
BUILDING AREA	45,680 SF
TOTAL HEIGHT	24’
NUMBER OF FLOORS	1
OCCUPANCY	E-1
PRIMARY STRUCTURE	WOOD FRAME
ROOF TYPE	TPO, MEMBRANE OVER PLYWOOD DECK, BALLAST OVER MEMBRANE
FLOOR FINISHES	CARPET TILE, VCT
CEILING FINISHES	ACT, GYP. BOARD
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	AHU WITH VAV TU

FACILITY SUMMARY

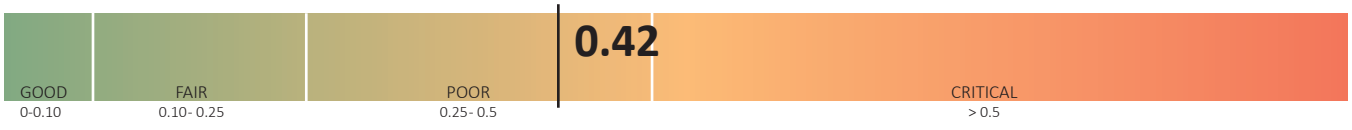
Palisades Elementary is currently leased to the City Parks and Recreation Department. Located near Lakeridge High School, it has a simple classroom layout along its main corridor similar to Uplands. It has a notable entrance coming from Greentree Avenue.

The roof slope should be raised to properly drain by adding and replacing crickets. The exterior concrete wall should be repainted and shrubbery needs to be cut back from the building. Wood doors and wood frames need to be replaced.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)



DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	11	PALISADES ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	51996 sf	$20.00	$1,039,920
	Provide new SBS BUR roofing and sheet metal accessories (uninsulated)	3660 sf	$16.00	$58,560
	Provide cricket behind mechanical equipment	10 ea	$34.00	$340
	Replace roof drains	9 ea	$1,200.00	$10,800
	Replace roofing around roof drain	330 sf	$20.00	$6,600
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
	Provide reglet flashing	100 lf	$12.00	$1,200
	Replace curb rails with 8" high rails	1 sum	$2,000.00	$2,000
	Replace skylight curbs for skylights slope to drain	32 lf	$40.00	$1,280
	Reinstall conduit in metal sleeves and installed on 8" high PT blocks	140 lf	$40.00	$5,600
	Cut back trees	1 sum	$500.00	$500
	Replace sheet metal flashing	575 lf	$18.00	$10,350
			TOTAL COST	$1,162,150.00
ARCHITECTURAL EXTERIOR	Clean and re-paint stucco wall	560 sf	$2.50	$1,400
	Replace single pane windows (4'x8')	112 ea	$2,000.00	$224,000
	Replace single pane glazing (15'x12')	1 ea	$3,600.00	$3,600
	Replace wood soffit	200 sf	$20.00	$4,000
	Replace door knob with lever	4 ea	$500.00	$2,000
	Repaint concrete wall, 2 colors	4,500 sf	$1.50	$6,750
	Repaint HM double door and frame	1 ea	$250.00	$250
	Repaint hm door and frame	3 ea	$125.00	$375
	Repaint wood fascia 1x10	400 lf	$2.00	$800
	Repaint T&G soffit	220 sf	$1.75	$385
	Cut back shrubbery from building	140 lf	$10.00	$1,400
	Repaint steel posts, 12' high	20 ea	$50.00	$1,000
	Replace wood trim	42 lf	$10.00	$420
	Replace wood soffit	958 sf	$20.00	$19,160
	Replace pair hm doors with full glazing, panic bars and card access	3 ea	$3,600.00	$10,800
	Slope site away from building	40 sf	$3.00	$120
	Clean and re-point brick masonry	100 sf	$27.00	$2,700
	Clean grass/debris out from mech grilles in masonry wall	10 ea	$25.00	$250
	Replace metal panel at covered playground	1600 sf	$15.00	$24,000
			TOTAL COST	$303,410.00
ARCHITECTURAL INTERIOR	Replace 1x1 glue-on ceiling tile	1,826 sf	$7.00	$12,782
	Repaint 2x4 tectum ceiling panel	4,376 sf	$1.50	$6,564
	Replace FRP	916 sf	$8.00	$7,328
	Repaint gypsum plaster wall	3,266 sf	$1.00	$3,266
	Repaint CMU wall	270 sf	$1.00	$270
	Replace carpet tile; install new rubber base	21,972 sf	$7.00	$153,804
	Refinish wood flooring	4,376 sf	$3.00	$13,128
	Replace VCT flooring; new rubber base to match (E)	2,618 sf	$4.50	$11,781
	Replace wood door and HM frame	38 ea	$1,800.00	$68,400
	Replace HM door and frame	14 ea	$1,800.00	$25,200
	Repair built-in metal casework	4 ea	$500.00	$2,000
			TOTAL COST	$304,523.00

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	11	PALISADES ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
SITE				
			TOTAL COST	$0.00
STRUCTURAL	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	47,628 sf	$40.00	$1,905,120
	Seismic rehabilitation of the covered play structure	4,368 sf	$10.00	$43,680
	Repair cracks in exterior wall	125 lf	$60.00	$7,500
			TOTAL COST	$1,956,300.00
MECHANICAL	Replace 1.5 ton window AC, replace with ductless split system	1 ea	$3,300.00	$3,300
	Replace 1000 CFM hot water unit ventilator, add DDC controls	20 ea	$8,000.00	$160,000
	Replace 750 CFM hot water unit ventilator, add DDC controls	1 ea	$7,000.00	$7,000
	Replace 1260 CFM hot water unit ventilator, add DDC controls	1 ea	$9,500.00	$9,500
	Replace 1560 CFM hot water unit ventilator, add DDC controls	1 ea	$11,000.00	$11,000
	Replace 5 ft hot water cabinet convectors, add DDC controls	9 ea	$2,200.00	$19,800
	Replace 24 ft hot water cabinet convectors	1 ea	$3,000.00	$3,000
	Repair 7000 CFM steam heating ventilator HV-1	1 ea	$11,000.00	$11,000
	Replace 2000 CFM steam heating ventilator HV-2: Add DDC controls	1 ea	$26,000.00	$26,000
	Repair 1400 CFM Hot water heating ventilator HV-3	1 ea	$5,500.00	$5,500
	Replace pneumatic controls used for HV-1, 2 & 3, replace with DDC	257 ea	$550.00	$141,350
	Replace roof top centrifugal exhaust fans, add DDC controls	14 ea	$18,000.00	$252,000
	Replace 2500 MBH steam boiler, update steam boiler to hot water	2 ea	$51,000.00	$102,000
	Replace carbon steel hot water piping	3800 lf	$55.00	$209,000
	Replace 280 CFM steam unit heater	1 ea	$3,200.00	$3,200
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000
			TOTAL COST	$973,650.00
ELECTRICAL	Replace 600A 120/208V main switchgear	1 ea	$6,800.00	$6,800
	Add surge suppression	1 ea	$1,100.00	$1,100
	Replace outlets to GFI near sinks	1 ea	$550.00	$550
			TOTAL COST	$8,450.00
PLUMBING	Replace 80 gal electric water heater, replace with condensing gas hot water heater	1 ea	$2,450.00	$2,450
	Replace galvanized domestic piping	2500 lf	$60.00	$150,000
	Repair wall hung lavatories: Update fixture to 0.5 gpm	19 ea	$1,600.00	$30,400
	Replace floor mounted toilets, update to 1.6 gpf standard	26 ea	$1,600.00	$41,600
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000.00
			TOTAL COST	$234,450.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$4,942,933
	TOTAL COST TO REPLACE	$11,648,400
	=FCI	0.42

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $255/SF.

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October 02, 2015

11_Palisades Elementary

Constructed in 1959. Wood framing with CMU and steel column cafeteria. Tectum panel diaphragms at cafeteria and wood structural panel diaphragms elsewhere.
Building Risk Category III
ASCE 41-13 **Life Safety** Performance Level for entire building

Main Building Seismic Retrofit Cost Per Square Foot
$40/sf (does not include costs for re-roofing)

Covered Play Structure Seismic Retrofit Cost Per Square Foot
$10/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Reinforcing steel – there is not adequate reinforcing steel in the masonry shear walls in the cafeteria for in-plane or out-of-plane forces.
- Masonry shear stress check-likely not compliant for cafeteria shear walls.
- Wall anchorage – the exterior masonry shear walls in the gym are not adequately braced for out-of-plane forces at each floor level.
- Interior wood walls in the main building do not include wood structural panels or shear wall hold-downs.
- Wood structural panel diaphragms likely need additional nailing to increase capacity.
- Wood structural panel diaphragms need to be installed in place of Tectum panels in the cafeteria.
- Diaphragm chords and collectors should be added.
- Bracing should be added to the covered plate structure and the diaphragm connections to columns should be strengthened.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.
- Edge clearance for ceilings – free edges of suspended ceilings do not have a ¾ inch clearance between the ceiling and the adjacent wall.
- Edge support for ceilings – free edges of suspended ceilings are not supported by two inch wide closure angles.
- There is an unreinforced masonry chimney on the roof above the cafeteria that should be removed.

STRUCTURAL REPORT

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Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

- Cracking in exterior brick veneer. This could cause deterioration of exterior wood structural panels if they exist. Reference the architectural portion of the cost estimate for extents.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

PHOTOS OF DEFICIENCIES
PALISADES

Cracking in Brick Veneer

Unanchored Equipment in Kitchen

Cross-Grain Bending Induced in Joist

Unbraced Piping

Inadequate Diaphragm Connection

URM Chimney

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FACT SHEET

2055 SW Wembley Park Rd.
Lake Oswego, OR 97034

12

UPLANDS

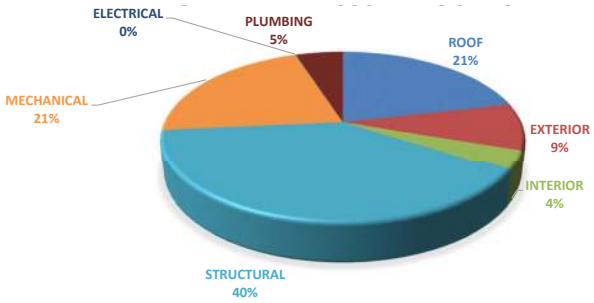
YEAR BUILT	1961
REMODELS	1990
BUILDING AREA	51,676 SF
TOTAL HEIGHT	24’
NUMBER OF FLOORS	1
OCCUPANCY	E-1
PRIMARY STRUCTURE	WOOD FRAME
ROOF TYPE	TPO, BALLAST
FLOOR FINISHES	CARPET TILE, VCT
CEILING FINISHES	ACT, GYP. BOARD
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	UNIT VENTILATORS IN CLASS-ROOMS, CONSTANT VOLUME AHU IN COMMON SPACES

FACILITY SUMMARY

Uplands Elementary is currently used for PE and select classes for Lake Oswego Junior High and the offices for the District’s community school programs. The majority of the classrooms rest along its main corridor with two classroom wings on the south.

Wood soffits are damaged throughout the building and need to be replaced. There is extensive painting and ceiling damage throughout the interior.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	12 UPLANDS ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide overflow drain and associated piping	10 ea	$3,000.00	$30,000
	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	49121 sf	$20.00	$982,420
	Provide new SBS BUR roofing and sheet metal accessories (uninsulated)	5057 sf	$16.00	$80,912
	Replace parapet sheathing and flashing	2080 lf	$18.00	$37,440
			TOTAL COST	$1,093,332.00
ARCHITECTURAL EXTERIOR	Clean and repair metal columns	20 ea	$100.00	$2,000
	Replace T&G soffit	3,980 sf	$20.00	$79,600
	Re-connect downspouts	1 ea	$3,000.00	$3,000
	Replace single pane aluminum windows (caulk around edges) (size:4'x7')	182 ea	$1,700.00	$309,400
	Provide window head and sill flashing	728 lf	$20.00	$14,560
	Replace wood soffit	580 sf	$20.00	$11,600
	Replace wood fascia boards	60 lf	$2.00	$120
	Replace single pane entry vestibule storefront with insulated system (10 ft tall)	40 lf	$600.00	$24,000
	Re-paint wood beams at main entry	140 lf	$5.00	$700
	Clean and re-point brick masonry	80 sf	$27.00	$2,160
	Repair sheet metal flashing	50 lf	$15.00	$750
	Clean out brick weeps	140 lf	$10.00	$1,400
			TOTAL COST	$449,290.00
ARCHITECTURAL INTERIOR	Replace carpet tile; install new rubber base	8,577 sf	$7.00	$60,039
	Replace VCT flooring; new rubber base to match (E)	720 sf	$4.50	$3,240
	Refinish wood flooring	820 sf	$3.00	$2,460
	Repaint wall	28,450 sf	$1.00	$28,450
	Patch and repaint gypsum plaster wall	40 sf	$2.00	$80
	Repair wood window sill	36 lf	$15.00	$540
	Replace 1x1 glue-on ceiling tile	10,928 sf	$7.00	$76,496
	Replace tectum ceiling tile	1,090 sf	$9.00	$9,810
	Repaint 2x4 tectum ceiling panel	4,360 sf	$1.50	$6,540
	Patch and repaint gypsum board ceiling	195 sf	$10.00	$1,950
	Repaint gyp board ceiling	195 sf	$1.20	$234
	Replace door knob with lever	7 ea	$500.00	$3,500
	Replace handrail	15 lf	$40.00	$600
			TOTAL COST	$193,939.00

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	12	UPLANDS ELEMENTARY SCHOOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
SITE	Slope site away from building	330 lf	$3.00	$990
	Trim trees in courtyard, approx 40' h	3 ea	$400.00	$1,200
	Repave parking lot	38000 sf	$3.00	$114,000
	Re-stripe parking lot	38000 sf	$0.05	$1,900
	Paint curbs	1300 lf	$3.00	$3,900
			TOTAL COST	$121,990.00
STRUCTURAL	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	49,121 sf	$40.00	$1,964,840
	Seismic rehabilitation of the covered play structure	5,057 sf	$10.00	$50,570
			TOTAL COST	$2,015,410.00
MECHANICAL	Replace 2 ton window AC, replace with ductless split system	1 ea	$3,800.00	$3,800
	Replace 1.5 ton window AC, replace with ductless split system	1 ea	$3,300.00	$3,300
	Replace 1000 CFM hot water unit ventilator, add DDC controls	26 ea	$8,000.00	$208,000
	Replace 750 CFM hot water unit ventilator, add DDC controls	1 ea	$7,000.00	$7,000
	Replace 1260 CFM hot water unit ventilator, add DDC controls	1 ea	$9,500.00	$9,500
	Replace 1560 CM hot water unit ventilator, add DDC controls	1 ea	$11,000.00	$11,000
	Replace 5 ft hot water cabinet convectors	11 ea	$2,200.00	$24,200
	Replace 24 ft hot water cabinet convectors	1 ea	$3,000.00	$3,000
	Repair 7000 CFM steam heating ventilator AHU HV-1	1 ea	$3,500.00	$3,500
	Replace 2000 CFM steam heating ventilator HV-2, add DDC controls	1 ea	$26,000.00	$26,000
	Repair 1400 CFM hot water heating ventilator AHU HV-3	1 ea	$5,500.00	$5,500
	Replace pneumatic controls, controls UV-1,2,3. Replace with DDC	301 points	$550.00	$165,550
	Replace roof top centrifugal exhaust fans, add DDC controls	17 ea	$18,000.00	$306,000
	Replace 2500 MBH steam boiler, update steam boiler to hot water	2 ea	$51,000.00	$102,000
	Replace carbon steel hot water piping	3800 lf	$55.00	$209,000
	Replace 280 CFM steam unit heater serving janitor's office	1 ea	$3,200.00	$3,200
	Architectural Finishes Allowance	1 ls	$2,000.00	$2,000
			TOTAL COST	$1,092,550.00
ELECTRICAL	Replace 120/208V 1600A main distribution switchgear	1 ea	$2,800.00	$2,800
	Repair exterior lighting CFL: Add/repair exterior lighting control	1 ea	$1,600.00	$1,600
	Replace receptacles to be GFI receptacles near sink	1 ea	$550.00	$550
	Add surge protection at main distribution panel	1 ea	$1,100.00	$1,100
			TOTAL COST	$6,050.00
PLUMBING	Replace 100 gal gas water heater, replace with condensing hot water heater	1 ea	$2,450.00	$2,450
	Replace galvanized domestic piping	2500 lf	$60.00	$150,000
	Repair floor mounted urinals: Add DDC control to flush based on schedule	11 ea	$1,600.00	$17,600
	Repair wall hung lavatories: Update fixture to 0.5 gpm	19 ea	$1,600.00	$30,400
	Replace floor mounted toilets, update to 1.6 gpf standard	26 ea	$1,600.00	$41,600
	Architectural Finishes Allowance	1 ls	$10,000.00	$10,000.00
			TOTAL COST	$252,050.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$5,102,621
	TOTAL COST TO REPLACE	$13,177,380
	=FCI	0.39

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $255/SF.

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

12_Uplands Elementary

Constructed in 1961. Wood framing with CMU and steel column cafeteria. Tectum panel diaphragms at cafeteria and wood structural panel diaphragms elsewhere.
Building Risk Category III
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$40/sf (does not include costs for re-roofing)

Covered Play Structure Seismic Retrofit Cost Per Square Foot
$10/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Reinforcing steel – there is not adequate reinforcing steel in the masonry shear walls in the cafeteria for in-plane or out-of-plane forces.
- Masonry shear stress check-likely not compliant for cafeteria shear walls.
- Wall anchorage – the exterior masonry shear walls in the gym are not adequately braced for out-of-plane forces at each floor level.
- Interior wood walls in the main building do not include wood structural panels or shear wall hold-downs.
- Wood structural panel diaphragms likely need additional nailing to increase capacity.
- Wood structural panel diaphragms need to be installed in place of Tectum panels in the cafeteria.
- Diaphragm chords and collectors should be added.
- Bracing should be added to the covered plate structure and the diaphragm connections to columns should be strengthened.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.
- Edge clearance for ceilings – free edges of suspended ceilings do not have a ¾ inch clearance between the ceiling and the adjacent wall.
- Edge support for ceilings – free edges of suspended ceilings are not supported by two inch wide closure angles.
- There is an unreinforced masonry chimney on the roof above the cafeteria that should be removed.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

STRUCTURAL REPORT

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October 02, 2015

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

- None observed on site

PHOTOS OF DEFICIENCIES
UPLANDS

Fall Prone Contents

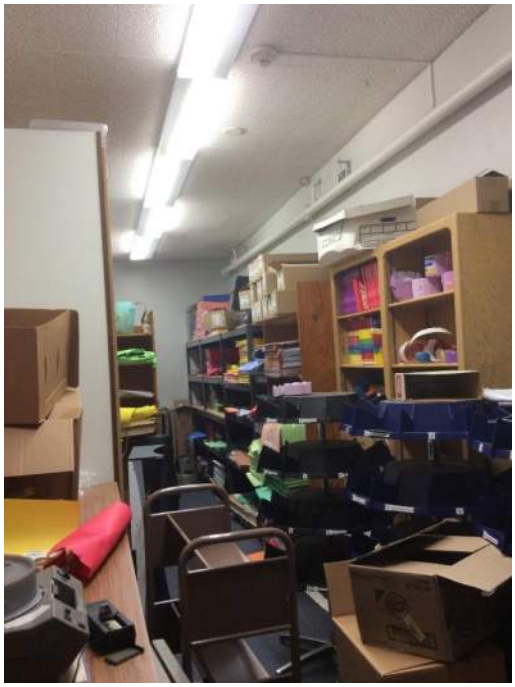
Tectum Panels in Gym

Inadequate Diaphragm Connection

Unbraced Piping

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
UPLANDS



Unbraced Shelving

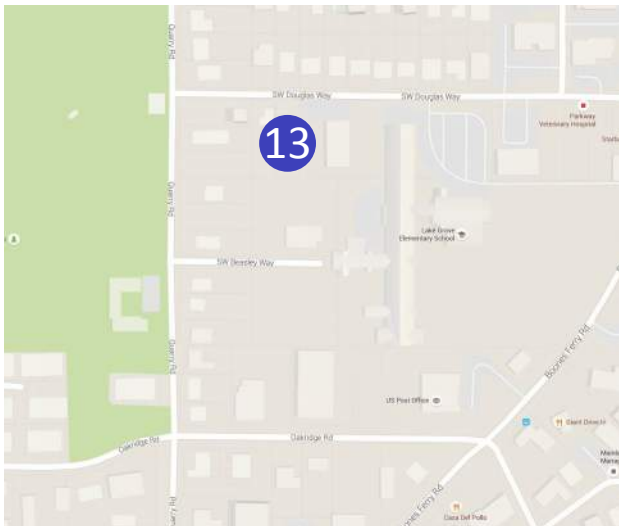
URM Chimney

FACT SHEET

4200 SW Douglas Way
Lake Oswego, OR 97035

13

FACILITIES OPERATIONS



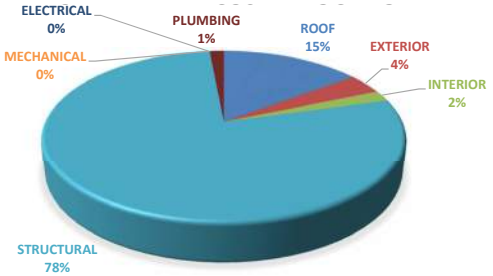
YEAR BUILT	1976
REMODELS	NONE
BUILDING AREA	10,049 SF
TOTAL HEIGHT	30’
NUMBER OF FLOORS	2
OCCUPANCY	B
PRIMARY STRUCTURE	PRECAST CONCRETE
ROOF TYPE	ASPHALT SHINGLE
FLOOR FINISHES	POLISHED CONCRETE
CEILING FINISHES	EXPOSED WOOD TRUSSES
PARTITION TYPE	GYP. BOARD OVER METAL STUD
HVAC TYPE	RADIANT GAS HEATER

FACILITY SUMMARY

The Facilities Operations building is located in a residential and commercial setting next to Lake Grove Elementary School.

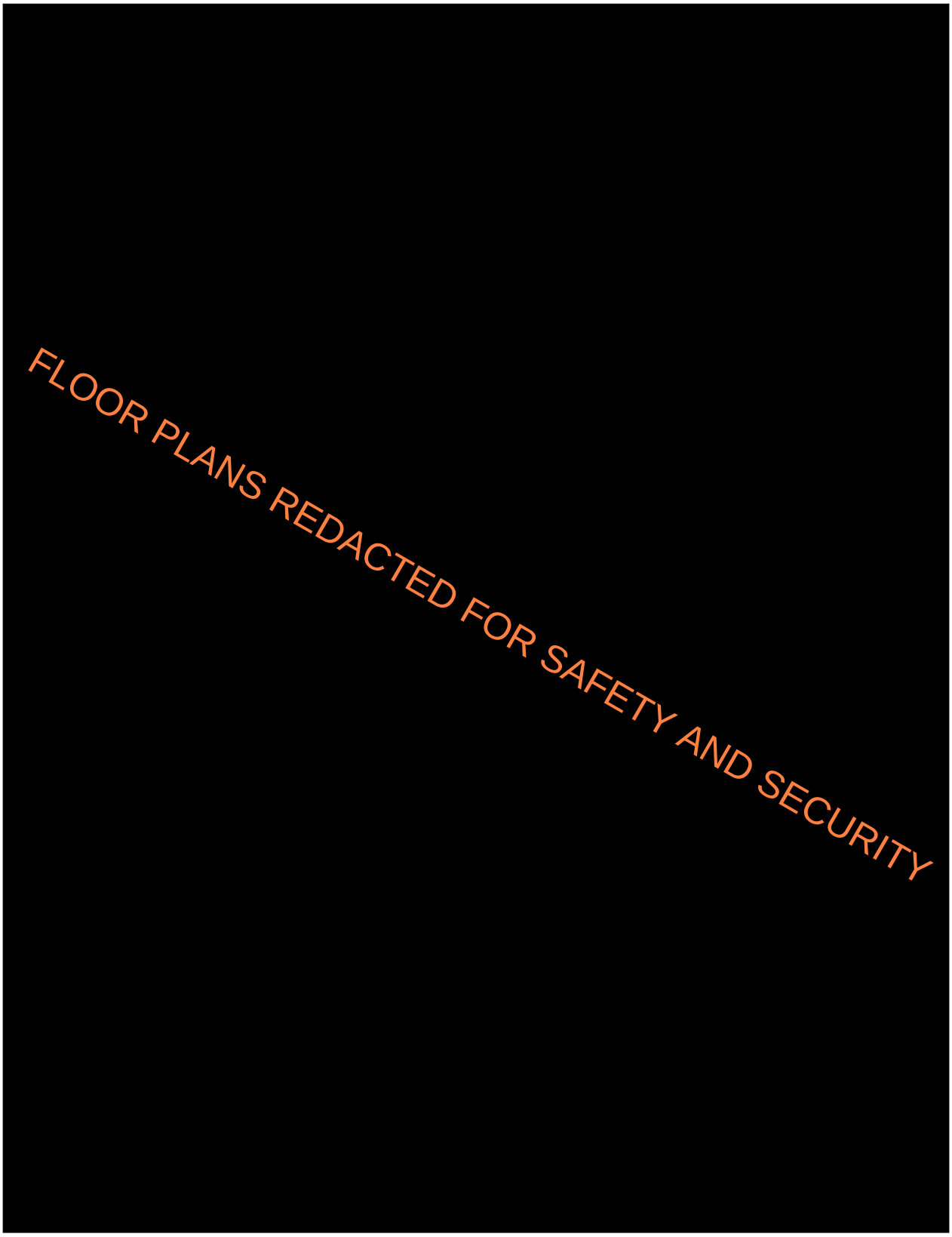
The roof is in overall good shape, but needs to be cleaned. Roof access and fall protection should be added to facilitate easier maintenance. The caulk is damaged at several precast concrete panel joints and should be replaced. The side lot of the building needs to be repaved.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS



COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	13	OPERATIONS	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Replace shingle roofing	7509 sf	$5.00	$37,545
	Provide roof access hatch with safety rail	1 ea	$3,750.00	$3,750
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
			TOTAL COST	$66,295.00
ARCHITECTURAL EXTERIOR	Repaint HM double door and frame	3 ea	$125.00	$375
	Repair roll up door concrete header, add sloped top	30 lf	$25.00	$750
	Repaint building exterior	6,500 sf	$1.50	$9,750
	Caulk panel joints (18 ft high)	12 ea	$100.00	$1,200
	Provide window sill and head flashing	48 lf	$20.00	$960
	Replace single pane windows (3'x5' size)	4 ea	$900.00	$3,600
	Clean moss off of dust collector machine	1 ea	$200.00	$200
			TOTAL COST	$16,835.00
ARCHITECTURAL INTERIOR	Replace carpet tile; install new rubber base	30 sf	$7.00	$210
	Repair damaged plywood flooring	30 sf	$5.00	$150
	Repaint wall	3110 sf	$1.00	$3,110
	Patch and repaint gypsum plaster wall	20 sf	$2.00	$40
	Repaint gyp board ceiling	200 sf	$1.20	$240
	Replace door knob with lever	5 ea	$500.00	$2,500
	Repaint door and frame	8 ea	$150.00	$1,200
	Replace handrail	40 lf	$40.00	$1,600
			TOTAL COST	$9,050.00

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	13	OPERATIONS	2015 FACILITY ASSESSMENT		
CATEGORY	**RECOMMENDATION**		**QUANTITY**	**UNIT COST**	**COST**
SITE	Repave parking lot		2800 sf	$3.00	$8,400
				TOTAL COST	**$8,400.00**
STRUCTURAL	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)		7,509 sf	$45.00	$337,905
	Provide blocking and strapping of metal stud wall		1000 sf	$8.00	$8,000
				TOTAL COST	**$345,905.00**
MECHANICAL	None				
				TOTAL COST	**$0.00**
ELECTRICAL	None				
				TOTAL COST	**$0.00**
PLUMBING	Replace lavatory, water closet and shower in 1 restroom		1 ea	$6,700.00	$6,700.00
				TOTAL COST	**$6,700.00**

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	**$444,785**
	TOTAL COST TO REPLACE	**$1,658,085**
	=FCI	**0.27**

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $165/SF.

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October 02, 2015

13_Facilities Operations

Constructed in 1976. Precast concrete walls with wood structural panel diaphragms on the roof and wood structural panels on the mezzanine. Wood trusses.
Building Risk Category II
ASCE 41-13 **Life Safety** Performance Level for each building

Main Building Seismic Retrofit Cost Per Square Foot
$45/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Reinforcing steel – precast walls are likely under reinforced for in-plane or out-of-plane forces.
- Roof diaphragm and mezzanine connections to precast shear walls should be strengthened.
- Wood structural panel diaphragm nailing should be increased.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. Many shelves are braced, but some are missing braces.
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

- There is a light gauge metal stud wall in the mezzanine that needs blocking and strapping over the full height and length. We estimate this cost at $8/sf over the wall surface area.

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
FACILITIES OPERATIONS

Corrosion in Panel Connections

Inadequate Diaphragm Connection

Fall Prone Contents

Pendulum Lighting

Unbraced Piping

PHOTOS OF DEFICIENCIES
FACILITIES OPERATIONS

Wall Needs Blocking & Strapping

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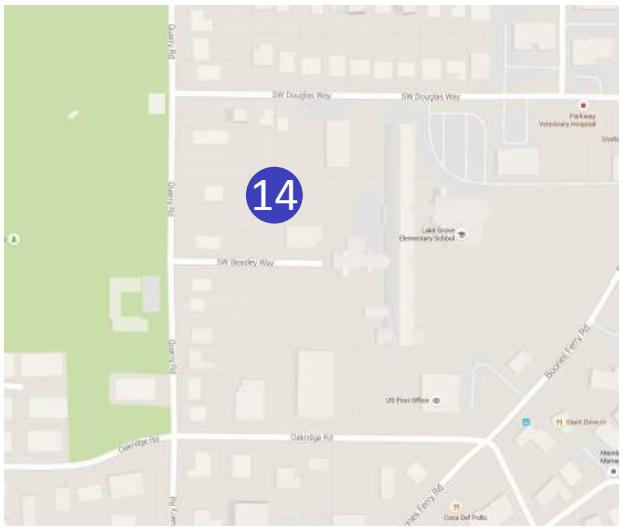
FACT SHEET

4301 SW Beasley Way
Lake Oswego, OR 97035

14 BUS BARN



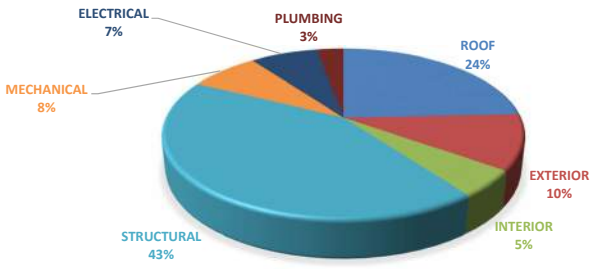
YEAR BUILT	1969
REMODELS	NONE
BUILDING AREA	2,559 SF
TOTAL HEIGHT	11', 22'
NUMBER OF FLOORS	1
OCCUPANCY	B, F-1
PRIMARY STRUCTURE	CMU SHEAR WALL
ROOF TYPE	TPO, ASPHALT MEMBRANE
FLOOR FINISHES	CARPET TILE, POLISHED CONCRETE, EXPOSED PLYWOOD
CEILING FINISHES	GYP. BOARD, WOOD DECKING
PARTITION TYPE	GYP. BOARD OVER METAL STUD
HVAC TYPE	PACKAGE ROOFTOP UNITS

FACILITY SUMMARY

The Bus Barn building is located in a residential and commercial setting next to Lake Grove Elementary School and the Facility Operations building. The building's design is in the form of a simple square.

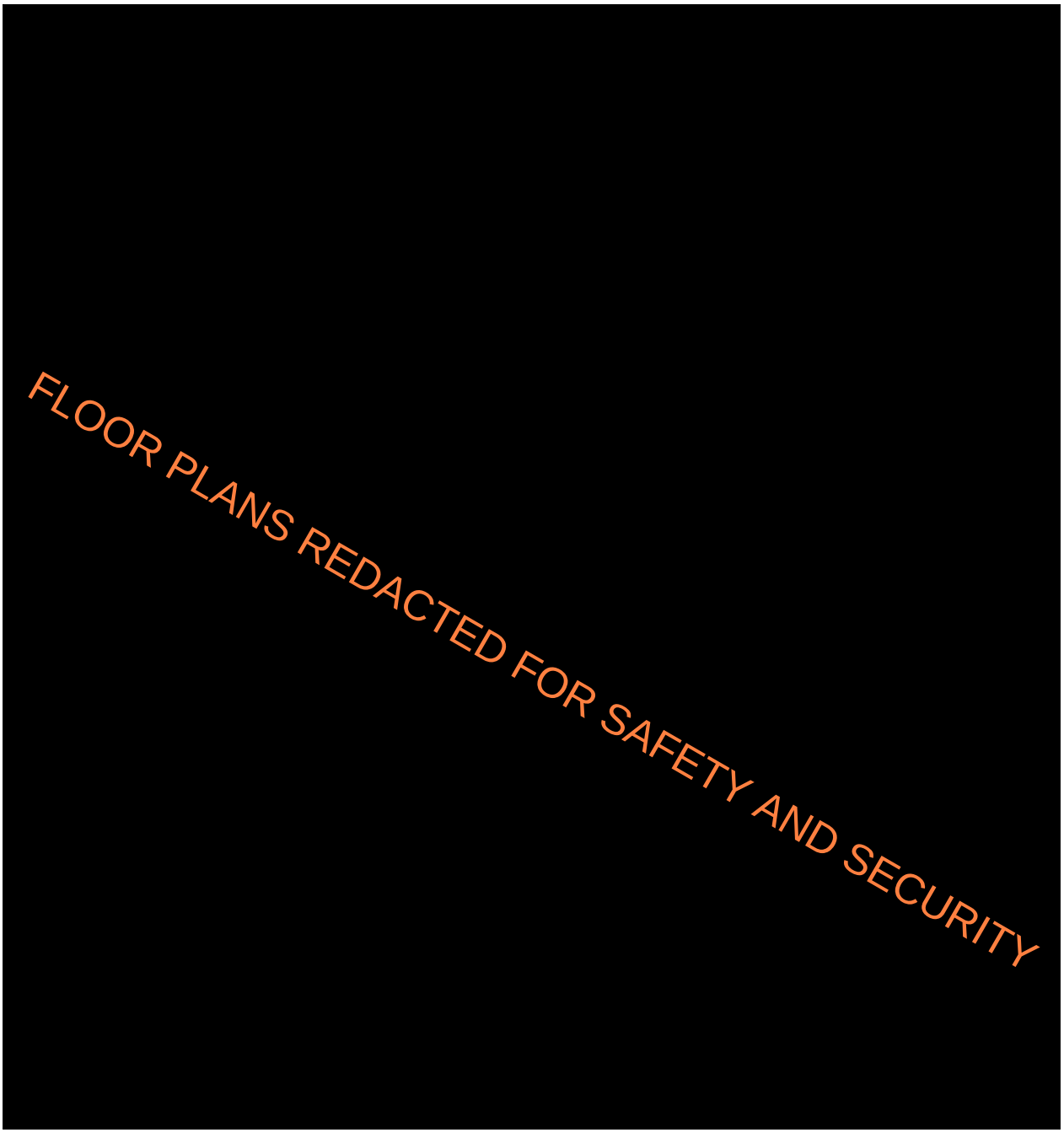
A large area of the exterior CMU walls need to be patched and repainted. The electrical distribution panels are aged and need to be replaced.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS



COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	14	BUS BARN	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	2777 lf	$20.00	$55,540
	Provide reglet flashing	40 lf	$12.00	$480
	Repaint wood fascia - 1x10	70 lf	$2.00	$140
	Replace wood fascia - 1x10	15 lf	$10.00	$150
	Provide roof access & roofing/insulation over office area	1 ea	$10,000.00	$10,000
	Install new wall mounted ladder	2 ea	$2,500.00	$5,000
			TOTAL COST	$71,310.00
ARCHITECTURAL EXTERIOR	Patch and paint CMU wall (30'x164' + 53.6'x18' + 95'x11.3')	7,000 sf	$4.00	$28,000
	Replace concrete window sill	4 lf	$35.00	$140
	Clean and paint rusted columns (12' tall)	2 ea	$100.00	$200
	Replace door hardware with panic hardware	4 ea	$500.00	$2,000
	Repaint hm door and frame	4 ea	$125.00	$500
			TOTAL COST	$30,840.00
ARCHITECTURAL INTERIOR	Replace broadloom carpet with carpet tile; new rubber base to match (E)	700 sf	$6.50	$4,550
	Replace sheet flooring; new rubber base to match (E)	50 sf	$8.00	$400
	Repair damaged plywood flooring	30 sf	$5.00	$150
	Repaint wall	2700 sf	$1.00	$2,700
	Patch/Repaint walls	100 sf	$2.00	$200
	Patch and repaint gypsum board ceiling	20 sf	$10.00	$200
	Repaint gyp board ceiling	50 sf	$1.20	$60
	Replace door knob with lever	9 ea	$500.00	$4,500
	Repaint door and frame	8 ea	$150.00	$1,200
	Replace handrail	20 lf	$40.00	$800
			TOTAL COST	$14,760.00

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	14	BUS BARN	2015 FACILITY ASSESSMENT		
CATEGORY	**RECOMMENDATION**		**QUANTITY**	**UNIT COST**	**COST**
SITE	Repave parking lot		13,000 sf	$3.00	$39,000
	Repair parking lot		5,000 sf	$1.00	$5,000
				TOTAL COST	**$44,000.00**
STRUCTURAL	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)		2,777 sf	$45.00	$124,965
				TOTAL COST	**$124,965.00**
MECHANICAL	Replace 2.5 ton Carrier package roof top unit		1 ea	$21,000.00	$21,000
	Repair RTU ductwork insulation falling off duct in vehicle bay		20 lf	$55.00	$1,100
				TOTAL COST	**$22,100.00**
ELECTRICAL	Replace 120/240V 400A main distribution switchgear		1 ea	$7,800.00	$7,800
	Replace 120/240V 100A distribution panel		1 ea	$3,300.00	$3,300
	Replace 120/240V 225A distribution panel		1 ea	$4,800.00	$4,800
	Replace 120/240V 125A distribution panel		1 ea	$3,800.00	$3,800
	Repair exterior lighting: Add lighting controls		1 ea	$1,600.00	$1,600
				TOTAL COST	**$21,300.00**
PLUMBING	Replace 50 gal gas water heater, update with condensing hot water heater		1 ea	$1,950.00	$1,950
	Repair wall mounted lavatory, updated fixture to 0.5 gpm		1 ea	$1,600.00	$1,600
	Repair carbon steel natural gas piping: Add flexible connection at hot water heater and unit heaters		3 ea	$1,600.00	$4,800
				TOTAL COST	**$8,350.00**

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	**$293,625**
	TOTAL COST TO REPLACE	**$358,260**
	=FCI	**0.82**

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $140/SF.

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October 02, 2015

14_Bus Barn

Constructed in 1969. CMU shear walls with wood structural panel diaphragms on the roof and straight sheathing on the mezzanine. Wood trusses.
Building Risk Category II
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$45/sf (does not include costs for re-roofing)

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Reinforcing steel – masonry shear walls are likely under reinforced for in-plane or out-of-plane forces.
- Masonry shear stress check-likely not compliant.
- Wall anchorage – the exterior masonry shear walls in the gym are not adequately braced for out-of-plane forces at each floor level.
- The mezzanine diaphragm does not appear to be positively attached to ledgers bolted to the shear walls. This diaphragm connection must be strengthened. Additionally, the straight sheathing diaphragm should be replaced with wood structural panels.
- The roof diaphragm is not adequately connected to the masonry shear walls.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.

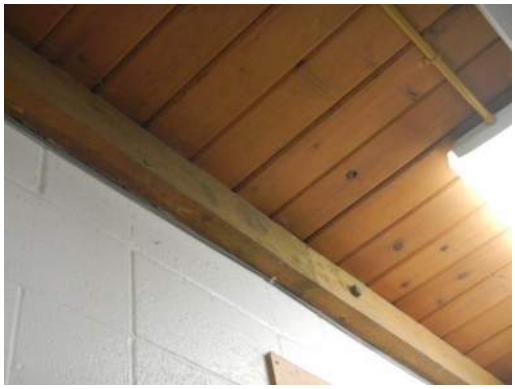
Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

- None observed on site

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
BUS BARN



Inadequate Diaphragm Connection

Missing Diaphragm Connection to Ledger

Missing Bolt in Ledger

Unbraced Equipment

Missing Connection Hardware

Unbraced Shelving

FACT SHEET

2455 Country Club Rd.
Lake Oswego, OR 97034

7 ADMINISTRATION

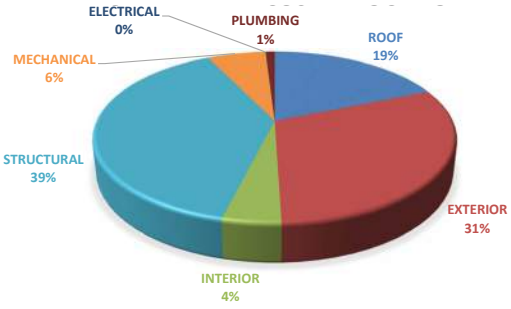
YEAR BUILT	1961
REMODELS	1988
BUILDING AREA	7,613 SF
TOTAL HEIGHT	12’
NUMBER OF FLOORS	1
OCCUPANCY	B
PRIMARY STRUCTURE	WOOD FRAME
ROOF TYPE	TPO
FLOOR FINISHES	CARPET TILE
CEILING FINISHES	ACT
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	FORCED AIR FURNACES

FACILITY SUMMARY

The Administration Building is located on the same site as Lake Oswego High School. It houses all District central management. The design of the building has a range of offices revolving around a central core of supporting rooms and gathering spaces.

The entire roof should be replaced to drain properly and meet current energy codes. All wood siding and a few areas of brick veneer are leaking and should be replaced with a new metal panel system and extended parapet flashing.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	15 ADMINISTRATION	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	7990 sf	$20.00	$159,800
	Provide new SBS BUR roof system substrate and roof drain for entry vestibule	50 sf	$53.00	$2,650
	Provide roof hatch ladder and safety rail	1 ea	$3,000.00	$3,000
	Install new wall mounted ladder	1 ea	$2,500.00	$2,500
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
			TOTAL COST	$192,950.00
ARCHITECTURAL EXTERIOR	Replace damaged wood door with HM door	1 ea	$1,800.00	$1,800
	Replace door hardware with panic hardware	2 ea	$500.00	$1,000
	Replace entry vestibule storefront (8' tall, 1 set of double doors)	1 sum	$13,000.00	$13,000
	Replace single pane aluminum windows (4'-10" x 4'-10")	15 ea	$1,500.00	$22,500
	Replace single pane aluminum windows (3'-6" x 7'-0")	7 ea	$1,500.00	$10,500
	Replace single pane aluminum windows (3'-6" x 2'-4")	8 ea	$500.00	$4,000
	Replace damaged fascia and provide new attic venting	172 lf	$35.00	$6,020
	Replace metal cap flashing and counter flashing	172 lf	$18.00	$3,096
	Provide window sill and head flashing	157 lf	$20.00	$3,140
	Replace rotted wood mullions	27 lf	$15.00	$405
	Replace wood trellis with composite wood materials (9-2x4, 7-2x8, 14 2x6 columns,)	60 lf	$12.00	$720
	Remove brick veneer exterior (10' tall)	140 lf	$10.00	$1,400
	Remove wood siding (10' tall)	235 lf	$10.00	$2,350
	Provide metal panel system building exterior and extended parapet flashing (entire building)	410 lf	$600.00	$246,000
			TOTAL COST	$315,931.00
ARCHITECTURAL INTERIOR	Replace carpet tile; install new rubber base	472 sf	$7.00	$3,304
	Replace sheet flooring; new rubber base to match (E)	150 sf	$8.00	$1,200
	Repair heat welded seam in sheet flooring	20 lf	$10.00	$200
	Install transition strip	3 lf	$5.00	$15
	Repaint wall	3772 sf	$1.00	$3,772
	Patch and repaint gypsum plaster wall	1095 sf	$2.00	$2,190
	Replace wood window sill	40 lf	$15.00	$600
	Replace 4'x4' fabric wrapped acoustical wall panel	1 ea	$300.00	$300
	Replace 1x1 glue-on ceiling tile	417 sf	$7.00	$2,919
	Replace 2x2 glue-on ceiling tile	90 sf	$7.00	$630
	Replace door knob with lever	20 ea	$500.00	$10,000
	Repaint door and frame	1 ea	$150.00	$150
	Refinish wood door and frame	34 ea	$500.00	$17,000
	Replace built-in wood casework	110 sf	$15.00	$1,650
	Replace toilet stall partition door	2 ea	$750.00	$1,500
			TOTAL COST	$45,430.00

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	15 ADMINISTRATION		2015 FACILITY ASSESSMENT	
CATEGORY	**RECOMMENDATION**	**QUANTITY**	**UNIT COST**	**COST**
SITE				
			TOTAL COST	**$0.00**
STRUCTURAL	Seismic rehabilitation work as the sole building upgrade (does not include costs for re-roofing)	7,990 sf	$50.00	$399,500
			TOTAL COST	**$399,500.00**
MECHANICAL	Replace 3 ton RTU with DX and gas heat	1 ea	$21,000.00	$21,000
	Replace 4 ton Carrier RTU with DX and gas heat	1 ea	$21,000.00	$21,000
	Replace 3 ton Carrier RTU with DX and gas heat	1 ea	$21,000.00	$21,000
	Repair Tempstar split system with gas furnace: Replace insulation on refrigerant line	20 lf	$18.75	$375
	Replace Carrier split system with gas furnace: Replace insulation on refrigerant line	20 lf	$18.75	$375
	Architectural Finishes Allowance	1 ls	$500.00	$500
			TOTAL COST	**$64,250.00**
ELECTRICAL	Add exterior lighting control for fixture near front entrance	1 ea	$550.00	$550
	Architectural Finishes Allowance	1 ls	$50.00	$50
			TOTAL COST	**$600.00**
PLUMBING	Replace 20 gal gas water heater	1 ea	$1,050.00	$1,050
	Repair wall hung lavatory, update fixture to 0.5 gpm	2 ea	$1,600.00	$3,200
	Replace floor mounted toilets, update to 1.6 gpf standard	2 ea	$1,600.00	$3,200
	Architectural Finishes Allowance	1 ls	$2,000.00	$2,000
			TOTAL COST	**$9,450.00**

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	**$1,028,111**
	TOTAL COST TO REPLACE	**$2,131,640**
	=FCI	**0.48**

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $280/SF.

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

15_Administration

Constructed in 1961. Remodeled in 1988. Wood framed building with wood structural panel diaphragms.
Building Risk Category II
ASCE 41-13 **Life Safety** Performance Level for main building

Main Building Seismic Retrofit Cost Per Square Foot
$50/sf (does not include costs for re-roofing)

The original structural drawings could not be located. The oldest drawings provided were 1988 remodel drawings. These indicated wood-framed walls with brick veneer and wood joist framing. The ceiling panels in the building are adhered to a layer of gypsum sheathing, making it impossible to see the framing without invasive investigation.

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- The wood structural panel diaphragm connections to walls likely should be strengthened.
- Interior wood walls in the main building do not include wood structural panels or shear wall hold-downs.
- Wood structural panel diaphragms likely need additional nailing and blocking to increase capacity.
- Diaphragm chords and collectors should be added.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Sprinkler ceiling clearance – penetrations through panelized ceilings do not have appropriate clearances.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

- There is a wood trellis on the west side of the building that has deteriorated and should be removed or replaced. Reference the architectural portion of the cost estimate for extents.

STRUCTURAL REPORT

kpff

PHOTOS OF DEFICIENCIES
ADMINISTRATION

Cracking in Brick Veneer

Fall Prone Contents

Inflexible MEP Connections

Deteriorated Trellis

Possible Water Intrusion

PHOTOS OF DEFICIENCIES
ADMINISTRATION

Water Damage in Brick Veneer

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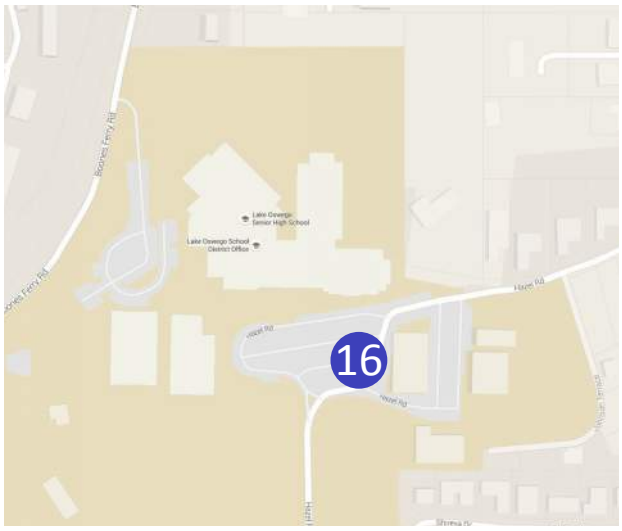
FACT SHEET

2477 Country Club Rd.
Lake Oswego, OR 97034

16 TECHNOLOGY



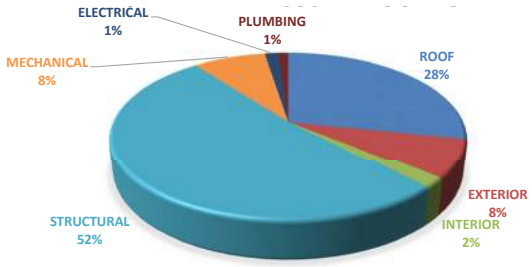
YEAR BUILT	1959
REMODELS	NONE
BUILDING AREA	10,150 SF
TOTAL HEIGHT	22’
NUMBER OF FLOORS	2
OCCUPANCY	B, E-1
PRIMARY STRUCTURE	CMU
ROOF TYPE	BALLAST
FLOOR FINISHES	CARPET TILE, VCT
CEILING FINISHES	ACT, GYP. BOARD, WOOD DECKING
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	PACKAGED ROOFTOP UNITS

FACILITY SUMMARY

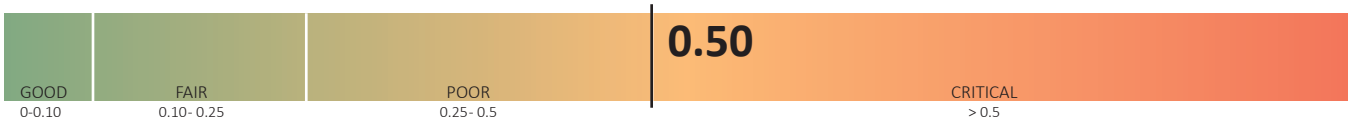
The Technology building is located across from the swimming pool filled with multi-purpose spaces and offices. The building once served as Lake Oswego High School’s auto wood shop until it turned into a centralized network station for the entire school district.

The roof needs a full replacement with installation of fall protection. Overflow drains need to be added along with roof drains that should be replaced. The gypsum plaster wall in the interior needs to be repainted.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)



DRAWINGS

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	16 TECHNOLOGY	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	11372 sf	$20.00	$227,440
	Replace roof drains	5 ea	$1,200.00	$6,000
	Install roof drain and associated piping	2 ea	$3,000.00	$6,000
	Provide overflow drain and associated piping	7 ea	$3,000.00	$21,000
	Replace skylight with new curbs at 8" high	15 ea	$2,500.00	$37,500
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
	Provide roof hatch ladder and safety rail	1 ea	$3,000.00	$3,000
	Replace wall mounted ladder	1 ea	$2,500.00	$2,500
	Replace mech equip curbs with 8" high PT curbs	8 ea	$40.00	$320
	Reinstall conduit in metal sleeves and installed on 8" high PT blocks	300 lf	$40.00	$12,000
	Remove pitch pocket and replace with sleeve	1 ea	$250.00	$250
	Replace reglet flashing	94 lf	$12.00	$1,128
			TOTAL COST	$342,138.00
ARCHITECTURAL EXTERIOR	Replace exterior wall mounted light fixture. Enclose conduit in sleeve.	1 ea	$500.00	$500
	Clean and repair metal columns	8 ea	$100.00	$800
	Repaint roof drain piping	2 ea	$100.00	$200
	Replace half round wood trim at soffit	4 lf	$15.00	$60
	Repaint stucco walls under overhang	833 sf	$2.50	$2,081
	Replace door sweep	3 ea	$200.00	$600
	Repaint hm door and frame	8 ea	$125.00	$1,000
	Replace HM door and frame	2 ea	$1,800.00	$3,600
	Replace missing exterior light fixture	1 ea	$500.00	$500
	Replace single pane windows	1,200 sf	$60.00	$72,000
	Replace door knob with lever handle	1 ea	$500.00	$500
	Place sealant between sidewalk and building	410 lf	$5.00	$2,052
	Repaint concrete wall	1,775 sf	$5.00	$8,875
			TOTAL COST	$92,767.75
ARCHITECTURAL INTERIOR	Replace FRP	361 sf	$8.00	$2,888
	Replace acoustical panel	18 sf	$18.75	$338
	Repaint gypsum plaster wall	2,263 sf	$1.00	$2,263
	Replace carpet tile; install new rubber base	1,840 sf	$7.00	$12,880
	Replace resilient flooring including cove base	136 sf	$10.00	$1,360
	Replace resilient flooring	187 sf	$8.00	$1,496
	Repaint HM door and frame	4 ea	$150.00	$600
	Replace door knob with lever	2 ea	$500.00	$1,000
			TOTAL COST	$22,824.50

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	16 TECHNOLOGY		2015 FACILITY ASSESSMENT	
CATEGORY	**RECOMMENDATION**	**QUANTITY**	**UNIT COST**	**COST**
SITE				
			TOTAL COST	$0.00
STRUCTURAL	Seismic rehabilitation work as the sole building upgrade (not including costs for re-roofing)	11,372 sf	$55.00	$625,460
			TOTAL COST	$625,460.00
MECHANICAL	Replace Trane 7.5 ton packaged roof top	3 ea	$26,000.00	$78,000
	Replace roof top centrifugal exhaust fan	1 ea	$18,000.00	$18,000
			TOTAL COST	$96,000.00
ELECTRICAL	Replace 200A, 120/240V branch panel	2 ea	$2,750.00	$5,500
	600A main distribution panel	1 ea	$9,200.00	$9,200
	Repair fire control panel, melted wire on battery backup	1 ea	$2,700.00	$2,700
			TOTAL COST	$17,400.00
PLUMBING	Replace 50 gallon gas water heater, provide seismic bracing	1 ea	$1,450.00	$1,450
	Repair carbon steel gas piping: Paint exterior gas piping on rooftop units to limit corrosion	30 lf	$12.50	$375
	Repair wall hung lavatory: Add aerator to restrict flow to 0.5 gpm and repair leak	4 ea	$1,600.00	$6,400
	Replace floor mounted toilets, update to 1.6 gpf	2 ea	$1,600.00	$3,200
	Architectural Finishes Allowance	1 ls	$2,000.00	$2,000.00
			TOTAL COST	$13,425.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$1,210,015
	TOTAL COST TO REPLACE	$2,436,000
	=FCI	0.50

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc, Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $240/SF.

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

16_Technology

Constructed in 1959.
Concrete Masonry Unit Building (RM1) with Flexible Diaphragm Roof. Roof is flat with glulam beams spanning to concrete columns in CMU walls.
Building Risk Category II
ASCE 41-13 **Life Safety** Performance Level

Main Building Seismic Retrofit Cost Per Square Foot
$55/sf (does not include costs for re-roofing)

Original structural drawings of the building could not be located. Assessment is based on a rapid visual survey of the structure only. The age of the building is estimated based on the construction of the adjacent swimming pool building and High School between 1969 and 1971. The walls of the building are CMU with 8" square concrete columns below each glulam roof beam and at about 16' on center parallel to the beams. Reinforcement in the walls is unknown. Windows exist between the top of the walls and the roof diaphragm at most locations. Small sections of wall extend full height on the east, west, and south faces of the building, but not the north face. Roof glulams are approximately 14' on center and likely have tongue and groove decking spanning between them.

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Unblocked diaphragm spans greater than 40 feet.
- Connections of diaphragms to lateral system likely to need retrofit.
- Connection of roof girders and ties to exterior walls and columns likely need retrofit.
- Exterior north wall is not full height to engage the roof diaphragm.
- Out of plane capacity of CMU walls unknown.
- Lateral system connection to foundation unknown.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Lighting structure suspended from ceiling in south classroom – not braced to structure.
- Mechanical equipment on roof – not braced to structure.
- Gas lines to mechanical equipment – do not have flexible connections.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced (specifically notice water heater at mezzanine level that is not braced).
- Partition walls – many partial height walls are not internally braced.

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

- None observed on site.

KPFF – Structural Reviews for the Lake Oswego School District Long Range Facility Plan

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
TECHNOLOGY

Fall Prone Equipment

Lack of Seismic Connection & Beam Support

Hard Connected Gas Lines

Unbraced Hanging Equipment

Lack of Lateral Support at Building End

Unknown Canopy Connection

PHOTOS OF DEFICIENCIES
TECHNOLOGY

Unknown Reinforcement in Concrete Masonry Wall

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FACT SHEET

2400 Hazel Rd.
Lake Oswego, OR 97034

17 SWIMMING POOL

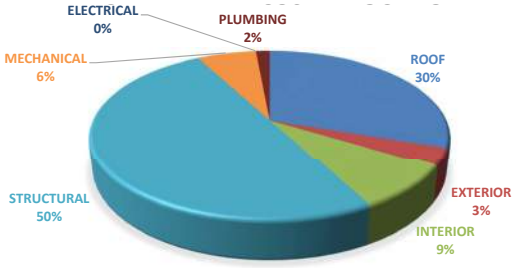
YEAR BUILT	1971, 1991
REMODELS	NONE
BUILDING AREA	13,260 SF
TOTAL HEIGHT	28’
NUMBER OF FLOORS	1
OCCUPANCY	A-3
PRIMARY STRUCTURE	CMU, STEEL FRAME
ROOF TYPE	TPO, BALLAST
FLOOR FINISHES	CARPET TILE, VCT
CEILING FINISHES	WOOD DECKING
PARTITION TYPE	GYP. BOARD OVER WOOD STUD
HVAC TYPE	CONSTANT VOLUME AHU

FACILITY SUMMARY

The Swimming Pool building serves the entire Lake Oswego School District. It is considered a family-oriented facility and is also used for recreational purposes.

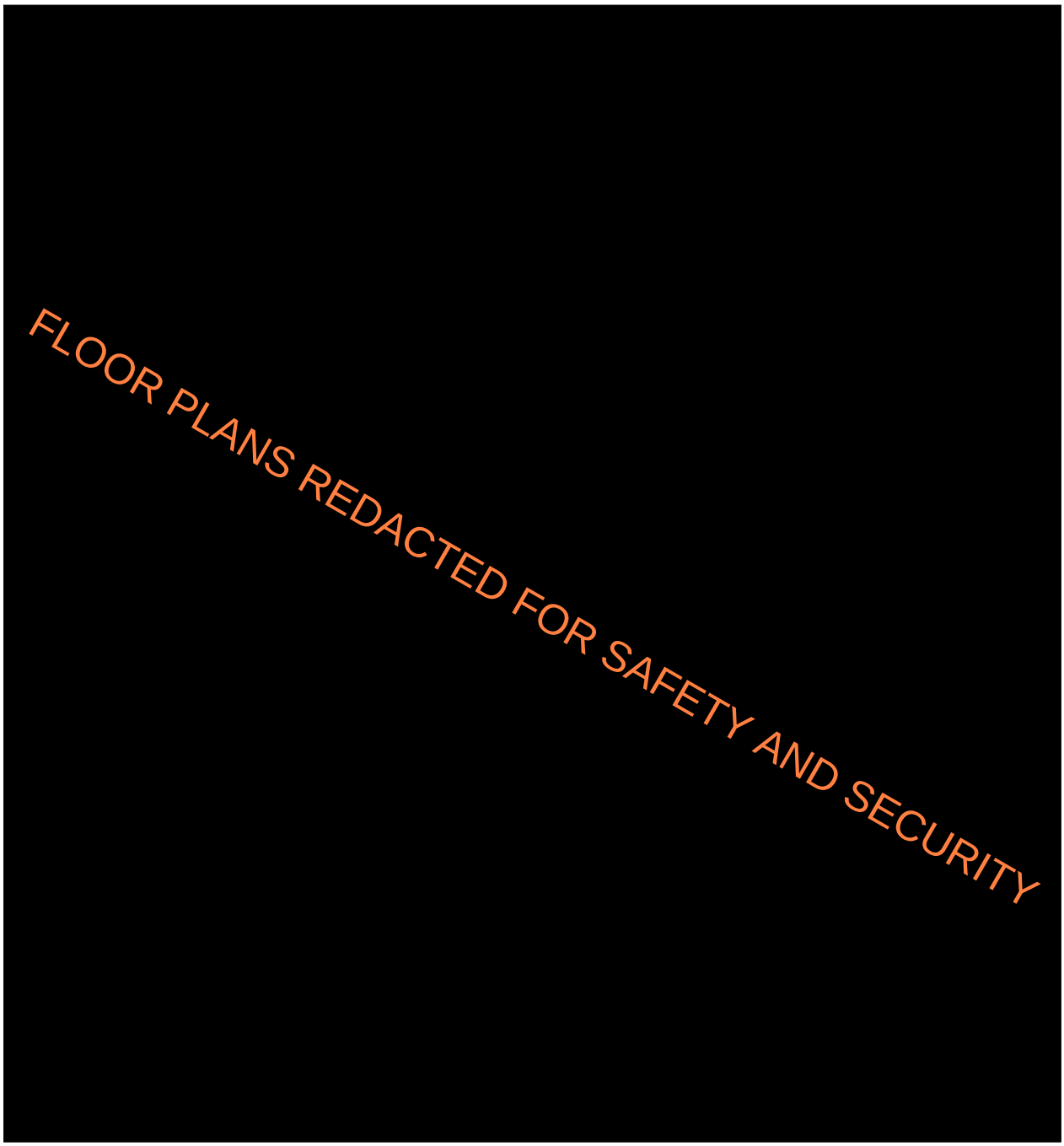
The cedar wood roof decking needs to be replaced in its entirety. The roof needs to be replaced in order to raise the slope to drain properly. The cedar plank siding should be replaced due to age and showing signs of bowing in some areas.

FACILITY REPAIR COST ALLOCATION



FACILITY CONDITION INDEX = COST TO REPAIR ($)/COST TO REPLACE($)

DRAWINGS



COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	17	SWIMMING POOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
ARCHITECTURAL ROOF	Remove debris from scupper collector head	1 ea	$100.00	$100
	Replace 4" cedar wood roof decking in its entirety	18695 sf	$14.00	$261,730
	Provide new SBS BUR roofing and sheet metal accessories, to meet current energy code. Roof replacement due to seismic rehabilitation work	18695 sf	$20.00	$373,900
	Provide roof hatch ladder and safety rail	1 ea	$3,000.00	$3,000
	Provide fall protection, assume post & cable system	1 sum	$25,000.00	$25,000
	Refinish steel ladder	20 lf	$500.00	$10,000
	Reinstall conduit in metal sleeves and installed on 8" high PT blocks	150 lf	$40.00	$6,000
	Replace through wall scupper and downspout	8 ea	$700.00	$5,600
	Add new through wall scupper	1 ea	$1,000.00	$1,000
	Clean out downspout collector heads	2 ea	$100.00	$200
			TOTAL COST	$686,530.00
ARCHITECTURAL EXTERIOR	Repaint hm door and frame	3 ea	$125.00	$375
	Replace door knob with lever handle	3 ea	$500.00	$1,500
	Replace single pane windows (3' x 7')	23 ea	$1,300.00	$29,900
	Rebuild wood framed half wall (42" tall)	43 lf	$35.00	$1,505
	Replace concrete block top course below windows	9 ea	$50.00	$450
	Replace 6" cedar plank siding and wall insulation	2,304 sf	$18.00	$41,472
	Clean louver	100 sf	$1.00	$100
	Clean debris from loading dock area	100 sf	$2.00	$200
	Remove rust and repaint concrete post in concrete. Concrete has spalled away.	1 ea	$100.00	$100
	Remove vegetation growing on wall	127 sf	$10.00	$1,270
	Clean cedar siding	200 sf	$2.00	$400
	Seal 3" gap between sidewalk and concrete block pilaster	10 lf	$5.00	$50
	Replace wood soffit	51.25 lf	$20.00	$1,025
	Replace exterior junction box	1 ea	$250.00	$250
	Replace corroded call box	1 ea	$250.00	$250
			TOTAL COST	$78,847.00
ARCHITECTURAL INTERIOR	Patch and repaint gypsum plaster wall	20 sf	$2.00	$40
	Repaint gypsum plaster wall	4,292 sf	$1.00	$4,292
	Replace HM door and frame	1 ea	$1,800.00	$1,800
	Replace glass patio door with commercial sliding door	35 ea	$5,000.00	$175,000
	Replace door knob with lever	8 ea	$500.00	$4,000
	Repaint HM door and frame	3 ea	$150.00	$450
	Replace carpet tile; install new rubber base	456 sf	$7.00	$3,192
	Replace 4x6 whiteboard	1 ea	$400.00	$400
	Provide gasket at door bottom	1 ea	$100.00	$100
	Replace metal cover over utility lines	44 lf	$25.00	$1,100
	Treat wood beam due to water damage	16 lf	$25.00	$400
	Replace gyp bd between columns with water resistant wall material	100 sf	$15.00	$1,500
	Repaint CMU wall	208 sf	$1.00	$208
	Replace handrail	5 lf	$40.00	$200
	Refinish concrete floor	81 sf	$1.50	$122
	Replace wire molding	6 lf	$15.00	$90
	Replace rubber base	17 lf	$3.00	$51
	Install exposed wiring in anti-corrosive sleeve	0.5 lf	$20.00	$10
			TOTAL COST	$192,954.50

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	17	SWIMMING POOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
SITE	Replace wood fencing on metal guard rail, 4 ft high	39 LF	$20.00	$780
			TOTAL COST	$780.00
STRUCTURAL	Repair foundation at CMU columns	10 cu.ft	$25.00	$250
	Replace glulam beams	80 lf	$50.00	$4,000
	Replace glulam beams (88 ft)	2 ea	$4,500.00	$9,000
	Seismic rehabilitation work as the sole building upgrade (not including costs for re-roofing)	18,695 sf	$60.00	$1,121,700
			TOTAL COST	$1,134,950.00
MECHANICAL	Repair SA & RA/EA package by Pace, has issues but repairable	1 ea	$11,000.00	$11,000
	Replace roof top HV unit MAU-1	1 ea	$24,500.00	$24,500
	Repair roof top centrifugal exhaust fan: Replace belt EF-1	1 ea	$3,300.00	$3,300
	Repair roof top centrifugal exhaust fan: Replace belt EF-2	1 ea	$3,300.00	$3,300
	Replace sidewall centrifugal exhaust fan	1 ea	$6,200.00	$6,200
	Repair supply, return & exhaust air distribution: Duct to be repaired and sealed	5 lf	$100.00	$500
	Replace natural gas hot water boiler B-1	1 ea	$41,000.00	$41,000
	Replace roof top centrifugal exhaust fan over pool	3 ea	$18,000.00	$54,000
	Architectural Finishes Allowance	1 ls	$1,000.00	$1,000
			TOTAL COST	$144,800.00
ELECTRICAL	None			
			TOTAL COST	$0.00
PLUMBING	Repair wall hung lavatory: Add aerators to get 0.5 gpm flow	8 ea	$1,600.00	$12,800
	Replace floor mounted toilets with 1.6 gpf standard	8 ea	$1,600.00	$12,800
	Provide accessible drinking fountain	1 ea	$3,000.00	$3,000
	Replace floor mounted urinals with 1 gpf standard	3 ea	$1,600.00	$4,800
	Architectural Finishes Allowance	1 ls	$500.00	$500
			TOTAL COST	$33,900.00
POOL DECK ITEMS	Replace pool deck and provide a finish that is slip resistant under dry and wet conditions with no trip hazards or obstructions. Correct pool deck slope to properly drain water away from the pool edge and to the deck drainage system.	5000 sf	$30.00	$150,000.00
	Replace pool deck drainage system to ensure that there is not standing water, low spots, or ponding on the pool deck.	325 lf	$60.00	$19,500.00
	Provide new slip-resistant horizontal depth markings and warning signs at no more than 25'-0" intervals.	16 units	$250.00	$4,000.00
	Replace grab rails and associated anchors, and provide escutcheon plates for anchors.	4 units	$2,500.00	$10,000.00
	Replace portable ADA lift with new fixed battery operated ADA compliant lift with carrying caddie, folding arm rests, belt, foot rest, spineboard attachment, and spare battery.	1 unit	$6,500.00	$6,500.00
	Replace diving 1-meter diving board and stand. Relocate to the starting block side of pool to provide adequate deck clearance behind the board.	1 ls	$15,000.00	$15,000.00
	Replace starting blocks and anchors. Provide track start platforms with side step for easier access.	8 units	$3,000.00	$24,000.00
	Provide cone shaped plastic safety covers for all starting blocks when they are not in use.	8 units	$250.00	$2,000.00
			TOTAL COST	$231,000.00
POOL ITEMS	Sandblast and remove existing epoxy paint pool finish down to bare concrete. Repair any cracks and imperfections in the concrete pool shell.	5800 sf	$2.00	$11,600.00
	Replace epoxy paint pool finish.	5800 sf	$4.00	$23,200.00
	Fix pool floor slope to have code compliant 1:3 slope to depths greater than 5'-0". Deepen deep end to meet minimum recommended water depths for diving (12'-0") and starting blocks (6'-6").	1 ls	$150,000	$150,000.00
	Provide two (2) new 18" x 36" VGB compliant main drains with 3'-0" minimum spacing between.	2 units	$10,000	$20,000.00
	Provide new vertical depth markings and warning signs at no more than 25'-0" intervals on face of gutter.	16 units	$250.00	$4,000.00
	Provide 4" contrasting band and safety rope at 5'-0" water depth contour and slope break.	1 ls	$2,000	$2,000.00
			TOTAL COST	$210,800.00

COST ESTIMATE SUMMARY & FCI

LAKE OSWEGO SCHOOL DISTRICT	17	SWIMMING POOL	2015 FACILITY ASSESSMENT

CATEGORY	RECOMMENDATION	QUANTITY	UNIT COST	COST
POOL MECHANICAL ITEMS	Replace all related exposed pool piping (pressure, suction, gravity, and chemical feed) with Schedule 80 PVC piping in the Pool Mechanical Room and Pool Tunnel.	1 ls	$70,000	$70,000.00
	Provide color coded directional arrows on all piping in mechanical room and tunnel. Install valve tags on all valves and provide a posted piping and valve schematic.	1 ls	$1,500	$1,500.00
	Replace recirculation pump, hair and lint strainer, vacuum gauge, and pressure gauge. Pump should have the following characteristics: 15 HP, 600 GPM @ 75' TDH, 1750 RPM, 3 Phase, Premium Efficiency Motor, TEFC, close-coupled, and end suction. Provide spare basket for hair and lint strainer.	1 unit	$10,000	$10,000.00
	Provide aquatics programmed VFD to match the new recirculation pump electrical demand.	1 unit	$10,000	$10,000.00
	Replace flow meter with digital magmeter style flow meter with digital readout on the pool return line after the filters and connect to the VFD and Pool Chemical Controller.	1 unit	$1,000	$1,000.00
	Provide a new high rate sand filtration system capable of handling a flow rate of 600 GPM. Filter system should have the following characteristics: NSF, total system filter area of 50.0 SF, filtration rate of 12.0 GPM/SF of Filter Area.	2 units	$25,000	$50,000.00
	Replace surge tank with new reinforced concrete surge tank in the mechanical room. Disconnect main drain suction piping from surge tank and connect to suction side of recirculation pump with a balancing valve. Provide new gravity gutter dropout piping to surge tank. Provide access ladder rungs on exterior and interior of tank with a bilco type access hatch in the surge tank lid. Provide a tank vent to the building exterior. Completely waterproof interior of surge tank and conduct a water tightness test. The suction line from the surge tank to the recirculation pump should have an anti-vortex plate in the surge tank.	1 ls	$40,000	$40,000.00
	Provide sealed, ventilated, and fire rated chemical storage rooms for the pool chemical delivery systems.	100 sf	$250	$25,000.00
	Replace chemical controller with new chemical controller that can control automatic filter backwashing and interface with the recirculation pump VFD for optimum energy efficiency.	1 unit	$10,000	$10,000.00
	Provide an ultraviolet light (UV) disinfection and dechloramination system for tertiary water treatment to help maintain better water and air quality in the natatorium.	1 unit	$40,000	$40,000.00
	Provide an automatic water level control system complete with a monitor located in the pool mechanical room, surge tank mounted sensors for normal and high water levels, and automatic solenoid valves on the fill water manifold.	1 ls	$2,500	$2,500.00
	Provide a water totalizer meter for the domestic fill water system for the pool with a digital readout.	1 unit	$1,500	$1,500.00
	Provide housekeeping pads and proper anchorage for all pool equipment (e.g. pump, filters, etc.).	1 ls	$5,000	$5,000.00
			TOTAL COST	$266,500.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.		
	TOTAL COST TO REPAIR	$2,980,282
	TOTAL COST TO REPLACE	$4,641,000
	=FCI	0.64

DISCLAIMER The FCI number does not include: Site repairs and site replacement, Fire life safety component associated with building systems such as dampers, etc., Specific details about electrical panels, mechanical equipment and plumbing equipment that is not directly visible, Systems embedded below grade, within walls or roofing systems, Contingencies, inflation, general conditions, permits and design fees. The cost to replace is based on local industry standards of project of similar size and complexity. This site cost to replace is based on $350/SF.

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kpff Consulting Engineers | STRUCTURAL

October 02, 2015

17_Swimming Pool

Constructed in 1971, with a boiler room addition in 1991.
Concrete Masonry Unit (RM1) and Steel Braced Frame (S2A) Building with Flexible Diaphragm Roof.
Roofs are flat with glulam beams spanning to masonry columns.
Building Risk Category II
ASCE 41-13 **Life Safety** Performance Level

Main Building Seismic Retrofit Cost Per Square Foot
$60/sf (does not include costs for re-roofing)

The original structural drawings showed an orientation of the building different than what was observed on site. The materials on the drawings included concrete columns and beams as well as wood shear walls that were not constructed as indicated. As built drawings from around 1971 (sheet S202-R) indicated that the roof diaphragm was changed to plywood sheathing from tongue and groove sheathing and the pool room walls are steel bar braces instead of plywood sheathing above soundblock CMU. Lack of clarity from the available drawings required assumptions as to the capacity of the structure; however, destructive testing to verify materials would likely not lead to any better results.

Summary of Seismic Structural Deficiencies (included in cost per square foot above)

- Unblocked diaphragm spans greater than code limit.
- Connections of diaphragms to lateral system likely to need retrofit.
- Connection of roof girders and ties to exterior walls and columns likely need retrofit.
- Continuity of steel bar bracing to soundblock CMU likely to need retrofit.
- Exterior walls of lower north wing are not full height to engage the roof diaphragm.
- Out of plane capacity of CMU columns and soundblock CMU walls with wood framed tops at pool area unknown.
- Out of plane capacity of CMU walls in locker room area unknown.
- Lateral system connection to foundation unknown.

Summary of Seismic Nonstructural Deficiencies (included in cost per square foot above)

- Mechanical equipment on roof – not braced to structure.
- Gas lines to mechanical equipment – do not have flexible connections.
- Fall-prone contents – contents weighing more than 20 pounds whose center of mass is above four feet are not braced. (Lockers, file cabinets, etc…recommend bracing).
- Fall-prone equipment – Equipment weighing more than 20 pounds whose center of mass is above four feet is not braced.
- Interior masonry partition walls at the locker room area were not visibly braced to the roof diaphragm.

kpff Consulting Engineers | STRUCTURAL

October 02, 2015

Other Structural Deficiencies (NOT included in cost per square foot above, but itemized in Cost Estimate Summary)

The costs for the following repairs are not included in the above estimates since they are not considered necessary for seismic rehabilitation. See the plans with field notes for more information.

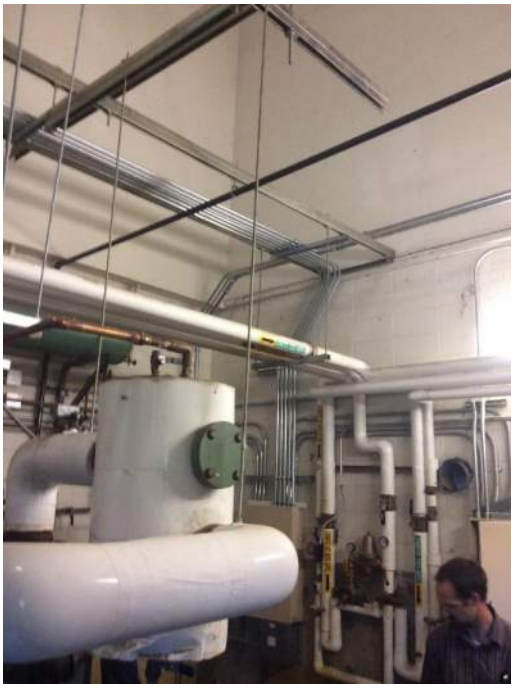
- Approximately 10% of the foundations at CMU columns may have undermined foundations that need to be repaired. Settlement was not apparent at this time. Assume 10 cubic feet of structural grout will need to be formed and poured.
- The glulam beams above windows on the north exterior of the locker rooms showed signs of deflection and rotation. They should be reviewed and replaced as needed. Assume 80' of beams will be replaced.
- The condition of the roof decking and glulam beams in the pool room and locker room areas should be tested to determine where rot and water damage has occurred. Until additional testing is completed by a third party, assume that 100% of the roof decking and (2) of the approximately 88' glulam beams and their connections will need to be replaced.

PHOTOS OF DEFICIENCIES
SWIMMING POOL

Column Undermined

Deterioration of Wall Material

Discontinuous CMU Wall



Fall Prone Equipment

Hard Connected Gas Line

STRUCTURAL REPORT

PHOTOS OF DEFICIENCIES
SWIMMING POOL

Lack of Lateral Support at Building Side

Roof Beam Connections to Columns

Piping Bracing

Sagging & Twisting Wood Beams

Railing Corrosion

Unknown Wood Degradation & Diaphragm Connection

PHOTOS OF DEFICIENCIES
SWIMMING POOL

Unknown Out-of-Plane Support for CMU Wall

Unrestrained Hazardous Chemicals

Part 3 - Educational Adequacy

3.1 Introduction

An educational adequacy assessment evaluates a building's ability to meet a school district's educational needs. The assessment helps bridge the gap between a district's facilities and its own educational standards and goals

Tailoring the Educational Adequacy Assessment to LOSD, a combination of nationwide evaluation methods, as well as educational adequacy assessment recommendations from the nationally recognized Council for Educational Facility Planners International (CEFPI) were considered. Various school district Educational Adequacy Assessments throughout the nation, the Magellan APPLE rubric, and studies provided by Jacobs Consulting have been considered in order to develop a baseline assessment standard for the LOSD provided Educational Adequacy categories.

Lake Oswego School District's 6 active elementary schools, 2 junior high schools and 2 high schools were assessed for educational adequacy. These assessments were done in conjunction with the Facility Conditions Assessment (FCA) with site visits occurring between August 3rd and August 13th, 2015.

The following outlines the standards provided by the District used to evaluate educational conditions in the buildings. When used in combination with the FCA, the results of the Educational Adequacy Assessment will provide a complete picture of where improvements are needed within the district's schools. The Educational Adequacy Assessment can be used as a tool to help prioritize projects and allocate funding, as well as serve as a building block for future construction and renovation projects.

Areas of Evaluation

To effectively assess the educational adequacy of a facility, it is important to first understand the components that effect the learning environment. These components can be generally grouped into 8 categories:

1. **Capacity:** The ability of the facility to meet the space needs of the student population.
2. **Support for Programs:** The allocation of spaces that support specific curriculum or support activities.
3. **Technology:** The degree to which a school can accommodate necessary technology to support a variety of digital learning
4. **Supervision and Security:** The extent to which the building helps or hinders the control of visitors and supervision and safety of students.
5. **Instructional Support:** The presence of necessary tools and equipment to support teaching methods.
6. **Physical Characteristics:** The ability of a space to enhance or detract from the education suitability; specifically, size and shape.
7. **Learning Environment:** The degree to which learning spaces are comfortable and encourage a healthy environment.
8. **Relationship of Spaces:** The proximity of instructional spaces to major support spaces.

3.2 Educational Specifications and Building Capacity

The building's capacity was considered according to the National Benchmark Data, LOSD, and standard industry preferred classroom size requirements.

The U.S. Department of Education's Institute of Education Sciences published the Gross Area/Gross Square Footage (GSF) and Net Area/Net Usable Square Footage definitions of measurements of volume in their "Postsecondary Education Facilities Inventory and Classification Manual 2006 Edition". GSF per student is provided for each school, both for current enrollment and programmed capacity. The following data should be consulted for comparison:

- The Council of Educational Facility Planners International (CEFPI) provides national data on the median Gross Square Footage (GSF) per Student. Averages and ranges are reported by geographic area to take into account differences in square footage caused, primarily, by temperature and weather influences. The most recent national data was published in 2006:

Elementary Schools:	120 gsf/student
Middle Schools:	146 gsf/student

- School Planning & Management's 2013 Annual School Construction Report stated the National Median for new schools completed in 2012 as follows:

Elementary Schools:	136.7 gsf/student
Middle Schools:	152.8 gsf/student

Elementary School Classrooms are defined by the following department categories:

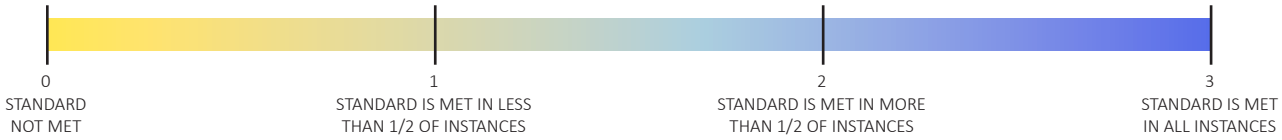
- General Classroom- Includes all typical Kindergarten through 5th grade classrooms as well as Special Education (as included in Enrollment Report 2013-14.
- Music & Art- Any classroom used for music or art, as well as any other electives offered.
- Special Use- Includes computer labs and any elementary classroom used for a pull-out program such as Title One, ELL, or Speech.
- Gymnasium

Middle School and High School Classrooms are defined by the following department categories:

- General Classroom- Includes all typical 6th through 12th grade classrooms and any classroom with a design and furniture inventory capable of functioning as a typical 6th through 8th grade classroom.
- Music & Art- Classrooms used for Band or Choral practice, as well as any other electives offered.
- Special Use- Includes computer labs and any special program occupying a classroom in a way that it would not easily convert into a typical 6th through 12th grade classroom.
- Gymnasium

3.3 Metrics of Evaluation

Following assessments and data collection, each school is scored in the 8 areas of evaluation. The scores are given on a 1-3 scale, with 0 indicating the standard is not met and 3 indicating it is met in all aspects. A score of 1-2 indicates that the standard is partially met. Detailed breakdowns of scoring for each area of evaluation described in the following sections.



1. **Capacity:** The ability of the facility to meet the space needs of the student population.

   This number is measured on two levels: classroom capacity and school capacity. Classroom capacity is based on the amount of space dedicated to general classroom learning space only. This does not include specialized learning areas (i.e., music, art or technology), support spaces or circulation. School capacity measures the ability of a facility to meet the overall needs of students, and includes all space within outside faces of exterior walls. These elements are assessed separately because it is possible for a facility to have an excess amount of classroom space, but inadequate shared space to support the school population if all classrooms are occupied. Only classrooms used for regular daily instruction are included in each school classroom capacity analysis. Computer labs and other specialized spaces that might otherwise be a regular classroom are not included in the classroom capacity analysis.

   The following tables outline minimum baseline standards for evaluating capacity. "Classroom Area per Student" is the recommended amount of floor space per student in classrooms only. "Targeted Overall Students per Classroom" is the number of students the District prefers in each typical classroom. Both of these numbers may be lower or higher for specialized learning environments (such as special education or science labs). Multiplying these two numbers will provide the ideal minimum classroom size. Elementary "Targeted Overall Students per Classroom" is 90% of the overall elementary target of 27, to account for greater enrollment variability at the elementary school level. "Building Area per Student" is the minimum recommended square footage per student for the overall area of the building (including all support spaces). Multiplying this number by enrollment will provide the minimum building size required to support the student population.

Classroom Area per Student	
Grade Level	Minimum Area
Elementary (K-5)	32 SF / student
Junior High (6-8)	32 SF / student
High School (9-12)	32 SF / student

Targeted Overall Students per Classroom	
Grade Level	Students
Elementary (K-5)	24.3
Junior High (6-8)	29
High School (9-12)	29

Building Area per Student	
Grade Level	Minimum Area
Elementary (K-5)	125 GSF / student
Junior High (6-8)	146 GSF / student
High School (9-12)	163 GSF / student

These recommended numbers shown below are based on CEFPI standards and national averages. All numbers have been reviewed and approved by LOSD for this report.

Example: An elementary school has 450 students, so the recommended classroom area is 14,400 SF (based on 32 SF/student). The school was observed to have 18,200 SF of general classroom space; therefore, the school has 126% of the recommended classroom area (18,200 / 14,400). Since this exceeds the minimum, the school would receive a high score. The recommended overall area for the same school is 56,000 SF (based on 125 SF / K-5 student). The school is only 50,700 SF, so has 91% of the recommended minimum overall school area (50,700 / 56,000). As a result, the school is deemed to be over capacity, even though there is more-than-adequate classroom space.

A. Scoring guide:
Below 80% Recommended area = 0
80-89% Recommended area = 1
90-99% Recommended area = 2
Above 100% recommended area = 3

B. Clarifications

i. Capacity is based on the area of all permanent classroom spaces in a building, whether or not they are being used for instruction. The numbers do not take into account utilization rates for the school or classrooms that are no longer used for teaching. Classroom counts are indicated on each school's assessment sheet for clarification.

2. Support for Programs: The allocation of spaces that support specific curriculum activities.

This includes spaces beyond the standard classroom, such as music, arts, sports, science and technology. These spaces should provide amenities that are not available in typical classrooms. Examples would include specialized acoustic treatments in music areas, extra sinks and work space in science labs, and adequate power and data in computer labs.

LOSD has determined that every school should have support space for Music, Arts, Sports, Science and Technology, as shown below.

Programs					
Grade Level	Music	Arts	Sports	Science	Technology
Elementary (K-5)	Yes	Yes	Yes	Yes	Yes
Junior High (6-8)	Yes	Yes	Yes	Yes	Yes
High School (9-12)	Yes	Yes	Yes	Yes	Yes

Scores are based on the existence of the space and its amenities.

A. Scoring Guide

Space is not present = 1
Space is present, but lacking specialized amenities = 2
Ex: A classroom that has been converted to a music room but has no acoustical treatments
Space is present and has sufficient support features = 3
Ex: A dedicated music room with acoustic treatments and adjacent practice rooms.

3. Technology: The degree to which a school can accommodate necessary technology to support digital learning styles.

Specific elements assessed include Wi-fi access, network cabling, sound field amplification systems, electrical outlets and projection/video display in each learning space. The findings were then summarized to indicate how the school as a whole compares to the standard requirements. LOSD has determined that the technology shown in the table below is necessary in all classrooms.

Classroom Technology					
Grade Level	Wi-fi Access Points	Network Cabling	Electrical Outlets	Sound Field Amplification	Projection/ Video Display
Elementary (K-5)	Yes	Yes	Yes	Yes	Yes
Junior High (6-8)	Yes	Yes	Yes	Yes	Yes
High School (9-12)	Yes	Yes	Yes	Yes	Yes

Wi-fi Access Points are critical to support current digital learning methods. The District has determined an average of 3 devices per student, and each student may have 2 devices connected to the wireless network at any time. To adequately support users, the recommended access point-to-device ratio is 1:30. Data on existing and required access point counts has been provided by the District for this assessment. A summary of the findings is included in part 3.4 of this report.

Network Cabling provides wired access to the school networks, in addition to Wi-fi connections. To support modern devices, this cabling must be 8-wire CAT-5. The District has provided data on the percentage of current, 8-wire CAT-5 and outdated 4-wire CAT-5 network cabling for this assessment. A summary of the findings is included in part 3.4 of this report.

Electrical Outlets were assessed based on their relative quantity in spaces. No standard minimum requirement has been established for this report.

Sound Field Amplification devices enable every student to clearly hear the teacher's voice equally well, no matter where they are seated or the direction they are facing. Schools are scored based on the percentage of rooms that have sound field amplification devices installed.

Projection and Video Display allows for multi-media teaching and is a critical tool for teachers. Smart Boards are considered an outdated instructional method that are not relevant to today's learners. Instead, the District preference is for projection and audio equipment. Equipment similar to Apple TV provides an even greater range of instructional flexibility.

Scores for each element are based on an average of the general observed conditions of all classrooms. Each element is scored independently. All elements are scored based on their presence in the space. In addition, wi-fi access points and network cabling are scored based on the percentage that need to be added or replaced to meet the needs of the student population, as provided by the District (see Access Point Spreadsheet in part 5 of this report). Age and compatibility of projectors and other equipment was not assessed.

A. Scoring guide (all elements):
   0% of classroom have the technology = 0
   1-49% of classroom have the technology = 1
   50-99% of classrooms have the technology = 2
   100% of classrooms have the technology = 3

B. Scoring guide (Wi-fi Access Points and Network Cabling):
   100% of equipment need to be added or replaced = 0
   50-99% of equipment need to be added or replaced = 1
   1-49% of equipment need to be added or replaced = 2
   0% of equipment need to be added or replaced = 3

4. Supervision and Security: The extent to which the building helps or hinders control of visitors and supervision and safety of students.

Supervision and security is essential to the safety of students. The main goal of security and supervision in schools is to be able to monitor all activity and prevent unwanted visitors. To measure a schools , the buildings were assessed for four (4) specific items:

- Building layout
- Location of the main office relative to main entry
- Exterior classroom access
- Technology (such as cameras and card readers).

Building layout assesses how the design of a building plays a role in supervision. A school with straight corridors or large, open spaces allows for easy monitoring of all students (see figure 3.1). Conversely, a school with separate buildings or disjointed circulation creates blind spots that are difficult to monitor (see figure 3.2).

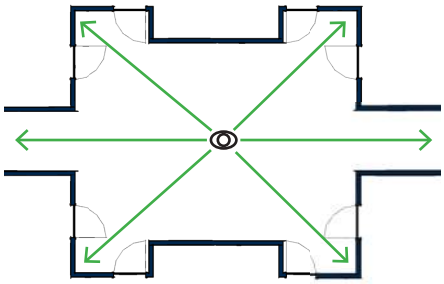


Figure 3.1: Example of building layout with high visibility

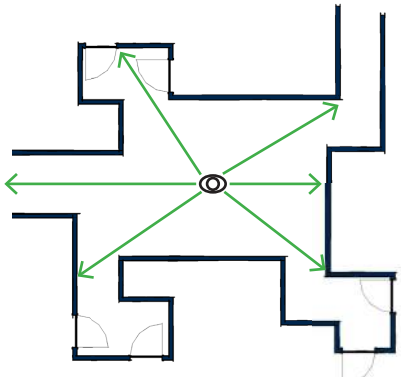


Figure 3.2: Example of building layout with poor visibility

The main office should be the first point of contact for visitors to a school. This allows the school to monitor all activity and prevent unwanted visitors from entering the building. The office should be directly adjacent to the main entry and should have a direct visual connection to monitor the interior and exterior of the building. The number of entry points to the building should be limited to ensure all occupants pass the main office.

Throughout the district, several schools have classrooms with exterior doors. For security, these doors should be used for exiting purposes only. To prevent unwanted guests, the exterior of the doors should not have handles. Rather, all students and visitors should be required to access the classroom from the interior of the building.

Technology should be added to assist in the security of schools. Card readers at primary and secondary points of entry and security cameras are means to have eyes on parts of the building that are out of visual proximity from the main entry.

A. Scoring guide:
0% of building meets standards = 0
1-49% of building meets standards = 1
50-99% of building meets standards = 2
100% of building meets standards = 3

5. Instructional Support: The presence of necessary tools and equipment to support teaching methods.

Specific elements assessed include teacher and student storage within the classroom (lockers outside classrooms were not assessed), writing/tack surfaces, sinks and demonstration tables. Minimum requirements for instructional support in teaching areas have been developed by the district as a baseline standard. Specific elements assessed include teacher and student storage, writing/tack surfaces, sinks, demonstration tables and fixed audio/visual equipment.

The table below outlines the minimum instructional support requirements for each grade level.

Instructional Support				
Grade Level	Student Storage	Teacher Storage	Demonstration Tables	Sink(s)
Elementary (K-5)	Yes	Yes	No	Yes
Junior High (6-8)	No	Yes	Labs Only	Yes
High School (9-12)	No	Yes	Labs Only	Labs Only

A. Scoring guide:
0% of classrooms have standard support = 0
1-49% of classrooms have standard support = 1
50-99% of classrooms have the standard support = 2
75-100% of classrooms have the standard support = 3

6. Physical Characteristics: The ability of a space to enhance or detract from the education suitability; specifically, size and shape.

The standard size of classrooms is based on the District's overall targeted number of students per classroom by grade level. This number is then multiplied by a standard area per student. The overall area of existing classrooms should meet or exceed this standard. The shape of a classroom is assessed based on it aspect ratio (the length of the longest side of the room divided by the shortest side). Rectangular classrooms are generally preferred for teaching scenarios. Oddly shaped classrooms (such as trapezoids or rounded rooms) can detract from student learning and are not an efficient use of space. Minimum ceiling heights for various spaces have also been provided.

Size is assessed based on recommended minimum floor area for classrooms. Shape is based on recommended aspect ratios. Note that scores are provided based on the average of the general observed physical characteristics of all classrooms.

The tables below outline the recommended minimum physical characteristics for classrooms at each grade level.

Minimum Classroom Size	
Grade Level	Size
Elementary (K-5)	778 SF (24.3 students x 32 SF/student)
Jr. High (6-8)	928 SF (29 students x 32 SF/student)
High School (9-12)	928 SF (29 students x 32 SF/student)

Classroom Shape	
Space	Aspect Ratios
General Classroom	1.2:1 to 1.5:1
Laboratories	1.4:1 to 1.75:1

Minimum Ceiling Height	
Space	Ceiling Height
Classroom (K-5)	9 Feet
Classroom (6-12)	9 Feet
Shops & Laboratories	10 Feet

A. Scoring guide:
0% of classrooms meet minimum physical characteristics = 0
1-49% of classrooms meet minimum physical characteristics = 1
50-99% of classrooms meet minimum physical characteristics = 2
100% of classrooms meet minimum physical characteristics = 3

7. Learning Environment: The degree to which learning spaces are comfortable and encourage a healthy environment.

Elements assessed include access to daylight, if the space was odor-free, climate-controllable and quiet. These are critical factors in assuring that students are comfortable and give their full attention to learning. Factors such as noise or excessive heat cause distractions that can decrease student productivity.

Elements assessed include access to daylight and the presence of climate controls. Odor and noise could not be accurately assessed, as no students were present at the time of the evaluation.

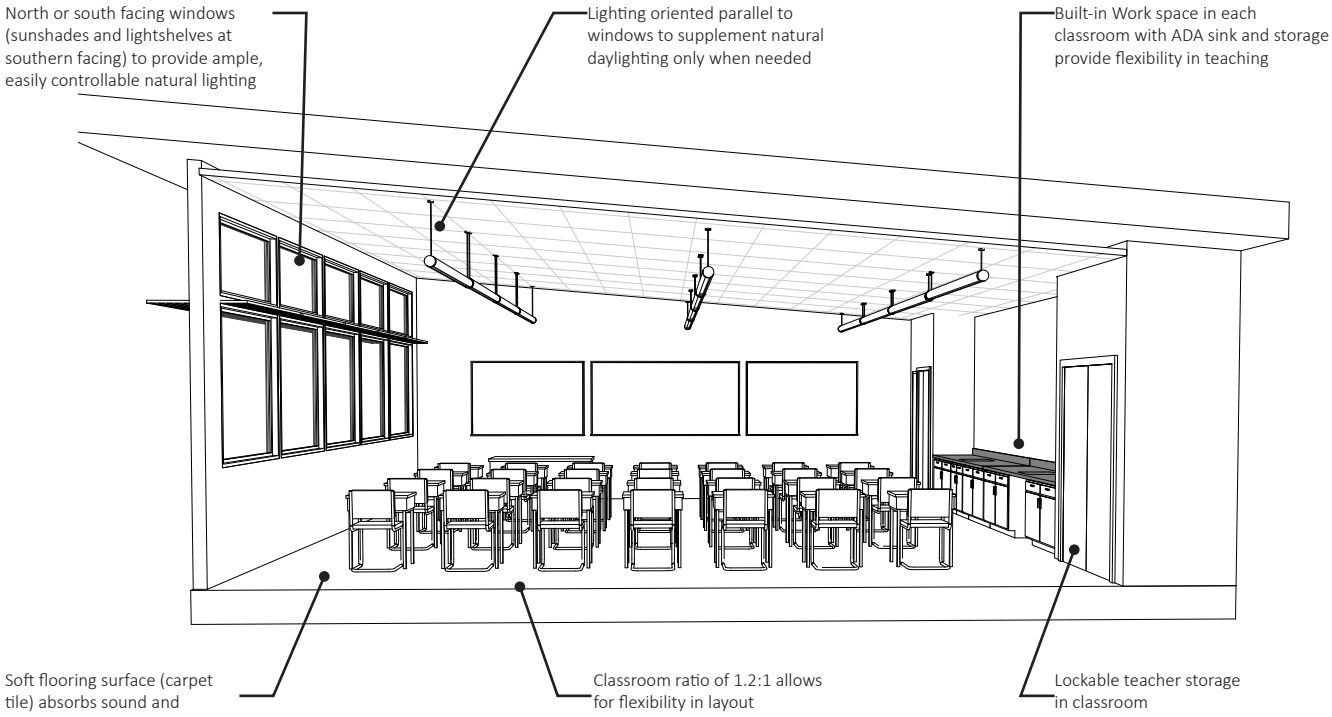


Figure 3.2: Example of an ideal Elementary classroom learning environment

A. Scoring guide:
0% of classrooms meet characteristics = 1
1-49% of classrooms meet characteristics = 1
50-99% of classrooms meet characteristics = 2
75-100% of classrooms meet characteristics = 3

B. Clarifications

i. No students were present at the time of assessments. Sound levels and odors assessed may not be typical of spaces when students are present. Physical characteristics that would likely influence these elements (such as accordion partitions between classrooms) were noted.

ii. Only the presence of climate control features in spaces was assessed; not the functionality.

8. Relationship of Spaces: The proximity of instructional spaces to major support spaces.

Specific spaces assessed include Library, Cafeteria/Commons, Recreation and Restrooms. The relationships between major support spaces and teaching areas should support the overall educational needs of the facility. Spaces such as media centers and computer labs should be centrally located so all students have easy, equal access. Areas of activity (such as commons or recreation) should be located in easily accessible areas, but offset from main school activities to minimize distractions. Restrooms should be evenly distributed throughout the facility. In addition, spaces should be easy to find and access. Wayfinding elements (signage) should be provided where building design is not intuitive.

The proximity of instructional spaces to major support spaces. Specific spaces assessed include Library, Cafeteria/Commons, Recreation and Restrooms. Shared spaces should be located in such a way that they are convenient to other uses, easy to access. In addition, the building should be laid out in such a way that visitor do not need way finding, and way finding signage should be incorporated as necessary. Scores are based on a combination of spatial proximity (centralized being generally favored) and ease of access.

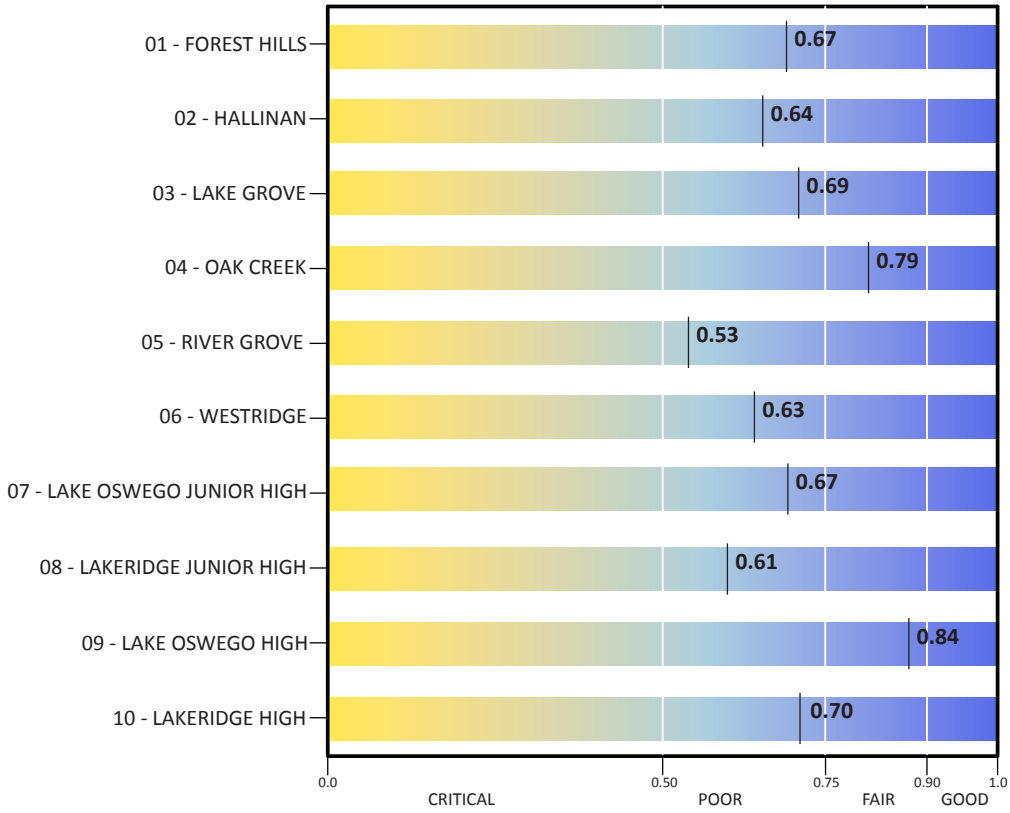
A. Scoring

A space does not exist = 0
A space that is poorly located and with poor wayfinding = 1
A space that is poorly located, but with good wayfinding = 2
A space that is properly located, but with poor wayfinding = 2
A space that is properly located with clear and easy accessibility = 3

3.4 Summary of Findings

Below is a summary matrix of all ten (10) schools and their overall educational adequacy index. The score of a facility is a calculation of the awarded points divided by the total available points. A higher number indicates a school meets more of the District's educational adequacy standards. For more detailed information on each facility and a breakdown of each of the 8 categories, see the individual school educational adequacy forms that follow.

A score of 1 indicates a school that meets 100% of the standards in all categories. The majority of the District's schools fall in the poor category, with only two (2) fair-ranked facilities. No schools have been determined to be critical or good. This table provides a snapshot of the overall educational adequacy of the District's schools. The table is to be used in conjunction with the individual adequacy review forms to identify specific deficiencies at each school.



Costs for Educational Adequacy improvements will be addressed in the Master Planning process, and are not typically provided in an FCI

Findings

The following provides an overview of the findings for all schools in the district. School specific conclusions and recommendations are included on the individual school adequacy review forms.

1. Capacity

- All schools in the district have adequate classroom capacity for current enrollment.
- 4 Elementary schools and 1 Junior High School do not have sufficient shared space to support the number of students in classrooms, so are over capacity.
- The chart below shows actual and recommended capacity for each school. The schools that are over capacity have been highlighted in yellow.

School Capacity			
School Name	Actual Enrollment	Recommended Capacity	Difference
Forest Hills Elementary	452	406	over capacity by 46
Hallinan Elementary	435	374	over capacity by 61
Lake Grove Elementary	416	493	under capacity by 77
Oak Creek Elementary	539	544	under capacity by 5
River Grove Elementary	500	404	over capacity by 96
Westridge Elementary	481	374	over capacity by 107
Lake Oswego Jr. High	920	726	over capacity by 194
Lakeridge Jr. High	789	840	under capacity by 51
Lake Oswego High	1340	1,445*	under capacity by 105
Lakeridge High	1,151	1,368*	under capacity by 217

= Facility that is over capacity

2. Support for Programs

- None of the Elementary schools were observed to have dedicated science classrooms. It is the District's intention to provide science classrooms at the Elementary level.
- The computer labs in the older schools are converted classrooms, and do not have adequate power/data outlets.

3. Technology

- For the most part, all schools scored low in technology.
- The only school in the District with sound field amplification systems is Oak Creek Elementary, and it does not have an adequate amount.
- Smart boards in classrooms are outdated tools per LOSD instructional standards and are not relevant to the District's current teaching needs or learners.
- Projectors and smart boards have an average lifespan of 7 years.
- Wi-fi is available throughout the District; however, it is inadequate to handle the actual load of data transfer (per District-provided network information)
- The District's technology infrastructure is aging and does not provide adequate access points
- A large portion of wiring throughout the schools is 4-wire instead of current standard 8-wire. This cannot carry an adequate signal for modern equipment, and should be replaced
- Older schools lack adequate power outlets and data ports
- The chart on the following page outlines the District's access point requirements. Deficiencies are highlighted in yellow

Access Point / Network Cabling Summary					
School Name	Current Number of Access Points	Recommended Access Points	% of Access Points to be added	% 8-Wire CAT-5 (Keep)	% 5-Wire CAT-5 (Replace)
Forest Hills Elementary	12	30	60%	66%	34%
Hallinan Elementary	14	29	52%	75%	25%
Lake Grove Elementary	18	28	36%	35%	65%
Oak Creek Elementary	16	36	56%	100%	0%
River Grove Elementary	15	33	55%	100%	0%
Westridge Elementary	14	32	56%	75%	25%
Lake Oswego Jr. High	33	62	47%	15%	85%
Lakeridge Jr. High	24	52	54%	38%	62%
Lake Oswego High	29	90	68%	100%	0%
Lakeridge High	33	77	57%	100%	0%

Notes:
1. Data provided by District
2. Number of recommended access points is based on student enrollment, 2 connected devices per student, and 30 devices per access point.

= Deficiency

4. Security and Supervision

- Several schools have classrooms that are primarily accessed from the exterior of the building. Exterior doors in classrooms should be used for exiting purposes only to control who enters the classrooms.
- Only the Jr. High and High schools were observed to have card readers or security cameras.

5. Instructional Support

- Most classrooms throughout the District meet or are close to meeting standards.
- The main areas of deficiency are a lack of ADA sinks and minimal teacher storage area in classrooms.

6. Physical Characteristics

- Both high schools have classrooms that are smaller than the current District-preferred minimum size by approximately 110 square feet per classroom. However, the school has more-than-adequate classroom space to support current enrollment. This is due to the fact that both High Schools were constructed when the District had a lower target ratio than now. Individual classrooms are too small to support the average 29 students per classroom.
- Several schools in the District have oddly shaped classrooms (rounded or trapezoidal) that do not meet the preferred standard.
- All classrooms meet the District standards for minimum ceiling heights.

7. Learning Environment

- Several classrooms have minimal daylighting or glare from windows
- Several classrooms in Elementary school have accordion partitions separating classrooms. This may cause noise issues and should be re-evaluated when students are present.
- Note that several items in this category should be re-assessed when students are present for a more accurate representation (noise and odors)
- Controllability of classrooms (i.e., thermostats) was only noted as visible or not; actual operation was not tested.

8. Relationship of Spaces

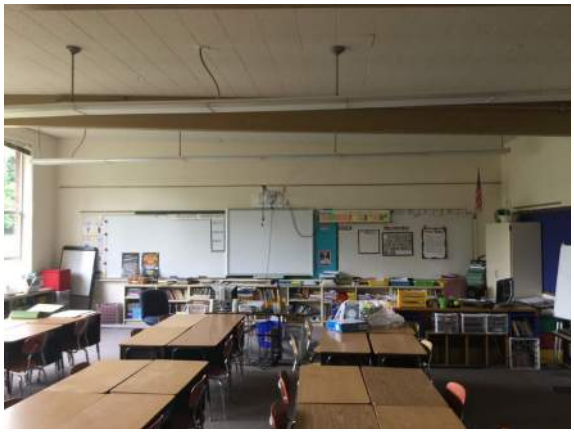
- There is very little wayfinding throughout the District. Several schools could benefit from added signage to direct occupants to common destinations
- ADA restrooms are not distributed evenly in schools (except LOHS)

3.5 Educational Adequacy Assessment Forms

The following pages provide detailed analysis of each school's educational adequacy in each of the eight (8) categories evaluated. In addition, school-specific conclusions and recommendations for improvements are provided.

Educational Adequacy Review - Lake Oswego School District FCA

School Name: Forest Hills Elementary
Address: 1133 Andrews Rd., Lake Oswego 97034
Grade Levels: K-5



Typical Classroom- Teaching Wall

Typical Classroom- Window Wall

	Evaluation Criteria	Yes/No	Existing Space Observations			Evaluation Rating (0-3)
	Capacity - Classroom					
Classrooms	Current Enrollment		452	Students		
Classrooms	Total Existing Gross Classroom Area:		18,230	SF	(19 Classrooms)	
Classrooms	Students per classroom		24	Students	(Enrollment / Number of Classrooms)	
Classrooms	Recommended Gross Classroom Area:		14,464	SF	*(at 32 SF / K-5 Student Min.)*	
Classrooms	Deviation:		+3,766	SF	(Existing Classroom Area - Recommended Classroom Area)	
Classrooms	Recommended Classroom Capacity		570	Students	(Existing Classroom Area / 32 SF per student)	
Classrooms	% of Recommended Classroom Area:		126%		(Existing Classroom Area / Recommended Classroom Area)	3
	Capacity - School					
School	Total Existing Gross Building Area		50,695	SF		
School	GSF / Student		112.16	GSF	(Total Building Area / Enrollment)	
School	Recommened Total Gross Area		56,500	SF	*(at 125 SF / K-5 Student Min.)*	
School	Deviation:		-5,805	SF	(Existing Total Area - Recommended Total Area)	
School	Recommended School Capacity		406	Students	(Existing School Area / 125 SF per K-5 Student)	
School	% of Recommended Total Gross Area:		90%		(Existing Total Area / Recommended Total Area)	2
	Support for Programs					
School	Music	No	No dedicated space for music			0
School	Arts	Yes	A large multi-purpose space is used for art; space dedicated for pottery kilns			3
School	Sports	Yes	Indoor gym, covered play area, play ground, open field with softball field			3
School	Science	No	No dedicated space for science			0
School	Technology	Yes	Classroom converted to computer lab			2
	Technology					
Classrooms	Wi-Fi Access	Yes	60% of required access points need to be added			1
Classrooms	Classrooom Equipment	N/A	See Instructional Support			N/A
Classrooms	Science Lab Equipment	N/A	N/A			N/A
Classrooms	Network cabling	Yes	Present in all classrooms, though most could use more; 34% needs to be replaced			1
Classrooms	Sound Field Amplify	No				0
Classrooms	Electrical Outlets	Yes	All classrooms have electrical outlets, though several could use more			2
Classrooms	Projection/Video Display	Yes	Smart board projectors were being installed in all classrooms			2

School Name: Forest Hills Elementary
Address: 1133 Andrews Rd., Lake Oswego 97034
Grade Levels: K-5

	Evaluation Criteria	Yes/No	Existing Space Observations	Evaluation Rating (0-3)
	Security & Supervision			
School	Building Layout		A few blind corners in main corridors; otherwise straight with clear visibility	2
School	Main Office		Located adjacent to main entry with interior and exterior views	3
School	Classroom Access		Most classrooms have exterior doors with handles	1
School	Technology		None observed	0
	Instructional Support			
Classrooms	Teacher Storage	Yes	All classrooms have large built-in storage areas with locks	3
Classrooms	Student Storage	Yes	90% of classrooms have dedicated space for student storage away from desks	3
Classrooms	Writing/Tack Surfaces	Yes	All classrooms have ample pin up boards and writing surfaces	3
Classrooms	Sinks	Yes	All classrooms have 1 sink; no ADA sinks in any classrooms	2
Classrooms	Demonstration Tables	N/A	N/A	N/A
	Physical Characteristics			
Class-rooms	Size		Most classrooms are 900-950 SF	3
Class-rooms	Shape		All classrooms are rectangular; most are 1.2:1	3
Class-rooms	Ceiling Height		All ceilings are 10' min.	3
	Learning Environment			
Classrooms	Daylight Access		All classrooms have adequate access to daylight	3
Classrooms	Odor-free	N/A		N/A
Classrooms	Controllable		75% of classrooms have thermostats visible on walls; operation not tested	2
Classrooms	Quiet	N/A	*1 classroom had a loud window unit*	N/A
	Adjacencies			
School	Library		Library is centrally located at the intersection of the main corridors	3
School	Cafeteria / Commons		No cafeteria or commons present in the school	0
School	Recreation		Gym is located at end of main corridor; separate entrance for events	3
School	Restrooms		Restrooms are distributed fairly evenly; ADA are not	2

Total	58
Max Available Points	87
% of Max	67%

METHODOLOGY: The final score is determined by dividing the total awarded points by the maximum points available for the school. Maximum available points vary by school, as certain criteria were not assessed at all grade levels. The percentage provides a uniform scoring system that can be compared across all schools regardless of grade level or site-specific conditions.

Conclusions / Recommendations

- This school is over capacity based on overall school area. The school enrollment should be reduced or the building should be expanded to include additional shared space. No new classroom space is needed.
- The school has no dedicated space for music or science. It is recommended to convert general classrooms to these functions until dedicated spaces are added.
- Electrical Outlets and data ports should be added to several classrooms to meet current needs.
- Remove door handles from exterior classroom doors to prevent unauthorized access. Doors should be used for exiting purposes only.
- No ADA sinks are present in any classrooms. Convert existing sinks or install new ADA sinks in some classrooms to meet needs of students.
- No cafeteria space is present in the school. It is understood that students currently receive lunch in classrooms.

Educational Adequacy Review - Lake Oswego School District FCA

School Name: Hallinan Elementary School
Address: 16800 Hawthorne Dr. Lake Oswego 97034
Grade Levels: K-5

Typical Classroom

Typical Classroom Built-ins

	Evaluation Criteria	Yes/No	Existing Space Observations			Evaluation Rating (0-3)
	Capacity - Classroom					
Classrooms	Current Enrollment		435	Students		
Classrooms	Total Existing Gross Classroom Area:		18,420	SF	(21 Classrooms)	
Classrooms	Students per classroom		21	Students	(Enrollment / Number of Classrooms)	
Classrooms	Recommended Gross Classroom Area:		13,920	SF	*(at 32 SF / K-5 Student Min.)*	
Classrooms	Deviation:		+4,500	SF	(Existing Classroom Area - Recommended Classroom Area)	
Classrooms	Recommended Classroom Capacity		575	Students	(Existing Classroom Area / 32 SF per student)	
Classrooms	% of Recommended Classroom Area:		132%		(Existing Classroom Area / Recommended Classroom Area)	3
	Capacity - School					
School	Total Existing Gross Building Area		46,712	SF		
School	GSF / Student		107.38	GSF	(Total Building Area / Enrollment)	
School	Recommened Total Gross Area		54,375	SF	*(at 125 SF / K-5 Student Min.)*	
School	Deviation:		-7,663	SF	(Existing Total Area - Recommended Total Area)	
School	Recommended School Capacity		374	Students	(Existing School Area / 125 SF per K-5 Student)	
School	% of Recommended Total Gross Area:		86%		(Existing Total Area / Recommended Total Area)	1
	Support for Programs					
School	Music	Yes	1 large and 1 small room dedicated to music			3
School	Arts	Yes	Small dedicated art room			2
School	Sports	Yes	Indoor gym, covered play, playground, hard top play area, fields			3
School	Science	No	No dedicated space for science			0
School	Technology	Yes	Small computer room			1
	Technology					
Classrooms	Wi-Fi Access	Yes	52% or required access points need to be added			1
Classrooms	Classrooom Equipment	N/A	See Instructional Support			N/A
Classrooms	Science Lab Equipment	N/A				N/A
Classrooms	Network cabling	Yes	25% of network cabling needs to be replaced			2
Classrooms	Sound Field Amplify	No				0
Classrooms	Electrical Outlets	Yes	All classrooms have electrical outlets; a few could use more			2
Classrooms	Projection/Video Display	Yes	Most classrooms have a fixed projector and smart board			2

School Name: Hallinan Elementary School
Address: 16800 Hawthorne Dr. Lake Oswego 97034
Grade Levels: K-5

	Evaluation Criteria	Yes/No	Existing Space Observations	Evaluation Rating (0-3)
	Security & Supervision			
School	Building Layout		All classrooms are accessed via vestibules with low to zero visibility; no clear main corridor; lots of turns in circulation areas create low visibility; changes in level	0
School	Main Office		Main office is located adjacent to main entrance with interior and exterior visibility	3
School	Classroom Access		All classrooms have exterior doors; no handles	3
School	Technology		No technology observed	0
	Instructional Support			
Classrooms	Teacher Storage		Small area for teacher storage in classroom; additional storage adjacent	2
Classrooms	Student Storage	Yes	Classrooms have dedicated student storage away from desks	3
Classrooms	Writing/Tack Surfaces		Most classrooms have sufficient white board and tack boards	2
Classrooms	Sinks	Yes	All classrooms have a sink; no ADA	2
Classrooms	Demonstration Tables	N/A		N/A
	Physical Characteristics			
Class-rooms	Size		No consistent size, but all range from 820 - 930 SF	3
Class-rooms	Shape		Generally rectangular, but with a lot of articulations	2
Class-rooms	Ceiling Height		All ceilings are 10' min	3
	Learning Environment			
Classrooms	Daylight Access	Yes	All but 1 classroom have minimal daylight access	1
Classrooms	Odor-free	N/A		N/A
Classrooms	Controllable	Yes	Thermostats present in all classrooms; operation not tested	3
Classrooms	Quiet	N/A	*12 classrooms have accordion partition so noise is likely an issue*	N/A
	Adjacencies			
School	Library		Library is very centrally located to all	3
School	Cafeteria / Commons		Located well, but access to room is limited from interior. Separate entrance for events	2
School	Recreation		Same space as Commons	2
School	Restrooms		Restrooms are located centrally to core functions; not ADA	2

Total	56
Max Available Points	87
% of Max	64%

METHODOLOGY: The final score is determined by dividing the total awarded points by the maximum points available for the school. Maximum available points vary by school, as certain criteria were not assessed at all grade levels. The percentage provides a uniform scoring system that can be compared across all schools regardless of grade level or site-specific conditions.

Conclusions / Recommendations

- This school is over capacity based on overall school area. The school enrollment should be reduced or the building should be expanded to include additional shared space. No new classroom space is needed.
- The school has no dedicated space for science. It is recommended to convert a general classroom to support this function until a dedicated space is added.
- Electrical Outlets should be added to several classrooms to meet current needs.
- Most classrooms have smartboards, but not all. Install smartboards in all classrooms to meet needs.
- No ADA sinks are present in any classrooms. Convert existing sinks or install new ADA sinks in some classrooms to meet needs of students.
- Several classrooms have accordion partitions separating them. These classrooms should be re-evaluated when students are present to determine if noise is an issue in these spaces.
- Gym space is used for both recreation and cafeteria.

Educational Adequacy Review - Lake Oswego School District FCA

School Name: Lake Grove Elementary School
Address: 15777 Boones Ferry Rd., Lake Oswego 97035
Grade Levels: K-5

Typical Classroom - Teaching Wall

Typical Classroom- Window Wall

	Evaluation Criteria	Yes/No	Existing Space Observations			Evaluation Rating (0-3)
	Capacity - Classroom					
Classrooms	Current Enrollment		416	Students		
Classrooms	Total Existing Gross Classroom Area:		20,730	SF	(22 Classrooms)	
Classrooms	Students per classroom		19	Students	(Enrollment / Number of Classrooms)	
Classrooms	Recommended Gross Classroom Area:		13,312	SF	*(at 32 SF / K-5 Student Min.)*	
Classrooms	Deviation:		+7,418	SF	(Existing Classroom Area - Recommended Classroom Area)	
Classrooms	Recommended Classroom Capacity		648	Students	(Existing Classroom Area / 32 SF per student)	
Classrooms	% of Recommended Classroom Area:		156%		(Existing Classroom Area / Recommended Classroom Area)	3
	Capacity - School					
School	Total Existing Gross Building Area		61,652	SF		
School	GSF / Student		148.20	GSF	(Total Building Area / Enrollment)	
School	Recommened Total Gross Area		52,000	SF	*(at 125 SF / K-5 Student Min.)*	
School	Deviation:		9,652	SF	(Existing Total Area - Recommended Total Area)	
School	Recommended School Capacity		493	Students	(Existing School Area / 125 SF per K-5 Student)	
School	% of Recommended Total Gross Area:		119%		(Existing Total Area / Recommended Total Area)	3
	Support for Programs					
School	Music	Yes	Large classroom space used for music. Plenty of storage			2
School	Arts	No	No dedicated space observed for Art; appears to occur in classrooms			1
School	Sports	Yes	Indoor gym, covered play area, play ground, open field with softball field			3
School	Science	No	No dedicated space for science			0
School	Technology	Yes	Small classroom converted to computer lab			1
	Technology					
Classrooms	Wi-Fi Access	Yes	36% of required access points need to be added			2
Classrooms	Classrooom Equipment	N/A	See Instructional Support			N/A
Classrooms	Science Lab Equipment	N/A	N/A			N/A
Classrooms	Network cabling	Yes	Present in 74% of rooms; 65% needs to be replaced			1
Classrooms	Sound Field Amplify	No				0
Classrooms	Electrical Outlets	Yes	All classrooms have electrical outlets, though most could use more			1
Classrooms	Projection/Video Display	Yes	Smart boards and projectors in 52% of rooms, projectors only in 30% of rooms			2

School Name: Lake Grove Elementary School
Address: 15777 Boones Ferry Rd., Lake Oswego 97035
Grade Levels: K-5

	Evaluation Criteria	Yes/No	Existing Space Observations	Evaluation Rating (0-3)
	Security & Supervision			
School	Building Layout		Long corridor allows for clear views; 4 areas with limited visibility; long distance makes response time slow	2
School	Main Office		Office is located adjacent to main entry with interior and exterior visibility	3
School	Classroom Access		75% of classrooms have exterior doors; no handles	3
School	Technology		No technology observed	0
	Instructional Support			
Classrooms	Teacher Storage	Yes	All classrooms have large built-in storage areas with locks	3
Classrooms	Student Storage	Yes	95% of classrooms have dedicated space for student storage away from desks	3
Classrooms	Writing/Tack Surfaces	Yes	All classrooms have ample pin up boards and writing surfaces	3
Classrooms	Sinks	Yes	All classrooms have 1 sink; no ADA sinks in any classrooms	2
Classrooms	Demonstration Tables	N/A	N/A	N/A
	Physical Characteristics			
Class-rooms	Size		Most classrooms are 900-950 SF	3
Class-rooms	Shape		Most classrooms are rectangular; 1.25:1	3
Class-rooms	Ceiling Height		All ceilings are 10' min.	3
	Learning Environment			
Classrooms	Daylight Access		All classrooms have adequate access to daylight	3
Classrooms	Odor-free	N/A		N/A
Classrooms	Controllable		95% of classrooms have thermostats visible on walls; operation not tested	2
Classrooms	Quiet	N/A	*1 classroom had a loud window unit*	N/A
	Adjacencies			
School	Library		Library is located centrally to classrooms	3
School	Cafeteria / Commons		No cafeteria or commons in school	0
School	Recreation		Gym is located near main entry of building; separate entrance for events	3
School	Restrooms		Restrooms are fairly evenly distributed throughout school; ADA are not	2

Total	60
Max Available Points	87
% of Max	69%

METHODOLOGY: The final score is determined by dividing the total awarded points by the maximum points available for the school. Maximum available points vary by school, as certain criteria were not assessed at all grade levels. The percentage provides a uniform scoring system that can be compared across all schools regardless of grade level or site-specific conditions.

Conclusions / Recommendations

- This school is under capacity in both classroom and overall school space. Another 80 students could be accommodated.
- The school has no dedicated space for science. It is recommended to convert a general classroom to support this function until a dedicated space is added.
- Electrical Outlets and data ports should be added to several classrooms to meet current needs.
- No ADA sinks are present in any classrooms. Convert existing sinks or install new ADA sinks in some classrooms to meet needs of students.
- No cafeteria space is present in the school. It is understood that students currently receive lunch in classrooms.

Educational Adequacy Review - Lake Oswego School District FCA

School Name: Oak Creek Elementary School
Address: 55 Kingsgate Rd., Lake Oswego 97035
Grade Levels: K-5

Typical Classroom - Teaching Wall

Typical Classroom - Window Wall

	Evaluation Criteria	Yes/No	Existing Space Observations			Evaluation Rating (0-3)
	Capacity - Classroom					
Classrooms	Current Enrollment		539	Students		
Classrooms	Total Existing Gross Classroom Area:		20,250	SF	(22 Classrooms)	
Classrooms	Students per classroom		24	Students	(Enrollment / Number of Classrooms)	
Classrooms	Recommended Gross Classroom Area:		17,248	SF	*(at 32 SF / K-5 Student Min.)*	
Classrooms	Deviation:		+3,002	SF	(Existing Classroom Area - Recommended Classroom Area)	
Classrooms	Recommended Classroom Capacity		633	Students	(Existing Classroom Area / 32 SF per student)	
Classrooms	% of Recommended Classroom Area:		117%		(Existing Classroom Area / Recommended Classroom Area)	3
	Capacity - School					
School	Total Existing Gross Building Area		68,040	SF		
School	GSF / Student		126.23	GSF	(Total Building Area / Enrollment)	
School	Recommened Total Gross Area		67,375	SF	*(at 125 SF / K-5 Student Min.)*	
School	Deviation:		665	SF	(Existing Total Area - Recommended Total Area)	
School	Recommended School Capacity		544	Students	(Existing School Area / 125 SF per K-5 Student)	
School	% of Recommended Total Gross Area:		101%		(Existing Total Area / Recommended Total Area)	3
	Support for Programs					
School	Music	Yes	Dedicated music room			2
School	Arts	Yes	Dedicated art room			3
School	Sports	Yes	Indoor gym, covered play area, play ground, open field			3
School	Science	No	No dedicated science space			0
School	Technology	Yes	Large dedicated computer lab			3
	Technology					
Classrooms	Wi-Fi Access	Yes	56% of required access points need to be added			1
Classrooms	Classrooom Equipment	N/A	See Instructional Support			N/A
Classrooms	Science Lab Equipment	N/A				N/A
Classrooms	Network cabling	Yes	All rooms except band room have network cabling, none needs to be replaced			2
Classrooms	Sound Field Amplify	Yes	Only 4 classrooms have sound field amplification systems			1
Classrooms	Electrical Outlets	Yes	All rooms have adequate electrical outlets			3
Classrooms	Projection/Video Display	Yes	All rooms have smart boards and built-in projectors			2

School Name: Oak Creek Elementary School
Address: 55 Kingsgate Rd., Lake Oswego 97035
Grade Levels: K-5

	Evaluation Criteria	Yes/No	Existing Space Observations	Evaluation Rating (0-3)
	Security & Supervision			
School	Building Layout		Straight corridor allows for easy visibility; classroom doors are clustered and create pockets that are not visible from main corridor	2
School	Main Office		Office is located adjacent to main entry with interior and exterior visibility	3
School	Classroom Access		55% of classrooms have exterior doors; no handles	3
School	Technology		No technology observed	0
	Instructional Support			
Classrooms	Teacher Storage	Yes	Most classrooms have adequate storage in the room	2
Classrooms	Student Storage	Yes	Most classrooms have dedicated student storage away from desks	2
Classrooms	Writing/Tack Surfaces	Yes	All classrooms have adequate white boards and tack boards	3
Classrooms	Sinks	Yes	All classrooms have a sink; not fully ADA	2
Classrooms	Demonstration Tables	N/A		N/A
	Physical Characteristics			
Class-rooms	Size		Classrooms are between 880-920 SF	3
Class-rooms	Shape		Classrooms are rectangular (~1.4:1)	3
Class-rooms	Ceiling Height		All ceilings are 10' min.	3
	Learning Environment			
Classrooms	Daylight Access		All classrooms have adequate daylight access	3
Classrooms	Odor-free	N/A		N/A
Classrooms	Controllable		Thermostats present in all classrooms; operation not tested	3
Classrooms	Quiet	N/A		N/A
	Adjacencies			
School	Library		Library is centrally located to all classrooms; visible from both levels	3
School	Cafeteria / Commons		See Recreation	3
School	Recreation		Gym is located at end of main corridor; clear line of access	3
School	Restrooms		Restrooms are districubted and centrally located to all main functions expet gym	2

Total	69
Max Available Points	87
% of Max	79%

METHODOLOGY: The final score is determined by dividing the total awarded points by the maximum points available for the school. Maximum available points vary by school, as certain criteria were not assessed at all grade levels. The percentage provides a uniform scoring system that can be compared across all schools regardless of grade level or site-specific conditions.

Conclusions / Recommendations

- This school is close to capacity in overall school space. No additional classroom space is needed.
- The school has no dedicated space for science. It is recommended to convert a general classroom to support this function until a dedicated space is added.
- Data ports should be added to several classrooms to meet current needs.
- No ADA sinks are present in any classrooms. Convert existing sinks or install new ADA sinks in some classrooms to meet needs of students.
- Gym space is used for both recreation and cafeteria.

Educational Adequacy Review - Lake Oswego School District FCA

School Name: River Grove Elementary School
Address: 5850 McEwan Rd., Lake Oswego 97035
Grade Levels: K-5

Typical Classroom- Main Building

Typical Classroom- Pod

	Evaluation Criteria	Yes/No	Existing Space Observations			Evaluation Rating (0-3)
	Capacity - Classroom					
Classrooms	Current Enrollment		500	Students		
Classrooms	Total Existing Gross Classroom Area:		22,780	SF	(21 Classrooms)	
Classrooms	Students per classroom		24	Students	(Enrollment / Number of Classrooms)	
Classrooms	Recommended Gross Classroom Area:		16,000	SF	*(at 32 SF / K-5 Student Min.)*	
Classrooms	Deviation:		+6,780	SF	(Existing Classroom Area - Recommended Classroom Area)	
Classrooms	Recommended Classroom Capacity		712	Students	(Existing Classroom Area / 32 SF per student)	
Classrooms	% of Recommended Classroom Area:		142%		(Existing Classroom Area / Recommended Classroom Area)	3
	Capacity - School					
School	Total Existing Gross Building Area		50,484	SF	(42,510 SF Main Building + 7,974 SF Portlables)	
School	GSF / Student		100.97	GSF	(Total Building Area / Enrollment)	
School	Recommened Total Gross Area		62,500	SF	*(at 125 SF / K-5 Student Min.)*	
School	Deviation:		-12,016	SF	(Existing Total Area - Recommended Total Area)	
School	Recommended School Capacity		404	Students	(Existing School Area / 125 SF per K-5 Student)	
School	% of Recommended Total Gross Area:		81%		(Existing Total Area / Recommended Total Area)	1
	Support for Programs					
School	Music	No	No dedicated music room present			0
School	Arts	No	No dedicated art space observed; appears to occur in classrooms			1
School	Sports	Yes	Indoor gym, large covered play area, playground and fields			3
School	Science	No	No dedicated science room			0
School	Technology	Yes	Small computer lab			1
	Technology					
Classrooms	Wi-Fi Access	Yes	55% of required access points need to be added			1
Classrooms	Classrooom Equipment	N/A	See Instructional Support			N/A
Classrooms	Science Lab Equipment	N/A				N/A
Classrooms	Network cabling	Yes	Additional cabling required; none of existing needs to be replaced			2
Classrooms	Sound Field Amplify	No				0
Classrooms	Electrical Outlets	Yes	All classrooms have outlets, some could use more			2
Classrooms	Projection/Video Display	Yes	Most classrooms have fixed projectors and smart boards			2

School Name: River Grove Elementary School
Address: 5850 McEwan Rd., Lake Oswego 97035
Grade Levels: K-5

	Evaluation Criteria	Yes/No	Existing Space Observations	Evaluation Rating (0-3)
	Security & Supervision			
School	Building Layout		Separate structures make it difficult to monitor activity; covered walkways provide protection but reduce visibility	1
School	Main Office		Office is located at main entry of main building; no control of pods or portables	1
School	Classroom Access		Most classrooms are primarily accessed from the exterior	1
School	Technology		No Technology observed	0
	Instructional Support			
Classrooms	Teacher Storage	Yes	Small areas for storage in room, additional storage adjacent to room	2
Classrooms	Student Storage	Yes	All classrooms have dedicated student storage away from desks	3
Classrooms	Writing/Tack Surfaces	Yes	All classrooms have adequate white boards and tack boards	3
Classrooms	Sinks	Yes	All classrooms have a sink; no ADA	2
Classrooms	Demonstration Tables	N/A		N/A
	Physical Characteristics			
Class-rooms	Size		Most classrooms are ~950 SF; a few smaller and a few larger	3
Class-rooms	Shape		12 classrooms are trapezoidal, the rest mostly square	1
Class-rooms	Ceiling Height		Ceilings are 10' min in all classrooms	3
	Learning Environment			
Classrooms	Daylight Access	Yes	All classrooms have windows; light distribution is uneven in most	1
Classrooms	Odor-free	N/A		N/A
Classrooms	Controllable	Yes	Thermostats present in all classrooms; operation not tested	3
Classrooms	Quiet	N/A		N/A
	Adjacencies			
School	Library		Library is centrally located in main building, but dislocated from pods and portables	1
School	Cafeteria / Commons		See Recreation	1
School	Recreation		Gym is centrally located in main building, but dislocated from pods and portables	1
School	Restrooms		Restrooms are distributed and centrally located to all functions; individual restrooms in portable classrooms	3

Total	46
Max Available Points	87
% of Max	53%

METHODOLOGY: The final score is determined by dividing the total awarded points by the maximum points available for the school. Maximum available points vary by school, as certain criteria were not assessed at all grade levels. The percentage provides a uniform scoring system that can be compared across all schools regardless of grade level or site-specific conditions.

Conclusions / Recommendations

- This school is over capacity in overall school space. The school enrollment should be reduced or the building should be expanded to include additional shared space. No additional classroom space is needed to accommodate current enrollment.
- The school has no dedicated space for science or music. It is recommended to convert general classrooms to support these functions until dedicated space is added.
- Electrical Outlets should be added to several classrooms to meet current needs.
- Building layout is difficult to monitor due several detached buildings. Design options to resolve this issues should be investigated.
- No ADA sinks are present in any classrooms. Convert existing sinks or install new ADA sinks in some classrooms to meet needs of students.
- Most classrooms are oddly shaped (trapezoidal). It is unknown if this causes issues with teaching methods. If so, design options to resolve this issue should be investigated
- Gym space is used for both recreation and cafeteria.

Educational Adequacy Review - Lake Oswego School District FCA

School Name: Westridge Elementary School
Address: 3400 Royce Way, Lake Oswego 97034
Grade Levels: K-5

Typical Classroom

	Evaluation Criteria	Yes/No	Existing Space Observations			Evaluation Rating (0-3)
	Capacity - Classroom					
Classrooms	Current Enrollment		481	Students		
Classrooms	Total Existing Gross Classroom Area:		18,420	SF	(21 Classrooms)	
Classrooms	Students per classroom		23	Students	(Enrollment / Number of Classrooms)	
Classrooms	Recommended Gross Classroom Area:		15,392	SF	*(at 32 SF / K-5 Student Min.)*	
Classrooms	Deviation:		+3,028	SF	(Existing Classroom Area - Recommended Classroom Area)	
Classrooms	Recommended Classroom Capacity		576	Students	(Existing Classroom Area / 32 SF per student)	
Classrooms	% of Recommended Classroom Area:		120%		(Existing Classroom Area / Recommended Classroom Area)	3
	Capacity - School					
School	Total Existing Gross Building Area		46,712	SF		
School	GSF / Student		97.11	GSF	(Total Building Area / Enrollment)	
School	Recommened Total Gross Area		60,125	SF	*(at 125 SF / K-5 Student Min.)*	
School	Deviation:		-13,413	SF	(Existing Total Area - Recommended Total Area)	
School	Recommended School Capacity		374	Students	(Existing School Area / 125 SF per K-5 Student)	
School	% of Recommended Total Gross Area:		78%		(Existing Total Area / Recommended Total Area)	0
	Support for Programs					
School	Music	Yes	1 large and 1 small room dedicated to music			3
School	Arts	Yes	Small dedicated art room			2
School	Sports	Yes	Indoor gym, covered play, playground, hard top play area, fields			3
School	Science	No	No dedicated space for science			0
School	Technology	Yes	Small computer room			1
	Technology					
Classrooms	Wi-Fi Access	Yes	56% of required access points need to be added			1
Classrooms	Classrooom Equipment	N/A	See Instructional Support			N/A
Classrooms	Science Lab Equipment	N/A	No labs in school			N/A
Classrooms	Network cabling	Yes	25% of cabling needs to be replaced			2
Classrooms	Sound Field Amplify	No				0
Classrooms	Electrical Outlets	Yes	All classrooms have electrical outlets; a few could use more			2
Classrooms	Projection/Video Display	Yes	Most classrooms have a fixed projector and smart board			2

School Name: Westridge Elementary School
Address: 3400 Royce Way, Lake Oswego 97034
Grade Levels: K-5

	Evaluation Criteria	Yes/No	Existing Space Observations	Evaluation Rating (0-3)
	Security & Supervision			
School	Building Layout		All classrooms are accessed via vestibules with low to zero visibility; no clear main corridor; lots of turns in circulation areas create low visibility; changes in level	0
School	Main Office		Main office is located adjacent to main entrance with interior and exterior visibility	3
School	Classroom Access		All classrooms have exterior doors; no handles	3
School	Technology		No technology observed	0
	Instructional Support			
Classrooms	Teacher Storage	Yes	Small area for teacher storage in classroom; additional storage adjacent	2
Classrooms	Student Storage	Yes	Classrooms have dedicated student storage away from desks	3
Classrooms	Writing/Tack Surfaces	yes	Most classrooms have sufficient white board and tack boards	2
Classrooms	Sinks	Yes	All classrooms have a sink; no ADA	2
Classrooms	Demonstration Tables	N/A	No Labs in school	N/A
	Physical Characteristics			
Class-rooms	Size		No consistent size, but all range from 820 - 930 SF	3
Class-rooms	Shape		Generally rectangular, but with a lot of articulations	2
Class-rooms	Ceiling Height		All classrooms are 10' min	3
	Learning Environment			
Classrooms	Daylight Access	Yes	All but 1 classroom have minimal daylight access	1
Classrooms	Odor-free	N/A		N/A
Classrooms	Controllable	Yes	Thermostats present in all classrooms; operation not tested	3
Classrooms	Quiet	N/A	*12 classrooms have accordion partition so noise is likely an issue*	N/A
	Adjacencies			
School	Library		Library is very centrally located to all	3
School	Cafeteria / Commons		Located well, but access to room is limited from interior. Separate entrance for events	2
School	Recreation		Same space as Commons	2
School	Restrooms		Restrooms are located centrally to core functions; not ADA	2

Total	55
Max Available Points	87
% of Max	63%

METHODOLOGY: The final score is determined by dividing the total awarded points by the maximum points available for the school. Maximum available points vary by school, as certain criteria were not assessed at all grade levels. The percentage provides a uniform scoring system that can be compared across all schools regardless of grade level or site-specific conditions.

Conclusions / Recommendations

- This school is over capacity based on overall school area. The school enrollment should be reduced or the building should be expanded to include additional shared space. No new classroom space is needed.
- The school has no dedicated space for science. It is recommended to convert a general classroom to support this function until a dedicated space is added.
- Electrical Outlets should be added to several classrooms to meet current needs.
- Most classrooms have smartboards, but not all. Install smartboards in all classrooms to meet needs.
- No ADA sinks are present in any classrooms. Convert existing sinks or install new ADA sinks in some classrooms to meet needs of students.
- Several classrooms have accordion partitions separating them. These classrooms should be re-evaluated when students are present to determine if noise is an issue in these spaces.
- Gym space is used for both recreation and cafeteria.

Educational Adequacy Review - Lake Oswego School District FCA

School Name: Lake Oswego Junior High School
Address: 2500 Country Club Rd., Lake Oswego 97034
Grade Levels: 6-8

Typical Classroom - Teaching Wall

Typical Classroom- Window Wall

	Evaluation Criteria	Yes/No	Existing Space Observations			Evaluation Rating (0-3)
	Capacity - Classroom					
Classrooms	Current Enrollment		920	Students		
Classrooms	Total Existing Gross Classroom Area:		34,648	SF	(29 General Classrooms + 4 Labs)	
Classrooms	Students per classroom		28	Students	(Enrollment / Number of Classrooms)	
Classrooms	Recommended Gross Classroom Area:		29,440	SF	*(at 32 SF / 6-8 Student Min.)*	
Classrooms	Deviation:		+5,208	SF	(Existing Classroom Area - Recommended Classroom Area)	
Classrooms	Recommended Classroom Capacity		1,083	Students	(Existing Classroom Area / 32 SF per student)	
Classrooms	% of Recommended Classroom Area:		118%		(Existing Classroom Area / Recommended Classroom Area)	3
	Capacity - School					
School	Total Existing Gross Building Area		106,093	SF		
School	GSF / Student		115.32	GSF	(Total Building Area / Enrollment)	
School	Recommened Total Gross Area		134,320	SF	*(at 146SF / 6-8 Student Min.)*	
School	Deviation:		-28,227	SF	(Existing Total Area - Recommended Total Area)	
School	Recommended School Capacity		726	Students	(Existing School Area / 146 SF per K-5 Student)	
School	% of Recommended Total Gross Area:		79%		(Existing Total Area / Recommended Total Area)	0
	Support for Programs					
School	Music	Yes	Dedicated room for music; minimal acoustics, small space			2
School	Arts	Yes	1 small dedicated art room			2
School	Sports	Yes	Indoor gym, asphalt play area, open field with softball and baseball fields			3
School	Science	Yes	2 science rooms with built-in casework and adjacent storage room 2 classrooms have been upgraded to be more suited for science			3
School	Technology	Yes	Small computer lab and Large classroom converted to computer lab			2
	Technology					
Classrooms	Wi-Fi Access	Yes	47% of required access points need to be added			2
Classrooms	Classrooom Equipment	N/A	See Instructional Support			N/A
Classrooms	Science Lab Equipment	No	No special equipment in science lab areas			0
Classrooms	Network cabling	Yes	85% of cabling needs to be replaced			1
Classrooms	Sound Field Amplify	No				0
Classrooms	Electrical Outlets	Yes	All classrooms have electrical outlets, though a few could use more			2
Classrooms	Projection/Video Display	Yes	Smart boards with fixed projectors in all rooms			2

School Name: Lake Oswego Junior High School
Address: 2500 Country Club Rd., Lake Oswego 97034
Grade Levels: 6-8

	Evaluation Criteria	Yes/No	Existing Space Observations	Evaluation Rating (0-3)
	Security & Supervision			
School	Building Layout		4 long, straight corridors. Minimal blind spots, long expanses long response times	2
School	Main Office		Office is near main entry with minimal interior or exterior visual connection	1
School	Classroom Access		All classrooms are accessed from interior corridors	3
School	Technology		Exterior access points have card readers	3
	Instructional Support			
Classrooms	Teacher Storage	Yes	Most classrooms have large built-in storage areas with locks	2
Classrooms	Student Storage	N/A	N/A	N/A
Classrooms	Writing/Tack Surfaces	Yes	Most classrooms have ample pin up boards and writing surfaces	2
Classrooms	Sinks	Yes	87% of general classrooms have 1 sink; no ADA sinks in any classrooms	2
Classrooms	Demonstration Tables	Yes	Demonstration tables present in science classrooms	3
	Physical Characteristics			
Class-rooms	Size		Most classrooms are around 950 SF; Specialty classrooms are larger	3
Class-rooms	Shape		Most are square; 1:1	1
Class-rooms	Ceiling Height		Ceiling heights are 10' min	3
	Learning Environment			
Classrooms	Daylight Access		All classrooms have adequate access to daylight	3
Classrooms	Odor-free	N/A		N/A
Classrooms	Controllable		75% of classrooms have thermostats visible on walls; operation not tested	2
Classrooms	Quiet	N/A	*1 classroom had a loud window unit*	N/A
	Adjacencies			
School	Library	Yes	Library is not centrally located in building, but is close to most classrooms	2
School	Cafeteria / Commons	Yes	Cafetorium is located at the front entrance of the building	2
School	Recreation	No	Gymnasium is located at far end of school; adjacent to fields	2
School	Restrooms	No	West wing of building and cafetorium do not have easy access to restrooms	2

Total	60
Max Available Points	90
% of Max	67%

METHODOLOGY: The final score is determined by dividing the total awarded points by the maximum points available for the school. Maximum available points vary by school, as certain criteria were not assessed at all grade levels. The percentage provides a uniform scoring system that can be compared across all schools regardless of grade level or site-specific conditions.

Conclusions / Recommendations

- This school is under capacity in overall school area. The school enrollment should be reduced or the building should be expanded to include additional shared space. No additional classroom space is needed to support current enrollment.
- School has dedicated science labs, but no specialized equipment. Equipment should be added to support District teaching goals.
- No ADA sinks are present in any classrooms. Convert existing sinks or install new ADA sinks in some classrooms to meet needs of students.
- No bleachers in gymnasium.

Educational Adequacy Review - Lake Oswego School District FCA

School Name: Lakeridge Junior High School
Address: 4700 Jean Rd., Lake Oswego 97035
Grade Levels: 6-8

Typical Classroom

Typical Classroom Built-ins

	Evaluation Criteria	Yes/No	Existing Space Observations			Evaluation Rating (0-3)
	Capacity - Classroom					
Classrooms	Current Enrollment		789	Students		
Classrooms	Total Existing Gross Classroom Area:		32,150	SF	(28 General Classrooms + 5 Labs)	
Classrooms	Students per classroom		24	Students	(Enrollment / Number of Classrooms)	
Classrooms	Recommended Gross Classroom Area:		25,248	SF	*(at 32 SF / 6-8 Student)*	
Classrooms	Deviation:		+6,902	SF	(Existing Classroom Area - Recommended Classroom Area)	
Classrooms	Recommended Classroom Capacity		1,005	Students	(Existing Classroom Area / 32 SF per student)	
Classrooms	% of Recommended Classroom Area:		127%		(Existing Classroom Area / Recommended Classroom Area)	3
	Capacity - School					
School	Total Existing Gross Building Area		122,610	SF	(83,930 Main Building + 38,680 Bryant Building)	
School	GSF / Student		155.40	GSF	(Total Building Area / Enrollment)	
School	Recommened Total Gross Area		115,194	SF	*(at 146 SF / 6-8 Student)*	
School	Deviation:		+7,416	SF	(Existing Total Area - Recommended Total Area)	
School	Recommended School Capacity		840	Students	(Existing School Area / 146 SF per K-5 Student)	
School	% of Recommended Total Gross Area:		106%		(Existing Total Area / Recommended Total Area)	3
	Support for Programs					
School	Music	Yes	2 Designated music rooms			3
School	Arts	Yes	Small dedicated art space			2
School	Sports	Yes	1 main Gymnasiums, baseball/softball fields, soccer field, etc			2
School	Science	Yes	5 dedicated science classrooms in the main building			3
School	Technology	Yes	3 computer labs			3
	Technology					
Classrooms	Wi-Fi Access	Yes	54% of required access points need to be added			1
Classrooms	Classrooom Equipment	N/A	See Instructional Support			N/A
Classrooms	Science Lab Equipment	Yes	Specialty equipment present in labs; aging condition			2
Classrooms	Network cabling	Yes	Several rooms need cabling added; 62% of cabling needs to be replaced			1
Classrooms	Sound Field Amplify	No				0
Classrooms	Electrical Outlets	Yes	All classrooms have outlets, several could use more			2
Classrooms	Projection/Video Display		Smart boards with built-in projectors in most classrooms			2

School Name: Lakeridge Junior High School
Address: 4700 Jean Rd., Lake Oswego 97035
Grade Levels: 6-8

	Evaluation Criteria	Yes/No	Existing Space Observations	Evaluation Rating (0-3)
	Security & Supervision			
School	Building Layout		Separate structures and external classrooms make it difficult to monitor activity	1
School	Main Office		Office is located adjacent to main entry of main building, but far from connection to Bryant school; no visual control of Bryant buildings	1
School	Classroom Access		Several classrooms and groups of classrooms are only accessible from the exterior creating	1
School	Technology		Card readers at some exterior doors, but not all	1
	Instructional Support			
Classrooms	Teacher Storage	Yes	Storage space in most classrooms is very minimal	1
Classrooms	Student Storage	N/A	N/A	N/A
Classrooms	Writing/Tack Surfaces	Yes	Most classrooms have adequate writing surface	2
Classrooms	Sinks	Yes	All classrooms have 1 sink (more in labs); no ADA sinks in any rooms	2
Classrooms	Demonstration Tables	Yes	Demonstration tables present is science classrooms	3
	Physical Characteristics			
Class-rooms	Size		over half of the classrooms are 930 SF but oddly shaped; approximately 1/4 are ~780	2
Class-rooms	Shape		16 of the classrooms are trapezoidal; the rest are primarily square	1
Class-rooms	Ceiling Height		Ceiling heights are 10' min	3
	Learning Environment			
Classrooms	Daylight Access	Yes	All classrooms have access to daylight, but is minimal in 50% of rooms	2
Classrooms	Odor-free	N/A		N/A
Classrooms	Controllable	Yes	All classrooms have thermostats visible on walls; operation not tested	3
Classrooms	Quiet	N/A		N/A
	Adjacencies			
School	Library	No	This school consits of 2 separate facilities, and a total of 5 separate buildings. Common facilites are primarily in one building and are not central to the complete function of the school.	1
School	Cafeteria / Commons			1
School	Recreation			1
School	Restrooms	Yes	Restrooms are fairly evenly distributed throughout the buildings; ADA are not	2

Total	55
Max Available Points	90
% of Max	61%

METHODOLOGY: The final score is determined by dividing the total awarded points by the maximum points available for the school. Maximum available points vary by school, as certain criteria were not assessed at all grade levels. The percentage provides a uniform scoring system that can be compared across all schools regardless of grade level or site-specific conditions.

Conclusions / Recommendations

- This school is close to capacity in overall school area. No additional classroom space is needed to support current enrollment.
- No audio systems were observed in classrooms. Audio should be added to all classrooms.
- No ADA sinks are present in any classrooms. Convert existing sinks or install new ADA sinks in some classrooms to meet needs of students.
- Building layout is difficult to monitor due several detached buildings. Design options to resolve this issues should be investigated.
- Several classrooms are oddly shaped (trapezoidal). It is unknown if this causes issues with teaching methods. If so, design options to resolve this issue should be investigated.
- No bleachers in gymnasium.

Educational Adequacy Review - Lake Oswego School District FCA

School Name: Lake Oswego High School
Address: 2501 Country Club Rd., Lake Oswego 97034
Grade Levels: 9-12

Typical Classroom

Typical Science Lab

	Evaluation Criteria	Yes/No	Existing Space Observations			Evaluation Rating (0-3)
	Capacity - Classroom					
Classrooms	Current Enrollment		1,340	Students		
Classrooms	Total Existing Gross Classroom Area:		46,227	SF	(39 General Classrooms + 8 Science Labs)	
Classrooms	Students per classroom		29	Students	(Enrollment / Number of Classrooms)	
Classrooms	Recommended Gross Classroom Area:		42,880	SF	*(at 32 SF / 9-12 Student Min.)*	
Classrooms	Deviation:		+3,347	SF	(Existing Classroom Area - Recommended Classroom Area)	
Classrooms	Recommended Classroom Capacity		1,445	Students	(Existing Classroom Area / 32 SF per student)	
Classrooms	% of Recommended Classroom Area:		108%		(Existing Classroom Area / Recommended Classroom Area)	3
	Capacity - School					
School	Total Existing Gross Building Area		259,682	SF	(193,130 Main building, 66,552 Gym Building)	
School	GSF / Student		193.79	GSF	(Total Building Area / Enrollment)	
School	Recommened Total Gross Area		218,420	SF	*(at 163 SF / 9-12 Student Min.)*	
School	Deviation:		+41,262	SF	(Existing Total Area - Recommended Total Area)	
School	Recommended School Capacity		1,593	Students	(Existing School Area / 163 SF per K-5 Student)	
School	% of Recommended Total Gross Area:		119%		(Existing Total Area / Recommended Total Area)	3
	Support for Programs					
School	Music	Yes	Large music and choir rooms with storage and practice rooms			3
School	Arts	Yes	2 Large art rooms with adjacent support spaces			3
School	Sports	Yes	Separate recreation building with 2 gyms, dance, weight, wrestling, football field			3
School	Science	Yes	Entire wing of building dedicated to science (8 labs)			3
School	Technology	Yes	All classrooms are equipped with technology; computer lab in each classroom wing			3
	Technology					
Classrooms	Wi-Fi Access	Yes	68% of required access points need to be added			1
Classrooms	Classrooom Equipment	N/A	See Instructional Support			N/A
Classrooms	Science Lab Equipment	Yes	Science Labs are very well equipped with workstations and specialty equipment			3
Classrooms	Network cabling	Yes	Several rooms need additional cabling; no cabling needs to be replaced			2
Classrooms	Sound Field Amplify	No				0
Classrooms	Electrical Outlets	Yes	All classrooms have adequate outlets			3
Classrooms	Projection/Video Display	Yes	All classrooms have smart boards with fixed projectors			2

School Name: Lake Oswego High School
Address: 2501 Country Club Rd., Lake Oswego 97034
Grade Levels: 9-12

	Evaluation Criteria	Yes/No	Existing Space Observations	Evaluation Rating (0-3)
	Security & Supervision			
School	Building Layout		Building consists of 2 classroom wings and 1 arts wing. Visibility between and within wings is generally good	2
School	Main Office		Office is located adjacent to main entry and has high interior and exterior visibility	3
School	Classroom Access		All classrooms are accessed from interior corridors	3
School	Technology		Exterior access points have card readers, some security cameras on exterior	3
	Instructional Support			
Classrooms	Teacher Storage	Yes	General classrooms have small storage cupboard; Science labs and specialty rooms have extensive storage and attached storage rooms	2
Classrooms	Student Storage	N/A	N/A	N/A
Classrooms	Writing/Tack Surfaces	Yes	All classrooms have mutlipe white boards and tack boards	3
Classrooms	Sinks	Yes	All science labs have multiple sinks (including ADA); none in general classrooms	3
Classrooms	Demonstration Tables	Yes	Demonstration tables present in all science labs	3
	Physical Characteristics			
Class-rooms	Size		General classrooms are mostly 800-830 SF; specialty classrooms and labs are larger	1
Class-rooms	Shape		General classrooms are square; 1:1. Labs are rectangular; 1.4:1	1
Class-rooms	Ceiling Height		Ceilings are 10' minimum in all rooms	3
	Learning Environment			
Classrooms	Daylight Access	Yes	All classrooms excpet computer labs have adequate access to natural daylight	3
Classrooms	Odor-free	N/A		N/A
Classrooms	Controllable	Yes	All classrooms have thermostats visible on walls; operation not tested	3
Classrooms	Quiet	N/A	*Mechanical system in computer labs noisy*	N/A
	Adjacencies			
School	Library		Library is located centrally to all classrooms	3
School	Cafeteria / Commons		Cafeteria is located at end of building, but easily accessible	3
School	Recreation		All recreation is housed in a separate building. Access from main building is easy	3
School	Restrooms		Restrooms (including ADA) are centrally located to all functions except commons	2

Total	76
Max Available Points	90
% of Max	84%

METHODOLOGY: The final score is determined by dividing the total awarded points by the maximum points available for the school. Maximum available points vary by school, as certain criteria were not assessed at all grade levels. The percentage provides a uniform scoring system that can be compared across all schools regardless of grade level or site-specific conditions.

Conclusions / Recommendations

- This school is under capacity in both classroom and overall school space. An additional 97 students could be accommodated in the existing classroom space.
- Most classrooms are smaller than the District-preferred minimum size. It is unknown if there are fewer students in each classroom to counter-act the smaller size. If classrooms are used for 29 students (District-preferred number of students/class), the classrooms are too small. Re-configuring classrooms to create larger spaces should be investigated as an option if classrooms are over-crowded.

Educational Adequacy Review - Lake Oswego School District FCA

School Name: Lakeridge High School
Address: 1235 Overlook Dr., Lake Oswego 97034
Grade Levels: 9-12

Typical Classroom

Typical Science Lab

	Evaluation Criteria	Yes/No	Existing Space Observations			Evaluation **Rating (0-3)**
	Capacity - Classroom					
Classrooms	Current Enrollment		1,151	Students		
Classrooms	Total Existing Gross Classroom Area:		43,760	SF	(40 General Classrooms and 8 Science Labs)	
Classrooms	Students per classroom		24	Students	(Enrollment / Number of Classrooms)	
Classrooms	Recommended Gross Classroom Area:		36,832	SF	*(at 32 SF / 9-12 Student Min.)*	
Classrooms	Deviation:		+6,928	SF	(Existing Classroom Area - Recommended Classroom Area)	
Classrooms	Recommended Classroom Capacity		1,368	Students	(Existing Classroom Area / 32 SF per student)	
Classrooms	% of Recommended Classroom Area:		119%		(Existing Classroom Area / Recommended Classroom Area)	3
	Capacity - School					
School	Total Existing Gross Building Area		278,300	SF	(186,230 SF Main Building + 92,080 SF Gym Building)	
School	GSF / Student		241.79	GSF	(Total Building Area / Enrollment)	
School	Recommended Total Gross Area		187,613	SF	*(at 163 SF / 9-12 Student Min.)*	
School	Deviation:		+90,687	SF	(Existing Total Area - Recommended Total Area)	
School	Recommended School Capacity		1,707	Students	(Existing School Area / 163 SF per K-5 Student)	
School	% of Recommended Total Gross Area:		148%		(Existing Total Area / Recommended Total Area)	3
	Support for Programs					
School	Music	Yes	Large Music and Choir rooms with attached practice and storage rooms			3
School	Arts	Yes	2 large art rooms with support space			3
School	Sports	Yes	Separate recreation building with 2 gyms, dance, weight, wrestling, football field			3
School	Science	Yes	Whole wing dedicated to science labs			3
School	Technology	Yes	3 newer computer labs ; technology within classrooms is sufficient			3
	Technology					
Classrooms	Wi-Fi Access	Yes	57% of required access points need to be added			1
Classrooms	Classroom Equipment	N/A	See Instructional Support			N/A
Classrooms	Science Lab Equipment	Yes	Science Labs have specialized equipment, but most of it is old			2
Classrooms	Network cabling	Yes	Several classrooms needs additional cabling; no cabling needs to be replaced			2
Classrooms	Sound Field Amplify	No				0
Classrooms	Electrical Outlets	Yes	All classrooms have electrical outlets; a few could use more			2
Classrooms	Projection/Video Display		Most classrooms have built-in projectors and smart boards			2

School Name: Lakeridge High School
Address: 1235 Overlook Dr., Lake Oswego 97034
Grade Levels: 9-12

	Evaluation Criteria	Yes/No	Existing Space Observations	Evaluation **Rating (0-3)**
	Security & Supervision			
School	Building Layout		Circular mass in middle of building makes visual security difficult; several short, angled corridors in arts wing; visibility within classroom wings is generally low	0
School	Main Office		Office is adjacent to main entry with strong exterior and interior visual connection	3
School	Classroom Access		Most classrooms are accessed from the interior; no exterior handles	3
School	Technology		Exterior access points have card readers	3
	Instructional Support			
Classrooms	Teacher Storage	Yes	Very minimal teacher storage in classrooms; shared storage in department offices	1
Classrooms	Student Storage	N/A	N/A	N/A
Classrooms	Writing/Tack Surfaces	Yes	Most classrooms have white boards/tack boards; a few need more	2
Classrooms	Sinks	Yes	Sinks present in science lab and art rooms; no ADA sinks	2
Classrooms	Demonstration Tables	Yes	Demonstration tables present in lab classrooms	3
	Physical Characteristics			
Class-rooms	Size		Most classrooms are 800-830 SF, with several larger and a few smaller	1
Class-rooms	Shape		9 classrooms and 3 labs are curved and have very awkward layouts Most classrooms are square or rectangular	1
Class-rooms	Ceiling Height		Ceiling heights in all classrooms are 10' minimum	3
	Learning Environment			
Classrooms	Daylight Access	Yes	Most classrooms have some daylight, but many have glare; 16 have no daylight	1
Classrooms	Odor-free	N/A		N/A
Classrooms	Controllable	Yes	All classrooms have thermostats visible on walls; operation not tested	3
Classrooms	Quiet	N/A	HVAC system is very noisy in most classrooms	N/A
	Adjacencies			
School	Library		Library is centrally located, but entrance is not clearly identifiable	2
School	Cafeteria / Commons		Cafeteria is centrally located but access to them is confusing	2
School	Recreation		Recreation facilities are in a separate building; access from main building is limited	1
School	Restrooms		Restrooms are centrally located, but far from the majority of classrooms	2

Total	63
Max Available Points	90
% of Max	70%

METHODOLOGY: The final score is determined by dividing the total awarded points by the maximum points available for the school. Maximum available points vary by school, as certain criteria were not assessed at all grade levels. The percentage provides a uniform scoring system that can be compared across all schools regardless of grade level or site-specific conditions.

Conclusions / Recommendations

- This school is under capacity in both classroom and overall school area. An additional 215 students could be accommodated in the existing classroom space.
- Science labs have dated equipment. Equipment should be updated to meet current needs.
- Classrooms have very minimal teacher storage. Storage cabinets should be added to accommodate teachers' needs.
- Most classrooms are smaller than the District-preferred minimum size. It is unknown if there are fewer students in each classroom to counter-act the smaller size. If classrooms are used for 29 students (District-preferred number of students/class), the classrooms are too small. Re-configuring classrooms to create larger spaces should be investigated as an option if classrooms are over-crowded.
- Most classrooms have inadequate natural daylighting or receive glare from windows. Design options to resolve this issue should be investigated.
- Several classrooms have a rounded shape that makes layout difficult. If this poses an issue to teaching methods, design options to correct the spaces shall be investigated.
- Large circular mass in middle of building makes navigation to several classrooms, Library and computer labs very confusing. Signage should be added to school to aid in wayfinding.

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Part 4 - Field Documents

4.1 Introduction

The Facility Conditions Assessment Report is supported by data collected from site visits, source document review, and professional analysis. This data is compiled to provide insight into the assessment process and verify decisions. Each set of information included in this data set was analyzed and introduced into the formal report through matrixes, charts, or written narrative. The field documents section contains the following raw data:

Site Assessors Evaluation Forms (Architectural Exterior, Interior, Roof, Site, Mechanical, Electrical, Plumbing)
Bluebeam Electronic Documents
Structural Evaluation Forms/Checklists

Site Assessors Evaluations Forms

Each city facility was visited by a multidisciplinary team of architects, structural engineers, mechanical engineers, electrical engineers, and plumbing engineers. In addition, four (4) of the elementary schools were visited by building envelope specialists. Each member of these teams was charged with completing comprehensive checklists and logging notes on each facility. These checklists were the baseline for assessment and provide a standard evaluation for each facility.

Bluebeam Electronic Field Documents

Owner-provided building drawings were loaded onto tablet devices to be used for noting site specific information, material conditions, room layouts, and existing conditions while on site. These notes were accompanied by photographs taken on-site to create a record of the site visit that limited redundancies and missed information. These documents appear in the report as noted drawings for each building site, exterior and individual floor level.

For consistency, the notes are categorized by color. Red notes indicate items that were observed as deficient or damaged. Blue notes are used to note general conditions that do not necessarily need to be repaired. Finally, notes in orange show take-offs used for estimating purposes.

In addition to notes, photos have been imbedded in the drawings to better illustrate specific issues. These are denoted by one of three symbols:  ,  or  . Clicking on either of these icons in the drawing will open the photo for viewing.

Structural Evaluation Forms/Checklists

The structural engineering assessor evaluated the structures against rigid standards utilizing a checklist that enables the assessor to engage all possible elements of the structural system. These checklists are included in the FCA to demonstrate the level of structural comprehension and evaluation that was undertaken by the on site assessor.

4.2 Site Documentation

Site evaluation forms, electronic field documents and structural evaluation forms have been prepared for all 17 sites in the Lake Oswego School District. The site are as follows:

1. Forest Hills Elementary School
2. Hallinan Elementary School
3. Lake Grove Elementary School
4. Oak Creek Elementary School
5. River Grove Elementary School
6. Westridge Elementary School
7. Lake Oswego Junior High School
8. Lakeridge Junior High School
9. Lake Oswego High School
10. Lakeridge High School
11. Palisades
12. Uplands
13. Facilities Operations
14. Bus Barn
15. Administration
16. Technology
17. Swimming Pool

Part 5 - Appendix

5.1 Introduction

This section compiles the following documents:

- Project Kickoff Meeting Minutes
- Educational Adequacy Questionnaire Response
- LOSD Historical Information
- Enrollment Numbers - 10/01/2015
- Froelich Dissemination of DOGAMI Reports
- Memorandum 09/25/2015- Froelich Analysis
- FAC Work Session Agenda Item #1
- Terracon Aquatic Center Facility Condition Assessment 10/02/2015
- LOSD Network Information Request 09/21/2015

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MEETING MINUTES

OH PLANNING+DESIGN, ARCHITECTURE

Oh Project No.: 90021

Project Name: Lake Oswego School District
Facility Condition Assessment - Kick-off Meeting
Portland, OR

Date: 8/27/2015

Date & Location: 7/21/2015; 8:00am - 9:00am; LOSD Administration Building

Prepared by: Jackie Gilles

Attendees:
Randy Miller, Executive Director of Project Management – millerr@loswego.k12.or.us
Deb France, Oh planning + design – deb.france@ohpd.net
Jackie Gilles, Oh planning + design – jackie.gilles@ohpd.net
Katalin Czege, Oh planning + design – katalin.czege@ohpd.net
Richard Young, Heery – ryoung@heery.com
Matt Lucas, Heery – mlucas@heery.com
Jennifer Eggers, KPFF – jennifer.eggers@kpff.com
Jasha Kistler, Façade Group – jkistler@facadegroup.com
Matt Reynolds, TerraCon – matthew.reynolds@terracon.com

Distribution: Attendees
Brent Paul, Lake Oswego School District – paulb@loswego.k12.or.us
David Tarries, KPFF – david.tarries@kpff.com
Brad Moyes, KPFF – brad.moyes@kpff.com
Neil Ross, KPFF – nross@heery.com

The purpose of the meeting is to discuss and review the FCA assessment process and details about District protocols and site information.

Item 1. Introductions
1. See Attendees listed above.
2. Additional team members not in attendance - Lake Oswego School District: Brent Paul – Director of Operations, (503)269-3700, paulb@loswego.k12.or.us.

Item 2. Schedule
1. Site Visits – See revised schedule
   a. Elementary Schools to be pushed out (2) weeks on the schedule 8/11 thru 8/13.
   b. Secondary and Closed Schools to maintain original schedule – 8/3 thru 8/6.
   c. Move Technology and Swimming Pool earlier – 7/28.

Item 3. Site Access – time with maintenance staff
1. Brent to provide notes from 'Walk thru with Rob' to team for use.
2. Facility Condition Assessment to include:
   a. Any observation of asbestos on site.

b. Mechanical and electrical equipment model numbers.

Item 4. Existing documentation

1. Matt Reynolds (Terracon) needs as-built documents, O & M manuals and any other documents for the Pool building.
2. Per Randy Miller, maintenance logs are not believed to be available/ exist.
3. District to provide electrical/ mechanical schedules.
4. Structural analysis to be reviewed for life safety; gyms to be reviewed for immediate occupancies. KPFF to review and recommend.
5. Review existing Façade Group report on Oak Creek Elementary School
6. Oak Creek Elementary School is known to have water in the classrooms and not IAQ testing has been done.

Item 5. Discussion

1. Randy Miller confirmed $100 million bonding capacity.
   a. $24 million differed maintenance does not include soft costs.
2. Amount of current debt to be confirmed by Randy Miller to validate tax increase for bond work– not needed for assessment work.
3. FCA report to include soft cost to get a sense of real total cost.
4. Randy to set up meeting between Master Planning and Facility Condition Assessment Teams during field notes time – 2nd or 3rd week of August.

END OF MINUTES

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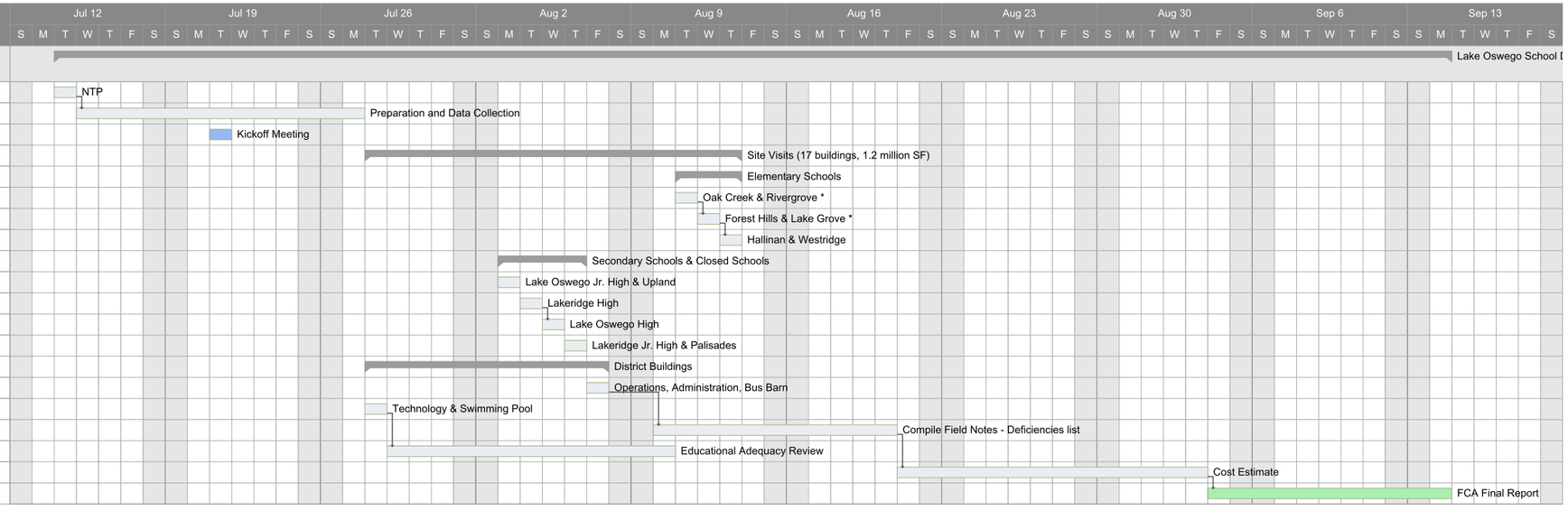
Lake Oswego SD FCA

	Task Name	Start Date	End Date	Duration
3	Lake Oswego School District Facility Condition Assessment (FCA)	07/14/15	09/14/15	45d
4	NTP	07/14/15	07/14/15	1d
5	Preparation and Data Collection	07/15/15	07/27/15	9d
6	Kickoff Meeting	07/21/15	07/21/15	1d
7	Site Visits (17 buildings, 1.2 million SF)	07/28/15	08/13/15	13d
8	Elementary Schools	08/11/15	08/13/15	3d
9	Oak Creek & Rivergrove *	08/11/15	08/11/15	1d
10	Forest Hills & Lake Grove *	08/12/15	08/12/15	1d
11	Hallinan & Westridge	08/13/15	08/13/15	1d
12	Secondary Schools & Closed Schools	08/03/15	08/06/15	4d
13	Lake Oswego Jr. High & Upland	08/03/15	08/03/15	1d
14	Lakeridge High	08/04/15	08/04/15	1d
15	Lake Oswego High	08/05/15	08/05/15	1d
16	Lakeridge Jr. High & Palisades	08/06/15	08/06/15	1d
17	District Buildings	07/28/15	08/07/15	9d
18	Operations, Administration, Bus Barn	08/07/15	08/07/15	1d
19	Technology & Swimming Pool	07/28/15	07/28/15	1d
20	Compile Field Notes - Deficiencies list	08/10/15	08/20/15	9d
21	Educational Adequacy Review	07/29/15	08/10/15	9d
22	Cost Estimate	08/21/15	09/03/15	10d
23	FCA Final Report	09/04/15	09/14/15	7d



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Item 1: General Questions

1. Please confirm the operation of **Lakeridge Jr. High / Bryant**. The current understanding is that that the school occupies both buildings and students go back and forth between the two buildings for classes.
   Q: Are the following amenities shared between both buildings?

School	Lakeridge Jr. High	Bryant
Multi-Purpose Room	X	
Athletics	X	
Libraries	X	
Kitchens	X	
Administration	X	

In K-5 - uses for spec purposes

2 pods in rear are 6th grade

2. Please confirm food service operations at **Forest Hills and Lake Grove Elementary**. From site assessments, there did not appear to be a dedicated cafeteria space. Kitchens are located far from the gymnasiums for a food service option.
   Q: Do students receive lunch in the Gym, Classrooms, or elsewhere in the buildings?

Lunch Service	Forest Hills	Lake Grove
Gymnasium		
Classroom	X	X
Other		

3. Please confirm sizes of school facilities. Areas shown in the table below have been derived from 3 separate sources. Minor variations have been discovered in the Elementary Schools. There are Major discrepancies in sizes of the Junior High and High Schools.
   - Attachment B of the project contract, provided July 20, 2015
   - Integra Realty Appraisal Summary prepared for the Facilities Advisory Committee Report, provided September 3, 2015
   - OHP+D take-offs from District-provided drawings

	Building Size (SF)			
School	Attachment B	Appraisal Summary	OHP+D take-offs	Size to be used in Report
Forest Hills Elementary	50,719	50,719	50,695	
Hallinan Elementary	46,144	46,144	46,712	
Lake Grove Elementary	61,000	61,000	61,652	
Oak Creek Elementary	63,000	63,000	68,530	
River Grove Elementary	47,315	42,846	50,484	
Westridge	46,144	46,144	46,712	
Lake Oswego Jr. High	180,000	N/A	106,093	
Lakeridge Jr. High / Bryant	143,318	143,318	122,610	
Lake Oswego High	203,023	N/A	259,682	
Lakeridge High	180,137	N/A	288,020	

Use your Take off's

please clarify

ASSUMPTIONS

Item 2: Capacity

1. **Q:** Please confirm District desired class size based on grade level based on the following recommendations. This information will provide direction on standards for capacity and physical characteristics.

Grade Level	Class Size	✓
Elementary (K-5)	25 students/classroom	1/27
Jr. High (6-8)	25 students/classroom	1/29
High School (9-12)	25 students/classroom	1/29

Targeted Ratios Targ

2. The following Gross Square Footage (GSF) per student recommendations are from the Council of Educational Facility Planners International (CEFPI), and are based on median of national data collected. These numbers are used to estimate overall sizes of school facilities.
Q: Please confirm these areas align with the District's teaching methods and goals.

Grade Level	GSF	✓
Elementary (K-5)	120 GSF/Student	✓
Jr. High (6-8)	146 GSF/Student	✓
High School (9-12)	163 GSF/Student	✓

use CEFPI #'s

3. **Q:** Please provide current enrollment information for all 8 schools. In addition, please provide projected enrollment numbers (if available). This information is critical to determine if facilities have adequate space for teaching and support.

School	Current Enrollment	Projected Enrollment
Forest Hills Elementary	452	
Hallinan Elementary	436	
Lake Grove Elementary	413	
Oak Creek Elementary	536	
River Grove Elementary	501	
Westridge	480	
Lake Oswego Jr. High	924	
Lakeridge Jr. High	765	
Lake Oswego High	1348	
Lakeridge High	1153	

See PSU 2014 update sent to you earlier

Item 3: Support for Programs

1. Music, Sports, Science and Technology were specifically listed in the Educational Adequacy Outline as special spaces to be assessed.
Q: Please confirm if Art rooms are to be assessed as a support program.

Response (circle one)

Yes No

None in ES
Yes @ MS & HS

2. Current trends in teaching have indicated that providing dedicated science classrooms and support spaces in elementary schools improve the quality of education. None of the elementary schools in the District were observed to have dedicated science spaces.
   Q: Please confirm if it is the District's intention to provide space dedicated to science in elementary schools.

   Response (circle one)

   Yes No

Item 6: Attachments

1. Attachment A – LOSD Educational Adequacy Outline

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Lake Oswego School District

Historical Information

1856	First public school district organized which included Oswego. Oswego children were boated across the Willamette River where school was held for Oswego, Gladstone, Jennings Lodge and Oak Grove.
1868	Oswego Public School was a separate elementary school district.
1929	Lakewood Elementary School was built. (Some time prior to 1935-36 kindergarten began)
1949	Forest Hills Elementary School was built.
1924-1953	Lake Grove was a separate school district.
1949	Lake Grove Elementary School was rebuilt after a fire.
1951	Lake Oswego High School opened as a six-year high school (grades 6-12).
1954-55	Lake Grove and Oswego Public Schools merged to form a unified school District. Additions were made to Forest Hills and Lake Grove School buildings.
1956-57	Lake Oswego Junior High School opened grades 7-8.
1958-59	Palisades Elementary School opened and the junior high school became a three year junior high (7-9). Additions were made to both the junior high and senior high.
1961-62	Uplands Elementary School opened. The Administration Building was built to replace the old house which burned March 30, 1960.
May 18, 1962	Tax base of $6,625,000 approved.
1964-65	Waluga Junior High School opened with grades 7-8.
1965-66	Waluga Junior High School became a three-year junior high (7-9).
1966-67	Bryant Elementary School opened.
1968-69	River Grove Elementary School opened.
1970-71	Swimming Pool opened.
1971-72	Lakeridge High School opened. Junior highs became two year schools (7-8) and both high schools housed 9-12.
May 1980	Tax base of $16,619,224 approved.
1980-81	Westridge and Hallinan Elementary Schools completed. Opened September 1980.
October 1980	Lakewood Elementary School sold for $600,000.
June 1983	Palisades Elementary School closed.
June 1989	Tax base of $29,975,000 approved.
September 1989	Palisades Elementary School reopened.
September 1991	Oak Creek Elementary School opened.
2005	Lake Oswego Senior High School - New Building opened
June 2011	Palisades Elementary School closed
June 2012	Uplands Elementary School closed Grades 6-8 junior high school created Waluga Junior High renamed to Lakeridge Junior High Bryant Elementary School became part of the Lakeridge Junior High campus Boundary changes enacted

Lake Oswego School District

Bond Issues (1950-Present)

Election Date	Amount	Purpose
May 5, 1950	$590,000	Lake Oswego 5enior High (original)
December 11, 1950	$125,000	Addition to 5enior High
January 26, 1954	$300,000	Addition to Forest Hills & Lake Grove
5eptember 21, 1955	$525,000	Lake Oswego Junior High
December 2, 1957	$1,125,000	Palisades/Addition to Junior High & 5enior High
January 26, 1960	$1,712,000	Uplands Gym, Cafeteria & Classrooms-LOH5 6 Rooms - Palisades 6 Rooms - LOJH5 Administration Building
January 28, 1963	$1,788,000	Add 7 rooms- Uplands Waluga Junior High Add to Administration Building
February 23, 1965	$1,470,000	14 Classrooms- LOH5 Bryant Elementary 5ite Acquisition- 2nd High 5chool
March 27, 1967	$1,800,000	Bryant Kindergarten Unit River Grove Elementary Hallinan Elementary 5ite Laundry- LOHS Improvements to Lakewood Elementary Bus Garage
November 5, 1968	$4,890,000 $350,000	Lakeridge High 5chool 5wimming Pool
December 5, 1978	$5,300,000	Hallinan Elementary 5chool Westridge Elementary 5chool Miscellaneous District Maintenance
November 7, 1989	$17,800,000	Facilities Improvement Bond approved
March 24, 1993	$ 4,000,000	Facilities & Equipment Bond approved
5eptember 20, 1994	$ 3,000,000	Facilities & Equipment Bond defeated
November 5, 1996	$ 4,500,000	Facilities & Equipment Bond approved
May 16, 2000	$ 3,800,000	Local Option Levy approved
November 7, 2000	$85,000,000	Facilities Bond approved (58%)
November 2, 2004	$ 5,700,000	Local Option Levy approved
November 4, 2008	$ 7,000,000 (up to)	Local Option Levy approved (57%)
November 5, 2013	$ 7,000,000 (up to)	Local Option Levy approved (78%)

Lake Oswego School District

Boundary History

May 1980	**School Board approved new attendance boundaries** Designations included: • Defined the Westridge and Hallinan attendance areas. • Rogers Road and Southwood Park became a part of the Lake Grove attendance area. • The Lakeview, Rosewood, and West Bay areas continued to be in Lake Grove attendance area but became part of the north-side secondary school area. • The Palisades Terrace area moved to the Hallinan attendance area. • The Peninsula-Old Town area became part of the Forest Hills attendance area. • Forest Hills, Lake Grove, and Uplands continued as "feeder" schools to LOJHS and LOHS. • Students that attended Waluga JH or LHS who wished to complete their secondary school education in the south-side schools were allowed to do so.
1980-81	**Lakewood Elementary closed.** **Hallinan Elementary opened (9/1980)** **Westridge Elementary opened (9/1980)**
October 1980	**Lakewood Elementary sold**
April 1983	**Established new boundaries between Hallinan and Westridge** **Established one-way open enrollment to LOHS from LHS**
June 1983	**Palisades Elementary closed**
November 1984	**Established new Hallinan and Westridge boundaries with closure of Palisades**
January 1986	**Board approved boundary change with West Linn SD**
March 1989	**Board approved new boundaries for Palisades reopening**
April 1989	**Board approved new boundaries for Lake Grove and River Grove**
September 1989	**Palisades Elementary reopened**
March 1991	**Board approved Oak Creek boundaries** • Board approved dividing the Westlake area north and south rather than east and west as recommended by the Boundary Committee.
April 1991	**Board approved boundary changes for Bryant and Lake Grove**
May 1991	**Board set secondary boundaries** • Board approved that students who currently attend River Grove in grades K-6 and reside in the area that has been transferred from Lake Grove and students currently in grades 4-6 who reside in the areas that have been transferred to Bryant from Lake Grove or Hallinan

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LAKE OSWEGO SCHOOL DISTRICT

Office of Superintendent

Enrollment Report

Date: 10/1/2015

School North Side	K	1	2	3	4	5	Total	Section Total
Forest Hills	70	61	68	70	79	104	452	19
Lake Grove	82	61	62	78	66	67	416	17
Oak Creek	54	90	91	98	93	113	539	22
Total	206	212	221	246	238	284	1,407	58

South Side	K	1	2	3	4	5	Total	Section Total
Hallinan	72	59	66	76	78	84	435	19
River Grove	80	87	90	93	87	63	500	20
Westridge	76	65	77	79	88	96	481	20
Total	228	211	233	248	253	243	1416	59
Grand Total	434	423	454	494	491	527	2,823	117

Junior High

School	6	7	8	Total
LOJHS	318	272	330	920
LJHS	284	260	245	789
Total	602	532	575	1,709

High School

School	9	10	11	12	Total
LOHS	349	337	321	333	1,340
LHS	292	273	285	301	1,151
Total	641	610	606	634	2,491

Growth Analysis

	October 2012		October 2013		October 2014		Current	
Grade Level	N	S	N	S	N	S	N	S
Elem. K-5	1,466	1,287	1,432	1,293	1,450	1,331	1,407	1,416
Jr. High 6-8	872	738	902	754	891	775	920	789
Sr. High 9-12	1,296	1,123	1,313	1,152	1,289	1,131	1,340	1,151
N/S Totals	3,634	3,148	3,647	3,199	3,630	3,237	3,667	3,356
TOTALS		6,782		6,846		6,867		7,023

2015-16 Monthly Totals

Oct. 2014	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
6,867	7,024	7,023								

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Memorandum

To: Mr. Stuart Ketzler
From: Timothy T. Terich, P.E., S.E.
Date: August 28, 2008
Project: Lake Oswego School District – DOGAMI Seismic Screening
FCE #: 08-T019
Client: LOSD
Subject: Dissemination of DOGAMI Reports

Introduction:

The Lake Oswego School District commissioned Froelich Consulting Engineers to assist with the interpretation of the *FEMA 154 - Rapid Visual Screening Report* that was prepared in 2007 for all Lake Oswego schools by the Oregon Department of Geology and Mineral Industries (DOGAMI). Our memo explains how the screening method is done and what the results mean. FCE has worked closely with the Lake Oswego School District in the past, and have an intimate knowledge of most of the school structural systems in the district.

Purpose of the *FEMA Rapid Visual Screening*:

This seismic screening program and guidebook was created by FEMA to provide a preliminary method for identifying potentially high seismic risk buildings. Screening is used as a quick evaluation method to serve as the first step in a pre-disaster mitigation strategy. The FEMA guidebook states that "*Buildings identified by this procedure are not necessarily at risk, but should be analyzed in more detail by an experienced structural engineer.*"

Rapid Visual Screening of Lake Oswego Schools:

Based on rapid visual screening, five elementary and two junior high schools scored in the high seismic risk range by DOGAMI. The scores for these seven buildings ranged between 0.5 and 0.9. The screening method recommends that a building be flagged as high risk if it scores below 2. However, the "cut-off" score of 2.0 is not given as an absolute value and can be determined by individual communities based on an evaluation of cost vs. risk. Buildings typically score in the range of 0 to 7.

The following are the schools flagged as high risk by DOGAMI along with their associated original scores:

	Score
Oak Creek Elementary	0.6
Waluga Junior High	0.9
Forest Hills Elementary	0.5
River Grove Elementary	0.9
Bryant Elementary	0.9
Lake Oswego Junior High	0.9
Lake Grove Elementary	0.9

How The Screening Is Done:

The screening method consists of a one page data collection form. An engineer is not required to perform the screening and can be implemented by "anyone". The form can be filled out in minutes and does not require the evaluator to physically enter the building. Only a few basic facts, such as the year of construction and general soils maps, are required.

How Buildings are Scored:

The following explains how the screener determines a building score using the 'Rapid Visual Screening Method". Answers to the following two questions determine the base score for a building. The base scores for a building range from 1.8 for unreinforced masonry construction to 4.4 for light wood-framed buildings 5,000 square feet or smaller.

1. *What seismic region is the building located in?* This is determined from a map found in the handbook and determines the seismic level as low, medium and high.

2. *What type of construction material is used to brace the building laterally?* (Example: Wood shear walls, CMU shear walls, steel frames). This is determined by visual means.

Answers to questions 3-7 modify the building base score.

3. *How many stories tall is the building?* Buildings over 4 stories in height get additional points added to their score. The reason given for this by the manual is that taller buildings generally have better designs and better construction.

4. *Does the building have a vertical irregularity?* This category is in reference to the layout of the lateral bracing elements. This is a difficult item to determine just by looking at the building. Often it is necessary to know how the building is designed to determine if there is a vertical irregularity or if there is a possibility one is present. If a vertical irregularity is apparent, a large point deduction is taken from the building's score.

5. *Does the building have a plan irregularity?* This category is in reference to the shape of the building. For example, if a building floor plan is L-shaped, T-shaped or U-shaped it is considered to have a plan irregularity. If a building is anything other than square or rectangle an argument could be made that the building has a plan irregularity. If this is indicated, a point deduction is taken from the building score.

6. *Is the building pre-code?* The answer to this question is determined by knowing the year the building was constructed and the construction material used (see question 2). If the building was constructed before seismic structural codes were implemented, then a point deduction is taken.

7. *Is the building post-benchmark?* Similar to the "pre-building code" item above, points are given if the building was constructed after significant improvements in seismic building codes.

8. *What is the soil type?* For this report, the soil type is generally determined by using geologic and geotechnical maps. Points are deducted for all soil types other than "hard rock" and "average rock".

The final score is determined by adding the score modifiers to the base score.

Example: Waluga Junior High School – built in 1964

Base score - Light framed wood structure larger than 5,000 square feet.	3.8
Vertical Irregularity – The screener said yes:	-2
Plan irregularity – The screener said yes:	-0.5
Pre-Code? - The screener said no:	0
Post-benchmark? - The screener said no:	0
Soil type: C – soft rock and very dense soil	-0.4
Total Score:	0.9

What is seismic risk?

Who and what determines acceptable seismic risk? Engineers design buildings to the current structural code. The level of design that the code requires is based on the probability of a certain magnitude earthquake. This doesn't mean that a larger earthquake than the one designed for won't come along. Society and design professionals have come together and determined what is acceptable risk vs. the cost of construction.

Each of the Lake Oswego schools was built to meet the design requirements of the code governing at the time of construction. For example, Bryant Elementary was built in 1966 and thus was built per the code governing in 1966. The structural codes change every few years. Typically an aging building will not meet the current structural codes. However, most jurisdictions, including Lake Oswego, do not require that buildings be upgraded to current codes unless there is a change in occupancy or a large remodel is done. We do know that structural walk-thrus for many of these schools have been done in recent years.

FCE Report Findings:

FCE reviewed the scoring given by DOGAMI to each of the seven Lake Oswego elementary and junior high school buildings identified as high risk. We evaluated this against the actual building plans and our knowledger of each of the schools. We found the scores assigned by DOGAMI to each of the schools to be low. Based on the screening criteria, we found that the buildings should have scored in the range of 2.5 to 3.5, which is in the moderate to low risk range. All of the buildings were marked as having a "vertical irregularity". In review of each of the buildings, none were found to have a significant "vertical irregularity". This item alone brings the scores for all of the schools above 2 – which is the "cut-off" score designating high seismic risk buildings from moderate risk buildings.

Oak Creek Elementary school was built in 1991. It was not given credit in the report as being "Post-Bench" even though it was built since major seismic updates to the code. This increases the score for this school to 3.5. See Appendix #1 of this report for a comparison of the DOGAMI scores to our revised scores.

From a general standpoint we do not feel that the schools flagged by the screening are scored correctly. Six of the seven schools are one story tall, light framed wood construction. This type of construction, compared to other building types, is at the low end of seismic risk as compared to "brittle" unreinforced masonry structures found in other districts. The seventh school, Oak Creek Elementary is a steel framed building and was built in 1991. This school was built since substantial updates to the seismic provisions of the building codes.

Summary:

The Rapid Visual Screening method is a "drive-by" evaluation of the seismic risk of a building. The Oregon State Senate passed a bill calling for all of the Oregon schools to be evaluated per the Rapid Visual Screening method as the first step in a pre-disaster mitigation strategy. This screening is not set up to give a conclusive evaluation of seismic risk. It is based on a very simple evaluation and is only to be used as an initial screening. We reviewed the scores

Appendix 1

Lake Oswego School District - DOGAMI selsmic screening

The following table shows the scores assigned to each of the schools using the FEMA 154 -Rapid Visual Screening method. The 2nd column shows the score given by DOGAMI, the 3rd column shows the score FCE would assign to each school using the same criteria.

School		DOGAMI score		FCE Score
Oak Creek Elementary		0.6		3.5
Waluga Junior High		0.9		2.9
Forest Hills Elementary		0.5		2.5
River Grove Elementary		0.9		2.9
Bryant Elementary		0.9		2.9
Lake Oswego Junior High		0.9		2.9
Lake Grove Elementary		0.9		2.9

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OH PLANNING+DESIGN, ARCHITECTURE

MEMORANDUM

Oh Project No.: 90021

Project Name: LOSD FCA
Lake Oswego, OR

Date: 09/25/2015

To: Heather Beck, Superintendent; Joe Morelock, Assistant Superintendent; Randy Miller, Executive Director of Project Management

Prepared by: Jackie Gilles,OHP+D; David Tarries,KPFF

Distribution: Deb France, OHP+D; Katalin Czege, OHP+D; Jennifer Eggers, KPFF; Brad Moyes, KPFF

The purpose of this memorandum is to provide analysis on a memo, dated 08/29/08, prepared by Froelich Consulting Engineers (FCE), Inc shared by Randy Miller in regards to Oregon Department of Geology and Mineral Industries (DOGAMI) seismic screening.

OHP+D, in collaboration with Jennifer Eggers from KPFF, reviewed the memo prepared by Froelich Consulting Engineers (FCE). Based on the memo reviewed, FCE was hired by Lake Oswego School District (LOSD) in 2008 to interpret the FEMA 154- Rapid Visual Screening (RVS) Report issued to the District in 2007. FCE's memo described the intended use of FEMA 154 RVS and accompanying scores, as well as details on how scores are developed. Additionally, FCE concluded that the DOGAMI scores for LOSD were low and provided revised values.

The purpose of the FEMA 154 handbook is to 'identify, inventory, and rank buildings that are potentially seismically hazardous'. The scores developed for each building are intended to be a quick high-level review to help sort out buildings that need further analysis. As part of the recently completed site visits at LOSD, a list of deficiencies per school was provided by KPFF. Their observations contain more detailed deficiency information for each school than what the RVS scores do. KPFF observed that there are major deficiencies in some of the buildings that are not captured in the RVS scores. An example of a deficiency not included in RVS scores is confirmation of shear walls attached to the diaphragm. KPFF provided additional RVS information for each site as an additional measure. The detailed information provided by KPFF should be considered the next step beyond obtaining an RVS and the RVS scores are not significant beyond reiterating which structures require additional analysis to determine seismic safety.

The differences between KPFF, DOGAMI and FCE RVS scores are indicated below:

- **Vertical Irregularities:** The RVS scores are penalized rather heavily (+/- 2.0) when a building contains a vertical irregularity. KPFF removed the 'vertical irregularity' from the DOGAMI scores. FCE removed the irregularity from one site.
- **Soil Type:** DOGAMI used Soil Type 'C' for a number of the schools. Without a geotechnical report or confirmation about soil type on the site, Soil Type 'D' was referenced by DOGAMI. FEMA 154, *Rapid Visual Screening of Buildings for Potential Seismic Hazards* notes to use Soil Type 'D' as the default when unconfirmed. This does not affect the score much (only +/- 0.4) and if we chose to follow

DOGAMI and used 'D', it would not have affected the collapse potential category (High, Med, Low). DOGAMI did have a basis for their soil types chosen, but it is interpolated and not always correct. Based on previous KPFF experiences, KPFF chose to stick with the default value for schools. KPFF and FCE aligned with selected soil types.

- **Selected lateral system:** There were a few schools that DOGAMI and FCE had the wrong lateral system as the basis. This changes the score automatically.

The RVS number for Forest Hills increased to be ranked into a 'very high collapse potential' based on FCE and KPFF analysis. KPFF observed on site and analyzed the gymnasium has a vertical irregularity on the stage side during the facility condition assessment. They could not observe a lateral system at that wall and drawings of the original structure were not available. The numbers calculated out to increase the RVS number high enough to fall within the very high category. This does not mean the remaining classroom portion of the school falls within that category, in fact, it would be considered at a lower risk category. However, the building is assessed holistically. The cost to provide a lateral system at the gymnasium is included in the FCI cost analysis. Additional analysis could be done as part of next steps to further clarify the condition and next steps.

A spreadsheet of analysis has been provided by KPFF sharing the discrepancies between DOGAMI, FCE and KPFF. The chart shows the original DOGAMI information in pink, FCE analysis in blue and KPFF analysis in yellow. KPFF then provided analysis sharing the differences between KPFF and FCE, and KPFF and DOGAMI. Additional information is provided to clarify the abbreviations used the KPFF spreadsheet. A list of lateral structural systems and their abbreviations are included to understand how FEMA categorizes building types. These building types are referenced in the KPFF chart.

LATERAL SYSTEM ABBREVIATION DECRIPTIONS

FEMA Building Type	
W1	Light wood frame single- or multiple-family dwellings of one or more stories in height
W1A	Light wood frame multi-unit, multi-story residential buildings with plan areas on each floor of greater than 3,000 square feet
W2	Wood frame commercial and industrial buildings with a floor area larger than 5,000 square feet
S1	Steel moment-resisting frame
S2	Braced steel frame
S3	Light metal frame
S4	Steel frame with cast-in-place concrete shear walls
S5	Steel frame with unreinforced masonry infill walls
C1	Concrete moment-resisting frame
C2	Concrete shear wall
C3	Concrete frame with unreinforced masonry infill walls
PC1	Tilt-up construction
PC2	Precast concrete frame
RM1	Reinforced masonry with flexible floor and roof diaphragms
RM2	Reinforced masonry with rigid floor and roof diaphragms
URM	Unreinforced masonry bearing-wall buildings
MH	Manufactured housing

DOGAMI DERIVED COLLAPSE POTENTIAL CRITERIA

Score:	<0.0	0.1-1.0	1.1-2.0	>2.0
FEMA 154-Based Collapse Potential	Very High	High	Moderate	Low

OCCUPANCY			SOIL		TYPE						FALLING HAZARDS			
Assembly Commercial Emer. Services	Govt Historic Industrial	Office Residential School	Number of Persons 0 – 10 101-1000	11 – 100 1000+	A Hard Rock	B Avg. Rock	C Dense Soil	D Stiff Soil	E Soft Soil	F Poor Soil	☐ Unreinforced Chimneys	☐ Parapets	☐ Cladding	☐ Other:

BASIC SCORE, MODIFIERS, AND FINAL SCORE, *S*

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	0.0
High Rise (> 7 stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
Plan irregularity	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Pre-Code	0.0	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post-Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	-0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, *S*															

SAMPLE PORTION OF FEMA 154 RAPID VISUAL SCREENING SCORE SHEET

LAKE OSWEGO SCHOOL DISCTRICT - FACILITY CONDITION ASSESSMENT

FACILITY INFORMATION			DOGAMI's RVS			FCE's RVS				kpff's RVS				
TYPE	#	FACILITY NAME	DOGAMI's RVS SCORE	DOGAMI's LATERAL STRUCTURAL SYSTEM	DOGAMIs COLLAPSE POTENTIAL	FCE's RVS SCORE	FCE's (assumed) LATERAL STRUCTURAL SYSTEM[1]	FCE's COLLAPSE POTENTIAL	Why is FCE's RVS different from DOGAMI's RVS?[2]	kpff's RVS SCORE	kpff's LATERAL STRUCTURAL SYSTEM	kpff's COLLAPSE POTENTIAL	Why is kpff's RVS different from DOGAMI's RVS?	Why is kpff's RVS different from FCE's RVS?
ELEMENTARY SCHOOLS	1	**Forest Hills**	0.5	W2	High	2.5	W2	Low	(+2) for removing the "vertical irregularity" from DOGAMI's score	-0.5	W2	Very High	(-1) for this building acting like a "pre-code" year structure.[3]	(- 2) for adding the "vertical irregularity" to FCE's score (-1) for this building acting like a "pre-code" year structure.[3]
	3	**Lake Grove**	0.9	W2	High	2.9	W2	Low	(+2) for removing the "vertical irregularity" from DOGAMI's score *Used same Soil Type 'C' as DOGAMI	1.5	W2	Moderate	(+2) for removing the "vertical irregularity" from DOGAMI's score (-1) for this building acting like a "pre-code" year structure.[3] (-0.4) for using Soil Type 'D' instead of 'C'[4]	(-1) for this building acting like a "pre-code" year structure.[3] (-0.4) for using Soil Type 'D' instead of 'C'
	4	**Oak Creek**	0.6	S2	High	3.5	S2	Low	(+1.5) for removing the "vertical irregularity" from DOGAMI's score (+1.4) for being "Post-Benchmark" *used same lateral system as DOGAMI	4.9	W2	Low	**this building is not an 'S2' - it is a 'W2'...completely different lateral system has a very different start *kpff marked (plan irregularity, post-benchmark, Soil Type D[4])...same as FCE except starting score and soil type	
	5	**River Grove**	0.9	W2	High	2.9	W2	Low	(+2) for removing the "vertical irregularity" from DOGAMI's score *Used same Soil Type 'C' as DOGAMI *Used same lateral system as DOGAMI	2.5,1.7	W2,RM1	Low, Moderate	**this building is 1/2 W2 and 1/2 RM1, so kpff provide both scores **comparing the W2 score, (+2) for removing the "vertical irregularity" from DOGAMI's score (-0.4) for using Soil Type 'D' instead of 'C'[4]	**this building is 1/2 W2 and 1/2 RM1, so kpff provide both scores **comparing the W2 score, (-0.4) for using Soil Type 'D' instead of 'C'[4]
JR HIGH SCHOOLS	7	**Lake Oswego Jr. High**	0.9	W2	High	2.9	W2	Low	(+2) for removing the "vertical irregularity" from DOGAMI's score *Used same Soil Type 'C' as DOGAMI	2.5	W2	Low	(+2) for removing the "vertical irregularity" from DOGAMI's score (-0.4) for using Soil Type 'D' instead of 'C'[4]	(-0.4) for using Soil Type 'D' instead of 'C'
	8a	**Lakeridge Jr. High (formerly Waluga Jr. High)**	0.9	W2	High	2.9	W2	Low	(+2.0) for removing the "vertical irregularity" from DOGAMI's score *used same lateral system as DOGAMI	1.7	RM1	Moderate	**this building is not a 'W2' - it is an 'RM1'...completely different lateral system has a very different start *kpff marked (plan irregularity, Soil Type D[4])...same as FCE except starting score and soil type	
	8b	**Bryant (Lakeridge Jr. High)**	0.9	W2	High	2.9	W2	Low	(+2.0) for removing the "vertical irregularity" from DOGAMI's score *used same lateral system as DOGAMI	1.7	RM1	Moderate	**this building is not a 'W2' - it is an 'RM1'...completely different lateral system has a very different start *kpff marked (plan irregularity, Soil Type D[4])...same as FCE except starting score and soil type	

1 - kpff did not have access to FCE's RVS sheets, so based on FCE's scores - we assumed they used the lateral systems for each structure as noted above

2 - "Why is FCE's RVS different from DOGAMI's RVS?" - this is kpff's interpretation of FCE's reasons stated in their letter dated 8/28/08. Kpff did not have access to each RVS sheet from FCE to see how the numbers were reached.

3 - The "pre-code" year for W2 is notes as 1933. Based on engineering judgement, lack of available drawings, and that this building was built in an unknown date in the 40s, kpff chose to apply the "pre-code" year deduction to this school

4 - Most of the sites did not have a soils report available. If confirmation of the soil type is not availabe, FEMA 154 notes that Soil Type D should be assumed

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January 26, 2015

Work Session Agenda Item #1 Facilities Advisory Committee Report

Purpose of the Agenda Item: Information

The report of the FAC is enclosed for the School Board's review. Dr. Heather Beck and I wish to extend our great appreciation for the tremendous work and contributions of all committee members, which are:

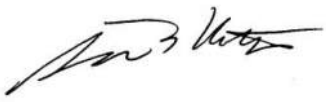
- Scott Emmett
- Jeff Fisher
- Mark Heizer
- Rick Rainone
- Austin Sloat
- Carl Vance

The district is blessed to not only have such expertise within our community, but to have this expertise contributed to us in such large measure for such an important endeavor.

As will be apparent upon reading of the report, there are no easy solutions to the district's facility issues. Mr. Austin Sloat, one of the key drafters of the report, summarized the issues most succinctly in his following observation:

"I have a deep appreciation for why the Board wanted this committee to weigh in. There are no easy answers here."

Several committee members will be in attendance and will be available to provide perspective and answer questions.



Stuart Ketzler

Facilities Advisory Committee Report
January 21, 2015

This report provides the primary observations, perspectives, and recommendations of the Facility Advisory Committee, a committee convened by the Lake Oswego School District Board in October of 2014 to provide the district with expert perspective and advice in relation to its elementary and junior high school properties. The following six committee members were appointed from a pool of candidates based on their expertise in construction or related fields:

- Scott Emmett
- Jeff Fisher
- Mark Heizer
- Rick Rainone
- Austin Sloat
- Carl Vance

Superintendent Dr. Heather Beck and I have had the great privilege of working with the members of this committee and we thank them for the many hours and expert perspective and advice they have volunteered that have lead to the development of this report.

Stuart Ketzler, Executive Director of Finance, administrator liaison to the Facility Advisory Committee

Overview

This overview consists of three parts:

1. Background
2. Board Charge
3. Summary

Background

In the wake of the Great Recession, to preserve scarce resources for instructional purposes, the Lake Oswego School District undertook the very difficult task of reconfiguring its elementary and junior high schools and closing three of its elementary schools. These actions have reduced district operating costs by approximately $1.5 million per year, with the vast majority of those savings from areas not involved with classroom teachers or direct student support. The first phase of this was implemented with the closure of Palisades Elementary at the end of June 2011, followed by the closures of Bryant and Uplands elementary schools in June of 2012, with the repurposing of Bryant as a part of Lakeridge Junior High School. Those closures were made based on the recommendations of a Consolidation Committee that was convened during the 2010-11 school year, but the question remained as to the ideal long-term alignment of the district's elementary schools, which will, by extension, ultimately entail determination of one or more elementary school properties as surplus. The School Board has determined that, given current and expected state funding and enrollment, the best long-term school configuration for serving the needs of the LOSD community is six elementary schools, two junior high schools and two high schools. The consolidation of elementary schools, as predicted, has also resulted in a shortage of elementary classroom space and some space shortages at Lake Oswego Jr. High School. During this same general timeframe, and also as a strategy to preserve scarce resources for instructional programs, the district began delaying significant capital investments necessary to maintain and improve its facilities. This strategy has created a list of deferred capital maintenance items at all schools, especially at older schools.

To inform the discussion of the optimum long-term alignment of its schools and evaluate options to provide adequate capacity, as well as provide a comprehensive assessment of the district's deferred maintenance costs, the district issued a Request for Proposal (RFP) for real estate valuing and costing services in November 2013. Integra Realty Services, with BBL Architects as its sub-consultant, was ultimately selected from the two proposals the district received in response to the RFP. Their report, generally referred to as the 2014 Real Estate Study (Study), was presented to the School Board in April 2014.

The Study provided appraisal values for all current or former elementary school sites, as well as certain assessments and costing for a possible range of elementary and Lake Oswego Jr. High School classroom additions, capital deferred maintenance tasks at the elementary and junior high schools, a new small elementary school, and a potential gym addition at Lake Oswego Jr. High School. A summary of the values and costs from the Study are included as Exhibits 1 and 2, respectively. The Study identified over $24 million in needed investment within the next ten (10) years to just maintain existing facilities, and without full costing for two key findings, which are more fully discussed in the following two paragraphs.

The report identified several key findings, the two most significant being an expansive soils condition at Lakeridge Jr. High School (LRJ - original construction completed in 1964) and building envelope issues at Oak Creek Elementary (OCE - original construction completed in 1991) that is allowing water intrusion in parts of the building, primarily around windows and doors. While both of these conditions, or parts of them, had been previously noted by the district, full analysis of the potential extent of the issues was not undertaken until after the Real Estate Study. Additional investigations to more fully determine the extent of these two issues were ordered for the summer of 2014. The supplemental reports were presented to the district in October 2014.

The BBL supplemental report noted that the OCE envelope issues were extensive, and while some were a factor of the building's age, many water intrusion issues were the result of improper flashing and other construction defects. The supplemental report recommends the removal of essentially the whole building envelope at an estimated construction cost of roughly $5.2 million. The Miller Consulting Engineers' supplemental report for LRJ noted that the expansive soils condition will ultimately require replacement of the site's buildings as the seasonal movements up and down will slowly compromise the structural integrity of the buildings. The LRJ report noted the LRJ buildings could last an additional approximate ten (10) years, possibly as many as twenty (20) years under ideal conditions. Monitoring devices will track the movement of the building between wet and dry seasons, and if movements begin to accelerate, then a shorter life span is likely.

The Study, supplemental reports and certain additional information were provided to the committee.

Board Charge

> The Charge of the Facilities Advisory Committee is to provide recommendations, advice and perspective to the district concerning possible investments or disinvestments in its facilities. The FAC is asked to provide recommendations to the School Board as to the facility-related factors, prioritized if possible, that need to be a part of that calculus.

The Committee will also be asked:

1. What additional facilities-related studies or information are needed before a decision regarding additional facility investment or disinvestment can be made on a fully informed basis?
2. What processes and controls are recommended to be implemented that will ensure the facility investment projects are completed with quality assurance and on time and on budget?

The Committee is not asked to evaluate non-facility factors, such as educational programs or enrollment balance or give specific recommendations of which schools might ultimately be identified as the best candidates for additional investment or declared surplus.

The committee discussed the charge and requested clarifications, ultimately noting that certain tasks were not possible given the limits of time, the current information available, and the depth and extent of some of the issues.

Summary

The committee's observations for each school site follow on a standard format for each school. Efforts were made so as to not identify any school as a better or best candidate for declaration as surplus as the committee recognizes that decision is the purview of the School Board and will involve other factors beyond facility matters. Key additional recommendations of the committee are:

1. Further independent analysis providing at least two additional options is necessary for the following major facility issues:
    1. Oak Creek Water Intrusion Repairs
    2. Lakeridge Jr. High Expansive Soils
    3. Westridge Elementary Roof Repairs
2. The district's investments in its facilities are its largest assets and require more diligent oversight and regular investment to properly maintain and preserve them. While the committee recognizes the district, as well as many other districts statewide and beyond, made conscious decisions to not fully maintain its facilities to preserve scarce resources for instructional purposes, the result of deferred maintenance is typically a much higher maintenance cost and a shortened life span for the capital asset.
3. The district needs to develop a long-term facility plan. It is essential to guide all near- and mid-term facility plans and actions. This is also important as more than half of the district's facilities are now more than 50 years old.
4. The district should appoint a standing long-term Facility Advisory Committee that meets periodically to provide perspective, advice and recommendations on district facilities.
5. Given the district's size, current staffing and the complexity and technical nature of the facility issues it is facing, the district should hire a Project Manager responsible for managing district facility investments. The committee believes this action should be the district's current highest priority as it relates to addressing its facilities issues.

Further discussion of items 3 through 5 above are included in the Additional Notes section near the end of this report.

Preliminary Notes

The following maintenance and repair items for individual schools are summarized from the BBL reports. Priority 1 items are defined as needing to be addressed within the next five years. Priority 2 items are defined as needing to be addressed within a five- to ten-year window. Because further analysis and cost estimates of the expansive soils at Lakeridge Junior High and of the water intrusion repairs at Oak Creek are needed before the true capital costs for each school can be compared, it is premature to reach any final conclusions about which of the schools are most economically viable.

The estimated costs in the BBL summaries are based on conceptual scopes of work developed from visual observations and professional judgment rather than investigations and completed designs. As such they are necessarily based on incomplete information and should be considered as very preliminary.

The April 2014 BBL estimates that are used as the basis for the costs in this report also do not contain the soft costs that the district will have to pay. Soft costs consist primarily of architectural fees and project management costs, but also include other fees, permits, fixtures and contingencies. Oak Creek's separate October 2014 supplemental report has full consideration of soft costs as well as large amounts of contingency. Those Oak Creek soft costs are not included in the costs in this report so that all costs are presented on a standard basis. The next iteration of project budgets should add all soft costs in order for the district to fully understand the total cost of these capital improvements. Going forward, project budgets using standard industry templates should be prepared on a consistent basis for all capital projects the district may be considering.

Attached as Exhibit 3 is an analysis of the elementary schools that summarizes by school the estimated costs of deferred maintenance and appraisal values to arrive at a total value by site titled "Capital Opportunity Cost". Capital Opportunity Cost represents the total gross value of these factors and is an indication of the costs that can be avoided and the value that can be derived from a site via disposition. A higher Capital Opportunity Cost indicates the site has more maintenance costs and/or a higher potential sales value such that more consideration should be given as to whether additional capital investment at that site is the best use of public resources. In addition to the aforementioned limitations on the cost estimates, the attached exhibits note there are limits on the appraisals that are the basis for the Land Values. As the district begins to narrow its list of sites that may be declared surplus, additional due diligence will be required so as to fully inform and update those appraisal values. Furthermore, Capital Opportunity Cost is but a single metric and many other factors need to be considered, but it is an additional tool the School Board can use in its analysis. Based on our limited current data, the three best Capital Opportunity Cost south-side schools are Hallinan, Westridge and Bryant (with a significant caveat for the final outcome of the expansive soils condition at LRJ/Bryant), while the three best Capital Opportunity Cost north-side schools are Uplands, Forest Hills and Lake Grove. When more complete project budgets are developed, the new data can be inserted into that report format to provide a more meaningful financial comparison between the individual schools.

Expansion Compatibility Rankings

An important consideration in the district's analysis of its facility investments is adequate capacity for expected enrollment under conditions that the School Board believes is appropriate to meet its and the communities' expectations for high-performing 21st century schools. The following summaries by school include a ranking of Expansion Compatibility by south- and north-side schools based primarily on each site's relative ability and space to accommodate additional classrooms. The rankings do not factor the total costs of expansion at any site as there are multiple expansion options available over a fairly broad range and there are other factors beyond cost that will be significant considerations in the best long-term alignment of district schools. As the district narrows its range of schools within its long-term alignment plan, the costs to maintain the current number of classrooms and to meet expansion goals will need to be accounted for in that analysis. Larger schools may represent a cost avoidance, while smaller schools may represent a cost increase in order to maintain the net total of elementary classrooms.

Effective Life of Facility Investments

Implicit in essentially all facility investment decisions is consideration of the investment's impact on the effective life of the facility. If all other things are equal, a facility investment that extends the effective life of a facility is a better investment candidate than a facility investment that does not extend the effective life or has a shorter extension of the facility's effective life. Within the span of time and information available to the Facility Advisory Committee, the committee was unable to use this factor to distinguish one school site from another.

South-Side Elementary Schools

Hallinan

- Maintenance Summary
  - Priority 1: $813K
    - Replace sealant at brick veneer control joints;
    - Overclad north gymnasium wall with metal;
    - Investigate suspected water intrusion at north wall and correct;
    - Replace windows at classroom clerestory;
    - Replace roofing at covered play area;
    - Replace retrofitted skylights with more permanent solution.
  - Priority 2: $271K
    - Adjust grade with retaining wall at SE corner;
    - Repaint stained ceiling panels;
    - Carpet replacement.
- Concerns
  - Maintenance items such as sealant replacement are a high priority as a mitigation measure against additional damage and should be undertaken as soon as practical, especially where work will be minimally disruptive.
  - Priority 1 costs are a good starting point but are based on incomplete data, especially with regard to unknown suspected water intrusion issues.
  - Hallinan was built c. 1980 and sealants may contain PCBs, which could increase sealant replacement costs.
- Further Studies
  - Test sealants for PCBs as soon as possible to minimize possible post-award cost escalations.
  - Qualified building enclosure specialist should investigate suspected water intrusion and provide letter report of findings along with recommended range of repair or mitigation options.
  - Priority 1 items such as overcladding and clerestory window replacement should have alternate approaches considered and evaluated.
  - Establish and maintain regular capital maintenance plan.
- Expansion Compatibility
  - Estimated cost per classroom/pupil higher than most sites.
  - Ranking Number 3. Hallinan has space for classroom expansion but the terraced site makes expansion more difficult than at some other campuses.

River Grove

- Maintenance Summary
  - Priority 1: $3.2M

- Replace built-up roof;
- Replace single-ply roof;
- Replace exterior soffit panels and wood fascias;
- Replace parking paving and restripe;
- New HVAC.

■ Priority 2: $700K

- Window replacement;
- New flooring;
- Install new plumbing supply lines;
- Interior door frame repair, ceiling tile repair, and casework repair.

○ Concerns

■ Built-up roofs may be beyond their expected lives but may not need to be replaced wholesale depending on condition.

■ Options for other significant maintenance and renewal items should be explored.

○ Further Studies

■ Expand hazardous materials survey to include PCBs in sealants, especially around window frames and cladding control joints, to minimize post-award cost escalations.

■ Roof assessment by qualified building enclosure specialist or roofing consultant including core samples, with conceptual scope and preliminary pricing for three anticipated options: aggressive maintenance, recover, and removal and replacement.

■ Establish and maintain regular capital maintenance plan.

○ Expansion Compatibility

■ Ranking Number: 1. River Grove is an attractive candidate for moderate classroom expansion due to the general site layout and its current size. However, the campus has significant short-term capital investment needs which will be disruptive to occupants. It would make sense to combine the larger ticket repair items with a classroom expansion, especially since the HVAC system is the largest line item in Priority 1 costs and any added space will have a significant impact on HVAC system selection and sizing. HVAC system replacement in advance of possible classroom expansion could entail significant risk. River Grove is the smallest school in the district and only a significant expansion of eight classrooms or more would make sense. Any expansion of classrooms will also need to factor in the removal of two portable buildings, which currently contain four classrooms that are being used.

Westridge

○ Maintenance Summary

■ Priority 1: $1.7M

- Repave and stripe parking lot;
- Structural repairs at covered walkway;
- Replace clerestory windows;
- Replace cedar shake siding with metal;

- Replace damaged truss along west wall;
- Replace sealant at brick veneer control joints;
- Replace roofing throughout;
- East wall gymnasium investigation and repair.

■ Priority 2: $312K

- Adjust grade at playground to drain;
- New carpet;
- Replace wood cladding at covered play area.

○ Concerns

■ Maintenance items such as sealant replacement are a high priority as a mitigation measure against additional damage and should be undertaken as soon as practical.

■ Priority 1 costs are a good starting point but are based on incomplete data, especially with regard to unknown suspected water intrusion issues.

■ Westridge was built c. 1980 and sealants may contain PCBs, which could increase sealant replacement costs.

■ The main roof has exceeded its expected service life. However, that does not automatically mean that full replacement is warranted or required.

○ Further Studies

■ Test sealants for PCBs as soon as possible to minimize possible post-award cost escalations.

■ A qualified building enclosure specialist should investigate suspected water intrusion and provide letter report of findings along with recommended range of repair or mitigation options.

■ Roof assessment by qualified building enclosure specialist or roofing consultant including core samples with conceptual scopes and preliminary pricing for three anticipated options, as well as projected life of each potential system: aggressive maintenance, recover, and removal and replacement.

■ Include an assessment of the structural beam which has been identified as needing replacement along with roof repair options.

■ Establish and maintain regular capital maintenance plan.

○ Expansion Compatibility

■ Ranking Number: 4. Westridge has space for a small classroom expansion and the building's configuration is similar to Hallinan's, but expansion at Westridge requires the removal of several large trees adjacent to the main building and the possible addition of parking to replace parking slips lost to the expansion.

Palisades

○ Maintenance Summary

■ Priority 1: $583K

- Replace gymnasium roof;
- Remove and replace asbestos tile;

- Replace HVAC controls;
- Concrete column coverage.

- Priority 2: $833K
  - HVAC replacement;
  - Replace plumbing supply lines;
  - Accessibility upgrades;
  - Window glazing replacement;
  - New floor coverings.

- Concerns
  - Costs associated with bringing back into operation.
  - Keeping facility operational.
  - Capacity retention for capital projects at adjacent schools.
  - Generating additional revenue or increasing meaningful use.
  - The facilities may not be as well understood as the buildings which have been in continuous use. There may be significant unknown conditions.
  - There may be a disconnect between estimates by RLB and the summary by BBL. For instance, RBL provides a cost to install new glazing in existing frames but it is unknown whether insulated glass units can be retrofit into the existing frames.
- Further Studies
  - Assess roof at gymnasium and provide evaluation of three anticipated options: aggressive maintenance, recover, and removal and replacement.
  - Evaluate window replacement or refurbishment options.
  - Establish and maintain regular capital maintenance plan.
- Expansion Compatibility
  - Ranking Number: 2. Palisades is attractive for classroom expansion given the configuration and site layout. As one of the smaller south-side schools only a larger expansion of 6 to 8 classrooms would make sense, but this may trigger the need for additional restroom capacity not needed for smaller projects. It also has one of the lower anticipated Priority 1 maintenance costs. The Priority 2 costs are among the highest. The two largest Priority 2 line items, water supply piping replacement and HVAC, have implications for classroom expansion as both scopes should be coordinated with any classroom expansion plan.

Bryant Campus of LRJ

- Maintenance Summary
  - Priority 1: $1.6M (+)
    - Site drainage investigation;
    - Repave and stripe parking lot;
    - Replace covered walkways in entirety;
    - Expansive soils mitigation, esp. at south pods;

- Replace exterior wood doors at classroom pods;
- Replace single-ply roofing at classroom pods;
- Replace built-up roofing at some locations.

■ Priority 2: $912K

- ADA accessibility ramps at doors into gym;
- Replace plumbing supply system;
- Replace window glazing with IGU.

○ Concerns

■ Expansive soils have been identified as an issue, especially at the south classroom pods. The Priority 1 costs do not include addressing or mitigating expansive soils.

■ Capacity retention for capital projects at adjacent schools.

■ The Bryant facility has largely been subsumed by LRJ. Some costs appear to be duplicative or are shared with LRJ (Waluga) campus items.

■ There may be mitigation measures related to expansive soils which could prolong the useful life of affected structures.

○ Further Studies

■ Roof assessment by qualified building enclosure specialist or roofing consultant including core samples with conceptual scopes and preliminary pricing for three anticipated options, as well as projected life of each potential system: aggressive maintenance, recover, and removal and replacement.

■ Evaluate window replacement or refurbishment options.

■ Study and provide range of options for expansive soils mitigation.

■ Establish and maintain regular capital maintenance plan.

○ Expansion Compatibility

■ Ranking Number: 5. Classroom expansion at Bryant in terms of elementary capacity is dependent on plans for LRJ as LRJ currently utilizes space at Bryant, plus the final determination of the full extent of the expansive soils condition.

■ The cost of expanding both Bryant and LRJ to sufficiently accommodate both populations may compare favorably to the cost of identified maintenance for River Grove ($3.95 million) plus the appraised land value of the River Grove site ($5.4 million) and the cost of River Grove classroom additions ($2.35 million for 8 classrooms). In addition to potentially greater Capital Opportunity Cost value, is there a functional benefit to having an elementary school share a campus with one of the junior high schools?

North-Side Elementary Schools

Forest Hills

○ Maintenance Summary

■ Priority 1: $1.2M

- Limited site flatwork replacement;
- Paint wood cladding;
- Replace damaged brick veneer where occurs;
- Replace brick wing walls and roofs at four covered exits;
- Replace wood framed windows with aluminum;
- Replace glazing with new IGUs in existing frames;
- Replace built-up roof at central classroom wing;
- Replace metal roof at covered play area;
- New carpet (partial);
- HVAC control system replacement.

■ Priority 2: $670K

- Replace damaged sitework elements (bollards);
- Replace door hardware;
- New carpet (partial);
- Acoustical ceiling tile replacement;
- Interior painting;
- Replace plumbing supply lines;
- Plumbing fixture replacement.

○ Concerns

■ Forest Hills is one of the smaller schools and is one of the oldest facilities in the district.

○ Further Studies

■ Roof assessment by qualified building enclosure specialist or roofing consultant including core samples, with conceptual scope and preliminary pricing for three anticipated options: aggressive maintenance‘ recover‘ removal and replacement.

■ Additional options for addressing roof slope issues should be considered.

■ Establish and maintain regular capital maintenance plan.

○ Expansion Compatibility

■ Ranking Number: 3. Forest Hills is one of the smaller elementary schools but is not a favorable candidate for classroom expansion due to site constraints and the age of the building. It is the smallest of the north side elementary schools and the oldest school overall.

Lake Grove

○ Maintenance Summary

■ Priority 1: $1.1M

- Connect downspout and area drain to storm water system;
- Repair roofing and gutter above music room;
- Interior repairs at music room soffit;

- Replace roofing at covered play area complete with sheathing;
- Replace wood windows at gym with aluminum;
- Replace window glazing with IGUs;
- Replace south wall fascia, cornice, wood windows, veneer and sheathing;
- Investigate and mitigate water intrusion at south wall;
- Replace hallway carpet;
- Replace VCT in kitchen where damaged;
- Replace HVAC controls.

■ Priority 2: $630K

- Repaint wood fascia;
- Replace ten wood door frames;
- New floor finishes;
- Replace plumbing supply lines.

○ Concerns

■ Water intrusion issues are not yet fully identified so costs are not well defined.

○ Further Studies

■ Evaluate window replacement or refurbishment options. It is unknown whether existing frames can be retrofit with new insulated glass units.

■ Qualified building enclosure specialist to conduct evaluation of water intrusion to determine range of mitigation measures.

■ Evaluate roofing replacement options for covered play area, including aggressive maintenance, recover, and removal and replacement.

■ Establish and maintain regular capital maintenance plan.

○ Expansion Compatibility

■ Ranking Number: 2. Lake Grove is only a good candidate for classroom expansion in the context of the other options in the north side. There is reasonable space available though not as easily developed as at Uplands. Like Oak Creek and Uplands, however, Lake Grove is already one of the district's larger schools.

Oak Creek

○ Maintenance Summary

■ Priority 1: $5.2M (based on Construction Costs from October 2014 Supplemental Report)

- Replace cladding;
- Replace windows;
- Replace roofing;
- Associated interior work, including gypsum finishes at exterior walls.

■ Priority 2: $304K

- New carpet;
- New ceiling finishes.

- Concerns
  - Newest elementary but in most need of immediate repair.
  - There are potentially a wide range of repair options.
  - Capacity retention for capital projects at adjacent schools needs to be considered.
  - Oak Creek is the largest of the elementary schools.
  - There are several probable interim mitigation measures which should be investigated, designed, and implemented as soon as practical.
  - Any long-term repairs such as replacement of cladding should be undertaken with long-term performance in mind.
  - As the newest school it performs better than its peers in terms of energy consumption.
  - The roof has reached its expected service life. However, that does not automatically mean that full replacement is warranted or required.
- Further Studies
  - Identify immediate mitigation measures at roofing and cladding:
    - Sealant application options
    - Maintenance coating in localized areas (emergency repairs)
  - Roof assessment by qualified building enclosure specialist or roofing consultant including core samples, with conceptual scope and preliminary pricing for three anticipated options: aggressive maintenance, recover, removal and replacement.
  - Assess fenestration performance. Do the window frames themselves leak or are water intrusion issues related to flashing deficiencies which would allow existing units to be flashed in place?
  - Evaluate wall cladding systems and repair options proposed in BBL reports. Propose alternate approaches where feasible.
  - Establish and maintain regular capital maintenance plan.
- Expansion Compatibility
  - Ranking Number: 4. Oak Creek is not well suited to classroom expansion. It is already the largest elementary school and is the only multi-story elementary school. The site conditions are such that anything other than a minimal expansion would be very difficult.

Uplands

- Maintenance Summary
  - Priority 1: $843K
    - Repave and stripe parking lot;
    - Parge finish at gymnasium;
    - Replace wood cladding at covered play area;
    - Reroof play area, classroom addition, and gymnasium;

- Review integrity of gym roof sheathing;
- Replace HVAC controls.

■ Priority 2: $987K

- Replace window glazing with IGUs;
- Accessibility upgrades at gym;
- Abate asbestos tile at kitchen;
- Replace door hardware;
- New carpet;
- Acoustical ceiling tile replacement;
- Plumbing fixture replacement;
- Replace plumbing supply lines;
- Replace boilers.

○ Concerns

■ Generating additional revenue or increasing meaningful use.

■ Capacity retention for capital projects at adjacent schools. If Oak Creek requires extensive repairs, as is anticipated, then the capacity at Uplands will be required on either a temporary or permanent basis.

■ Costs associated with bringing back into operation.

■ Dependence of LOJ for interim space.

■ Some roofs have reached their expected service life. However, that does not automatically mean that full replacement is warranted or required.

○ Further Studies

■ Roof assessment by qualified building enclosure specialist or roofing consultant including core samples, with conceptual scope and preliminary pricing for three anticipated options: aggressive maintenance, recover, removal and replacement.

■ Since the Capital Opportunity at Uplands of $6.43 million is significantly less than the Capital Opportunity at both Lake Grove ($10.1 million) and Oak Creek ($14 million), LOSD should give consideration to reopening Uplands and closing either Lake Grove or Oak Creek. Additional factors will need to be considered, such as the use of parts of Uplands by LOJ, but all three of these schools are fairly close in size, excepting the Transportation and Facility Operations buildings at Lake Grove.

■ Establish and maintain regular capital maintenance plan.

○ Expansion Compatibility

■ Ranking Number: 1. Uplands is currently only minimally used by LOJ. The site has open space available for expansion and would be the easiest site in the district to add moderate capacity. The biggest issue with expansion at Uplands may be that it is already one of the larger facilities.

Junior High Schools

Lake Oswego Junior

- Maintenance Summary
  - Priority 1: $1.3M
    - Limited site flatwork replacement;
    - Repave and stripe parking lot;
    - Accessibility upgrades to HC parking;
    - Repoint brick veneer where required;
    - Replace built-up roofing throughout;
    - Abate asbestos tile;
    - Replace hollow metal doors;
    - Upgrade exit lighting at gym.
  - Priority 2: $1.54M
    - Replace window glazing with IGUs;
    - New carpet;
    - Replace plumbing supply lines;
    - Replace gas supply lines;
    - Replace boilers.
- New gymnasium.
- Concerns
  - Can a new gymnasium be built prior to Uplands needing to be re-occupied as an elementary school due to capital improvements at Oak Creek or Forest Hills?
  - How dependent is LOJ on the Uplands gymnasium or other facilities?
- Further Studies
  - Roof assessment by qualified building enclosure specialist or roofing consultant including core samples, with conceptual scope and preliminary pricing for three anticipated options: aggressive maintenance, recover, removal and replacement.
  - Is there a reasonable way or need to integrate Uplands into the LOJ campus over the long term?
  - Establish and maintain regular capital maintenance plan.

Lakeridge Junior

- Maintenance Summary
  - Priority 1: $438K
    - Site drainage investigation;
    - Repave and stripe parking lot;
    - Replace covered walkways in entirety;

- Expansive soils mitigation;
- Relocate overflow drain discharge;
- Reseal, clean, and maintain brick veneer;
- Repair and replace wood siding;
- Abate asbestos tile at apparatus room.

■ Priority 2: $537K

- Abate asbestos tile at kitchen and cafeteria;
- Replace door hardware;
- Replace carpet.

○ Concerns

■ Though not extensive, some costs may be shared with Bryant budget items.

■ Expansive soils have been identified as a major issue. The Priority 1 costs do not include addressing or mitigating expansive soils.

■ There may be mitigation measures related to expansive soils which could prolong the useful life of affected structures.

○ Further Studies

■ Structural and geotechnical solutions for extending the projected life beyond 10 years to allow potential 20 years to replacement and refurbishment. The focus should be on identifying a range of immediate mitigation measures with the intent of extending the useful life of the structure to allow for long-term planning.

■ Is it plausible to break off Bryant and revert to an independent elementary school (and add to Lakeridge Jr.) in the intermediate time frame?

■ Establish and maintain regular capital maintenance plan.

Other Facilities

Pool

■ Significant work may need to take place but not studied at this time.

■ Establish and maintain regular capital maintenance plan.

Administration and Tech Center buildings

■ Establish and maintain regular capital maintenance plan.

Transportation and Maintenance buildings (at Lake Grove)

■ Establish and maintain regular capital maintenance plan.

Additional Notes

Security and Technology

The work of this committee and the studies completed by BBL do not take into account recommendations of the Security and Technology Committee. We do not believe that there is any significant overlap in the work of the two committees so recommendations and costs can be considered additive.

Classroom Expansion

The conceptual classroom expansion scenarios presented by BBL are very preliminary. The district should be aware that in addition to possible parking additions, it is likely that additions of classrooms beyond one or two classrooms will also trigger various Building Code and accessibility upgrades to existing structures which may significantly increase the costs associated with adding space. It may be possible to mitigate some of these costs through design. As an example, if a new classroom wing is designed as a separate, free-standing structure, the impact to the existing structure in terms of triggers may be reduced.

One metric in considering classroom expansion potential should be balance. Uplands is the best candidate overall for expansion, but the Nnorth side elementary schools currently have 72 classrooms available with 25 (Uplands) in reserve while the Ssouth side elementary schools have 61 with 19 (Palisades) in reserve. Until more classrooms are added, capacity will continue to be a more pressing issue on the Ssouth side than on the Nnorth side.

Quality Control Provisions

The committee recommends that the district enact several quality control measures to ensure that major capital improvement or repair projects are successful.

The first recommendation is that a new district position be created for a Project and Facilities Manager. That person will be a knowledgeable advocate for the district.

The second recommendation is that project goals, including quantifiable performance criteria, should be communicated unambiguously in design Requests For Proposals and carried through to contracting documents. Longevity and performance for building enclosure components and major mechanical systems should be prioritized to reduce long-term maintenance costs.

The third recommendation is that all major capital improvements involving building enclosures should have a third party building enclosure review of both the contract documents and execution during the construction phase to verify that the building enclosures are built in a manner consistent with project goals.

Long-Term Facility Plan and Advisory Committee

A permanent program must be put in place to address the current and ongoing facilities needs of the district. A committee of community members and district employees shall work together to create a long-term plan addressing construction and maintenance needs of the district, as well as plan for capacity changes. The primary goal of this group will be to provide a transparent long-term structure to eliminate deferred maintenance and plan future upgrades, expansions and capital maintenance for all the school buildings, administration buildings, athletic facilities and related property owned by the district. A 20-year long-term plan as well as a short-term 5-year look ahead plan shall be created and maintained. As funding levels cannot be guaranteed over time and priorities will fluctuate, the 5- and 20-year plans shall

be routinely reviewed and adjusted to give the School Board a current resource year over year as they weigh district priorities.

The success of this committee's work is predicated on funds being acquired to address these needs. To the degree that it is possible, the Board should strive to acquire reasonably stable and an adequate level of reoccurring funds to be used to accomplish this work.

The district's buildings are an asset owned by our community and will always be in need of funds for maintenance. The work put forth by this group should be used to assure the community that funds needed will be applied in the most prudent, thorough, and fair manner possible.

Project and Facilities Manager

A permanent full-time position should be created to act as a liaison between this committee and the superintendent and School Board. This role will also act as Owner's representative on behalf of the district for all capital improvements and maintenance projects. Acting as an adviser to the superintendent and School Board and the committee, this person will present the 5- and 20-year plans and associated recommendations to the Board on a routine basis.

Position Responsibilities

- Act as a liaison between the School Board and the committee.
- Create and implement routine programs to evaluate the condition of the district's properties.
- Maintain a comprehensive record of all current and future building and property needs in the district.
- Establish district standards for construction and ensure that these Standards are communicated within design and contracting documents for all work to ensure the preservation of the community's investment.
- Maintain a high level of continuing education in all things related to education built environments with an emphasis on exterior envelopes, mechanical, electrical, plumbing and fire/life safety.
- Assure that all new construction and repairs are being designed and executed to the highest industry standards and consistent with project goals and district standards. Review and evaluate proposed assemblies for repairs and new construction for likelihood of success in this region's environmental conditions.
- Administrative management of all things related to capital improvements and capital maintenance.

This position will be a full-time employee of the district. Salary and compensation will be derived from maintenance project funds to the maximum degree allowable. It is foreseeable that at some point there will not be enough construction and maintenance activity to absorb the full cost of this position, at which time the salary and compensation shall come from the general fund. The position needs to be in place year over year to prevent the problems we currently face from occurring again. It is projected that the vast majority of the compensation will come from maintenance and facilities funds for the foreseeable future.

Exhibit 1

Lake Oswego School District
Real Estate Study
Integra Realty Appraisal Summary (Task 1)
April 2014

Site	Site Acreage	Site SF	Bldg SF	Assumed Zoning	Underlying Land Value	Value as Improved	Underlying Land SF Value	Underlying Land Bldg SF Value	As Improved Bldg SF Value	Bldg Annual Rent/SF
Forest Hills	5.89	256,725	50,719	R-10	$ 4,000,000	$ 5,600,000	$ 15.58	$ 78.87	$ 110.41	$ 10.00
Hallinan	8.50	370,260	46,144	R-10	$ 5,400,000	$ 5,500,000	$ 14.58	$ 117.02	$ 119.19	$ 11.00
Lake Grove, Bus & FO (1)	10.41	453,460	61,000	GC	$ 9,600,000	$ 6,700,000	$ 21.17	$ 157.38	$ 109.84	$ 10.00
Lake Grove School Only (2)	7.40	322,344	61,000	GC	$ 8,400,000	$ 6,700,000	$ 26.06	$ 137.70	$ 109.84	$ 10.00
Oak Creek (3)	8.51	370,696	63,000	R-5	$ 8,900,000	$ 9,800,000	$ 24.01	$ 141.27	$ 155.56	$ 12.00
Palisades	10.06	438,213	42,846	R-7.5	$ 7,800,000	$ 4,700,000	$ 17.80	$ 182.05	$ 109.70	$ 10.00
River Grove	9.62	419,047	47,315	R-10	$ 5,400,000	$ 5,200,000	$ 12.89	$ 114.13	$ 109.90	$ 10.00
Uplands (2)	6.90	300,564	59,139	R-10	$ 4,600,000	$ 6,500,000	$ 15.30	$ 77.78	$ 109.91	$ 10.00
Westridge	9.81	427,324	46,144	R-10	$ 6,100,000	$ 5,500,000	$ 14.27	$ 132.19	$ 119.19	$ 11.00
Lakeridge Jr. High	28.77	1,253,221	143,318	R-7.5	$ 22,800,000	$ 12,900,000	$ 18.19	$ 159.09	$ 90.01	$ 8.50

Notes:

The values reported above are subject to the definitions, assumptions, and limiting conditions set forth in the Appraisal of Real Property Reports issued by Integra Realty Resources dated March 31, 2014. No party other than Lake Oswego School District 7J may use or rely on the information, opinions and conclusions contained in the Reports. It is assumed that the users of the Reports have read each Report in its entirety, including all of the definitions, assumptions, and limiting conditions contained therein.

1. This accounts for all the land area of the Lake Grove site, including the adjoining Bus area and Facility Operations area. See the detailed Lake Grove Report for more information.

2. These amounts are assumed subdivisions of the actual lots as more fully explained in the detailed Lake Grove and Uplands Reports.

3. As more fully discussed in the detailed Oak Creek Report, Oak Creek has a wetlands that limits development in that sensitve area. Site acreage and square footage include that wetlands area.

Lake Oswego School District
Real Estate Study - BBL Cost Estimate Tasks
April 2014

Exhibit 2

Site	Year Built	Number of Classrooms	Task 2 - Estimated Expansion Costs (4)		Task 3 - Estimated Maintenance Costs (4)			Task 4	Task 5
			Number of Added (3) Classrooms	Cost Estimate to Add Classrooms	Priority 1 Cost Estimate	Priority 2 Cost Estimate	Total Maintenance Cost Estimate	Estimated Cost (4) to Build New Elem. School	Estimated Cost (4) to Add New LOJ Gym
Forest Hills	1949	21	1	$ 671,170	$ 1,290,662	$ 670,422	$ 1,961,084		
Hallinan	1980	22	3	$ 1,114,410	$ 812,617	$ 270,883	$ 1,083,500		
Lake Grove School	1949	25	3	$ 1,262,800	$ 1,109,359	$ 630,002	$ 1,739,361		
Oak Creek (1)	1991	26	1	$ 272,850	$ 3,397,638	$ 351,954	$ 3,749,592		
Palisades	1961	19	8	$ 2,466,000	$ 582,569	$ 823,990	$ 1,406,559		
River Grove	1967	17	8	$ 2,350,920	$ 3,248,194	$ 700,438	$ 3,948,632		
Uplands (1)	1961	25	4	$ 1,291,500	$ 842,736	$ 987,231	$ 1,829,967		
Westridge	1980	22	3	$ 1,070,913	$ 1,704,361	$ 312,029	$ 2,016,390		
New Elementary School (2)	N/A	20	N/A	N/A	N/A	N/A	N/A	$ 13,780,000	
Lake Oswego Jr. High	1956		4	$ 1,557,853	$ 1,305,745	$ 1,541,497	$ 2,847,242		$ 2,069,023
Lakeridge Jr. High - Bryant Campus	1966		N/A	N/A	$ 1,638,186	$ 912,304	$ 2,550,490		
Lakeridge Jr. High - Waluga Campus	1964		N/A	N/A	$ 437,518	$ 537,451	$ 974,969		
Totals				$ 12,058,416	$ 16,369,585	$ 7,738,201	$ 24,107,786		

N/A: Not Applicable

Notes: The cost estimates reported above are subject to the assumptions and limitations set forth in the specific referenced reports issued by BBL Architects dated March 31, 2014. No party other than Lake Oswego School District 7J may use or rely on the information, assessments and conclusions contained in the Reports. It is assumed that the users of the Reports have read each Report in its entirety, including all of the assumptions and limitations contained therein. All amounts are estimates - actual results will differ.

1 The BBL Task 2 Report provides two classroom addition options for this site. The lowest cost addition option is reflected in this analysis.

2 The cost estimate to add a new elementary school does not include site acquisition costs. It assumes a bare level site.

3 Number of Added Classrooms are not indicative of specific plans or identified needs for any school.

4 Cost Estimates are for construction costs; additional costs, primarily architectural fees and other soft costs, would be incurred and would range from approximately 10% to 30% depending on the nature of the work.

Exhibit 3

LOSD Schools Capital Opportunity Cost Analysis
1/21/15

North Side Elementary Schools	Current Students	Student Capacity	Land Value (1)	Priority 1 & 2 Improvements (2)	Additional Improvements (2)	Total Capital Opportunity Costs (3)	Capital Opportunity Cost Per Student
Forest Hills	447	459	$ 4,000,000	$ 1,961,084		$ 5,961,084	$ 12,987
Lake Grove	467	513	$ 8,400,000	$ 1,739,361		$ 10,139,361	$ 21,712
Oak Creek	536	540	$ 8,900,000		$ 5,223,000	$ 14,123,000	$ 26,349
Total	1,450	1,512	$ 21,300,000	$ 3,700,445	$ 5,223,000	$ 30,223,445	$ 20,844
South Side Elementary Schools							
Hallinan	457	459	$ 5,400,000	$ 1,083,500		$ 6,483,500	$ 14,125
River Grove	416	351	$ 5,400,000	$ 3,948,632		$ 9,348,632	$ 26,634
Westridge	458	486	$ 6,100,000	$ 2,016,390		$ 8,116,390	$ 16,700
Total	1,331	1,296	$ 16,900,000	$ 7,048,522		$ 23,948,522	$ 18,479
Out of Service Elementary Schools							
Uplands		540	$ 4,600,000	$ 1,829,967		$ 6,429,967	$ 11,907
Palisades		378	$ 7,800,000	$ 1,406,559		$ 9,206,559	$ 24,356
Bryant (3)		405	$ 6,900,000	$ 974,969		$ 7,874,969	$ 19,444
Total		918	$ 12,400,000	$ 3,236,526		$ 15,636,526	$ 17,033
Elementary Schools Grand Total	2,781	3,726	$ 50,600,000	$ 13,985,493	$ 5,223,000	$ 69,808,493	$ 18,736

Note 1 - The Land Values are based on the April 2014 IRR Appraisals and are subject to the many limitations outlined in those appraisals. Actual net realized proceeds from a sale, if any, are likely to be less.

Note 2 - The improvements costs only represent construction costs and are preliminary estimates. Final costs will include soft costs and will be at least 30% higher.

Note 3- Total Capital Opportunity Costs are the summation of Land Value and total Improvement Costs by site and are an indication of costs that can be avoided and the value that can be derived from a site via disposition. Readers must refer to the Notes accompanying the Committee report for additional information.

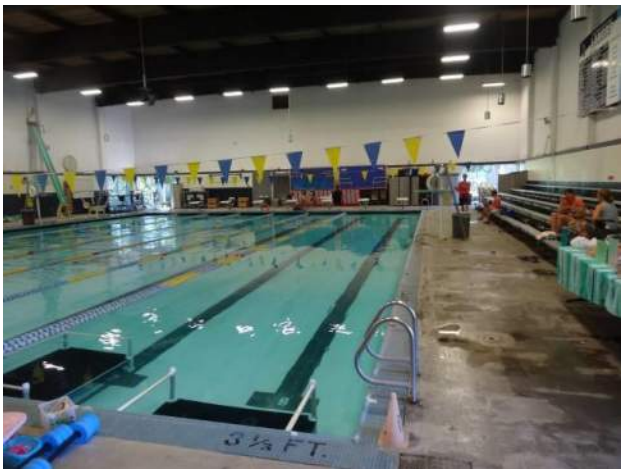
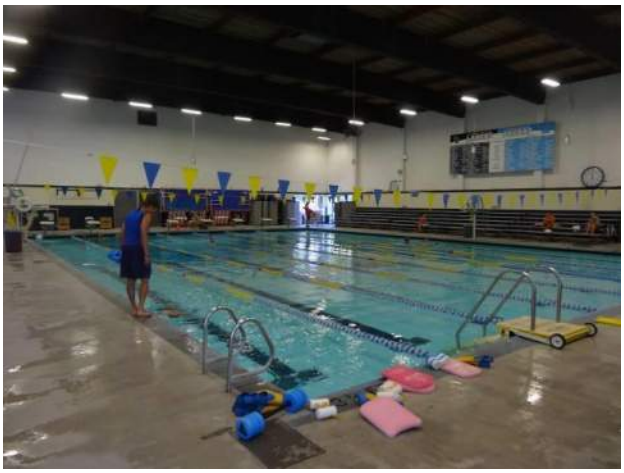
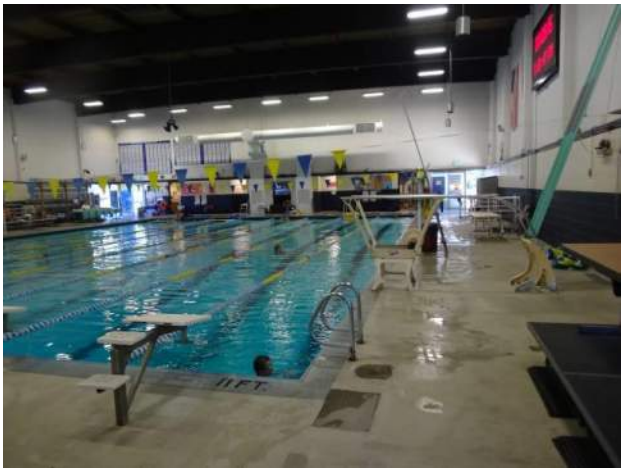
Note 4 - Bryant was not separately appraised in the Real Estate Study. The Bryant Land Value was calculated by the district as 30% of the LRJ total site's Land Value.

LOSD Schools Capital Opportunity Cost Analysis
1/21/15

The following summarizes potential additional costs that could be required at the Junior High Schools under certain elementary configurations. These costs are not included in the costs in page 1 of 1 of this analysis as certain elementary configurations would not require these additional improvements.

	Additional Improvements (2)	Total Capital Opportunity Costs (3)
Additional Junior High Improvements		
Lake Oswego 2nd Gym	$ 2,069,023	$ 2,069,023
Lake Oswego 2 classrooms	$ 775,000	$ 775,000
LOJS Subtotal	$ 2,844,023	$ 2,844,023
Lakeridge 2nd Gym	$ 2,069,023	$ 2,069,023
Lakeridge 12 classrooms	$ 3,700,000	$ 3,700,000
LJH Subtotal	$ 5,769,023	$ 5,769,023
Total	$ 8,613,046	$ 8,613,046
Elementary & Junior High Total	$ 13,836,046	$ 78,421,539

Note - The costs included above assume that the soil conditions as Lakeridge Junior High can be fixed, but no cost estimate for that work is included.
Classroom cost estimates are based on extrapolations from other expansion estimates.


Facility Condition Assessment

Lake Oswego School District (LOSD)
Aquatic Center

Terracon

50 YEARS FORWARD
1965 | 2015

October 2, 2015

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Executive Summary

Terracon completed a site visit on July 28th to the existing Aquatic Center at Lake Oswego School District (LOSD) in Lake Oswego, OR. This report with detailed analyses is based on the staff interviews, the visual observations during the site visit, and information provided by staff in the form of reports, drawings, and specifications.

The pool and pool equipment were evaluated based on current regulatory agency requirements (e.g. OAR, VGB, ADA, NFHS, and USA Swimming) along with industry standards. Although many older facilities are allowed to be grandfathered in for certain code sections, it is important to understand the current requirements and how they affect repairs and renovations. Typically, large renovations to the pool shell or pool equipment require that the entire pool and pool systems be brought up to current standards. Recommended replacement is determined based on the actual condition of the equipment, how well it appeared to have been maintained, and how well it could function if proper maintenance is provided. Consideration was taken when providing repair and/or replacement recommendations based on the manufacturer's warranty period and the remaining life expectancy.

The following list summarizes the priorities identified in the report divided into categories of short term (0 - 5 Year) items, long term (5 - 10 Year) items, and energy saving (Anytime) items. The list does not identify every priority item noted in the report.

General Pool Information

- Competition Pool
- Surface Area = 4,200 SF
- Perimeter = 262 FT
- Dimensions = 25 Yards (75'-0") x 56'-0" Width
- Depth Range = 3'-6" to 11'-0"
- Volume = 187,408 Gallons (200,000 Gallons from Health Department Inspection Form)
- Flowrate = 517 – 521 GPM (Flow Meter Readings at Time of Site Visit)
- Turnover Rate (TR) = 6.04 HRS / 6.44 HRS (At 517 GPM Flow Meter Reading)
- Turnover Rate (Calculated by OR State Code):
  - Total TR For Pool = 521 GPM (6.00 HR) 187,408 Gallons
  - Total TR For Pool = 555 GPM (6.00 HR) 200,000 Gallons
- Concrete Pool Shell with an all Paint Finish
- Fully Recessed Gutter with Tile Trim for Perimeter Overflow System
- Tablet Chlorine, Calcium Hypochlorite (Sanitizer)
- Carbon Dioxide Gas (pH Buffer)
- High Rate Sand Filter System

0 - 5 Years (Short-Term / Immediate)

- Completely drain the pool. Sandblast and remove existing epoxy paint pool finish down to bare concrete. Repair any cracks and imperfections in the concrete pool shell.
- Conduct a water tightness test for the existing pool shell, main drains, and main drain piping to determine if there are any remaining water leaks.
- If the pool shell is not watertight, completely waterproof the interior of the pool shell and the main drain sumps. Perform a second water tightness test for the entire pool shell and main drain sumps prior to application of the pool finish. Provide a bonding agent and apply the epoxy paint finish.
- The concrete surface needs to be properly cleaned and smooth for an effective bond with the epoxy paint. Provide a new epoxy paint finish. Provide new pool floor lane markings and wall targets. All lane markings and wall targets should meet the requirements of NFHS.
- Provide new vertical depth markings and warning signs at no more than 25'-0" intervals on face of gutter.
- Provide a 4” wide contrasting paint band at the 5’-0” depth contour. Band shall go along the pool floor and up the pool walls to the waterline tile. Add two (2) cup anchors and a safety line 24” in front of the 4” band on the shallower side of the 5’-0” contour.
- Provide new PVC grating for the gutter dropouts.
- Replace all gutter dropout piping with new Schedule 80 PVC piping.
- Perform a water tightness test on the gutter system to ensure that there are not any
- Provide new slip-resistant horizontal depth markings and warning signs at no more than 25'-0" intervals.
- Replace portable ADA lift with new fixed battery operated ADA compliant lift with carrying caddie, folding arm rests, belt, foot rest, spineboard attachment, and spare battery.
- Replace all related exposed pool piping (pressure, suction, gravity, and chemical feed) with Schedule 80 PVC piping in the Pool Mechanical Room and Pool Tunnel. Replace all valves with Schedule 80 PVC true union style ball valves and butterfly valves when the pool mechanical room piping is replaced with Schedule 80 PVC. Provide isolation valves for each piece of equipment (e.g. pump, filter system, heater, etc.). Provide valve tags for each valve and post a piping and valve chart system schematic in the pool mechanical room.
- Provide color coded directional arrows on all piping in mechanical room and tunnel. Install valve tags on all valves and provide a posted piping and valve schematic.
- Replace Recirculation pump. Pump should have the following characteristics: 15 HP, 600 GPM @ 75' TDH, 1750 RPM, 3 Phase, Premium Efficiency Motor, TEFC, close-coupled, and end suction. Provide vacuum gauges on the intake suction side and pressure gauges just after the pump on the discharge side. Provide a new hair and lint strainer and a spare hair and lint strainer basket for the new recirculation pump.

- Provide an aquatics programmed VFD to match the new recirculation pump electrical demand.
- Replace flow meter with digital magmeter style flow meter with digital readout on the pool return line after the filters and connect to the VFD and Pool Chemical Controller.
- Provide a new high rate sand filtration system capable of handling a flow rate of 600 GPM. Filter system should have the following characteristics: NSF, total system filter area of 50.0 SF, filtration rate of 12.0 GPM/SF of Filter Area.
- Replace surge tank with new reinforced concrete surge tank in the mechanical room. Disconnect main drain suction piping from surge tank and connect to suction side of recirculation pump with a balancing valve. Provide new gravity gutter dropout piping to surge tank. Adequate overhead clearance will need to be provided over the surge tank lid for the access ports. The surge tank should have a minimum capacity of 4,200 Gallons in addition to a 36" water depth operating level. Provide a lid for the surge tank with an access hatch and adequate ladder rungs on the inside and outside of the surge tank. Completely waterproof the interior surfaces of the surge tank and conduct a water tightness test. All valves in the surge tank shall have valve extensions and be accessible through access ports in the surge tank lid. All lines connected to the surge tank floor should have anti-vortex plates.
- Provide sealed, ventilated, and fire rated chemical storage rooms for the pool chemical delivery systems.
- Replace chemical controller with new chemical controller that can control automatic filter backwashing and interface with the recirculation pump VFD for optimum energy efficiency.
- Provide an ultraviolet light (UV) disinfection and dechloramination system for tertiary water treatment to help maintain better water and air quality in the natatorium.
- Provide an automatic water level control system complete with a monitor located in the pool mechanical room, surge tank mounted sensors for normal and high water levels, and automatic solenoid valves on the fill water manifold.
- Provide a water totalizer meter for the domestic fill water system for the pool with a digital readout.
- Provide housekeeping pads and proper anchorage for all pool equipment (e.g. pump, filters, etc.).
- Provide a Safety Vacuum Release System for the Recirculation Pump until a VGB compliant dual main drain system is added.

5 -10 Years (Long-Term / Future)

- Fix pool floor slope to have code compliant 1:3 slope to depths greater than 5'-0". Deepen deep end to meet minimum recommended water depths for diving (12'-0") and starting blocks (6'-6").
- Provide two (2) new 18" x 36" VGB compliant main drains with 3'-0" minimum spacing between. Hydrostatic relief valves should be provided in each main drain sump for pool draining purposes. If they are not provided, they could be added

when the deep end pool wall modifications take place. It will require partial saw cutting of the pool floor to add the perforated pipe laterals for the hydrostatic relief system.

- Replace pool deck and provide a finish that is slip resistant under dry and wet conditions with no trip hazards or obstructions. Correct pool deck slope to properly drain water away from the pool edge and to the deck drainage system.
- Replace pool deck drainage system to ensure that there is not standing water, low spots, or ponding on the pool deck.
- When the pool deck is replaced and the deck drainage system is added, complete the following: Provide "No Diving Signs" with new slip-resistant markings at the 3'-6" and 5'-0" water depth marking. Add the international "No Diving" symbol to all "No Diving Signs" to be in accordance with industry standards. All tiles located on the pool deck must be slip-resistant.
- When the pool deck replacement is taking place, replace all of the gutter dropout piping, main drain piping, and pressure return piping going between the pool shell and the pool mechanical room with new Schedule 80 PVC piping.
- Replace grab rails and associated anchors, and provide escutcheon plates for anchors.
- Replace diving 1-meter diving board and stand. Relocate to the starting block side of pool to provide adequate deck clearance behind the board.
- Replace starting blocks and anchors. Provide track start platforms with side step for easier access.
- Provide cone shaped plastic safety covers for all starting blocks when they are not in use.
- Recommend purchasing a Pooltest 6 by Palintest that is photometric and utilizes tablet reagents for stability that will allow accurate measurement of free and total chlorine (0-10 ppm), bromine, pH, alkalinity, calcium hardness, and cyanuric acid.
- Provide a new portable filtered vacuum with a booster pump and built in canister filter that returns clean water to the pool.

Anytime (Energy Saving)

- Provide thermal pool covers for when the pool is not in use to reduce pool heating costs
- Consider replacing high rate sand filtration system with regenerative media filtration system to reduce water consumption and pool chemical usage similar to Neptune Benson Defender Model # SP-33-48-732. Filter should be designed to handle a flow rate of 600 GPM, have a filter area of 572 SF, and have a filtration rate of 1.05 GPM/ SF of Filter Area. Filter should use synthetic perlite filter media in lieu of actual DE media.

Opinion of Probable Cost to Repair (Summary)
Please refer to the following for the repair costs associated with the pool deck items, pool items, and pool mechanical items:

- Pool Deck Items = $231,000
- Pool Items = $210,800
- Pool Mechanical Items = $266,500

Estimated Opinion of Probable Cost to Repair = $708,300

Opinion of Probable Cost for Pool Replacement
Please refer to the following for the costs associated with completely removing the existing pool and deck and replacing them with a new reinforced concrete pool with tile finish and a reinforced concrete pool deck of the same size and dimensions:

- New Eight (8) Lane (56 FT) x 25 Yard Pool (75 FT): 4,200 SF x $225/SF = $945,000
- New Pool Deck: 5,000 SF x $30/SF = $150,000
- New Pool Deck Drainage: 325 LF x $60/LF = $19,500
- New Sealed and Ventilated Chemical Rooms: 100 SF x $250/SF = $25,000

Estimated Opinion of Probable Cost for Pool Replacement = $1,139,500

The expected life cycle for a commercial reinforced concrete swimming pool is about 50 years depending on annual maintenance and upkeep. The LOSD swimming pool was built approximately in 1970 and is approximately 45 years old. Relatively little preventative maintenance has been conducted on the swimming pool throughout its history. Most items were only repaired or replaced once they wore to the point of failure. Our field observations provide evidence that the pool systems are not functioning properly, and that the pool does not meet all current applicable codes and industry standards. The cost to completely replace the swimming pool, pool deck, deck drainage, and provide new chemical rooms is comparable to the immediate and near future costs to bring the pool and pool systems up to current codes and standards. It is our recommendation from a longevity and value standpoint that total replacement be strongly considered for LOSD.

I. Pool Items

1.1 Administrative Code

1.2 General Pool Information

1.3 Pool Items

1.4 Site Photographs

1.1 Administrative Code

The state administrative swimming pool code referenced as "Oregon State Swimming Pool Code" or referenced as "Oregon State Code" in the report is as follows.

Oregon Health Authority
Public Health Division
Oregon Administrative Rules (OAR)
Chapter 333 – Division 60
Public Swimming Pools
Current Revision September 1, 2014

National Federation of State High School Associations (NFHS)
2014-2015 Swimming and Diving and Water Polo Rules Book

Applicable Federal Code Section:

Virginia Graeme Baker Pool and Spa Safety Act (VGB)
ASME/ANSI A112.19.81
Signed into Law on December 19, 2007
CPSC Staff Interpretation of Section 1404 issued on June 18, 2008

The administrative code requirements must be satisfied if a major modification of the pool is undertaken or if a particular item or piece of equipment is in need of repair. The recommended repairs address all administrative code items identified in this report.

1.2 General Pool Information

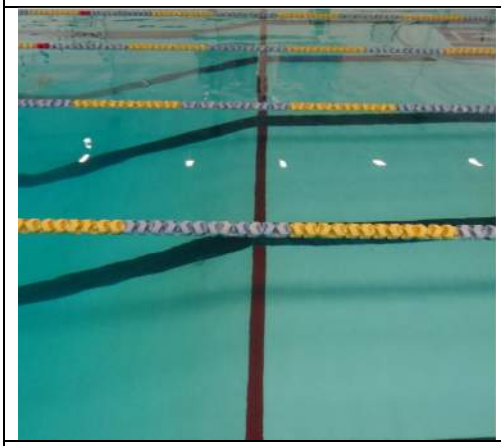
- Competition Pool
- Surface Area = 4,200 SF
- Perimeter = 262 FT
- Dimensions = 25 Yards (75'-0") x 56'-0" Width
- Depth Range = 3'-6" to 11'-0"
- Volume = 187,408 Gallons (200,000 Gallons from Health Department Inspection Form)
- Flowrate = 517 – 521 GPM (Flow Meter Readings at Time of Site Visit)
- Turnover Rate (TR) = 6.04 HRS / 6.44 HRS (At 517 GPM Flow Meter Reading)
- Turnover Rate (Calculated by OR State Code):
  - Total TR For Pool = 521 GPM (6.00 HR) 187,408 Gallons
  - Total TR For Pool = 555 GPM (6.00 HR) 200,000 Gallons
- Concrete Pool Shell with an all Paint Finish
- Fully Recessed Gutter with Tile Trim for Perimeter Overflow System
- Tablet Chlorine, Calcium Hypochlorite (Sanitizer)
- Carbon Dioxide Gas (pH Buffer)
- High Rate Sand Filter System

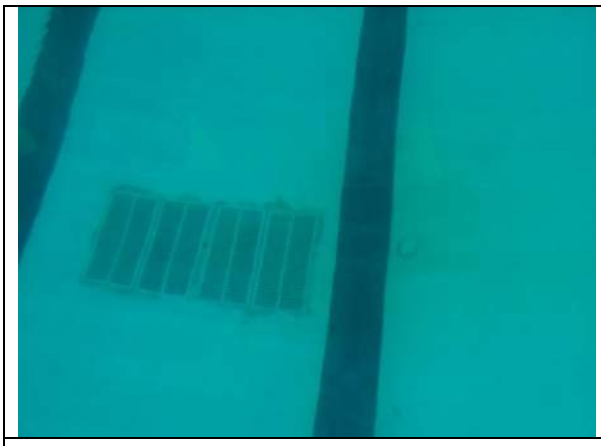
1.3 Pool Items

Pool Items			
Item No.	Observation	Applicable Code Section	Recommendation
1	The existing paint finish appears to be past its useful life. The lane markings were observed to be fading. There were areas where signs of corrosion and staining were observed on the pool floor.	OAR 333-060-0065 requires that all pool wall and floor finishes be white or light in color and be impervious, enduring, smooth, and easily cleanable.	Sandblast and remove existing epoxy paint pool finish down to bare concrete. Repair any cracks and imperfections in the concrete pool shell.
2	The existing paint finish appears to be past its useful life. The lane markings were observed to be fading. There were areas where signs of corrosion and staining were observed on the pool floor.	OAR 333-060-0065 requires that all pool wall and floor finishes be white or light in color and be impervious, enduring, smooth, and easily cleanable.	Replace epoxy paint pool finish.
3	The slope transition from 5'-0" is severe and poses a safety hazard to both inexperienced swimmers and divers. Current slope is approximately 4:5 vertical feet to horizontal feet at the worst case along the starting block end of the pool.	Minimum recommended water depth for starting blocks according to USA Swimming is 6 FT. Aquatics Industry Standard is a 6'-6". Minimum allowable water depth for 1M Diving according to NFHS is 12'-0" at plummet. Current OAR 333-060-0060(5)(b) requires a maximum slope of 1:3 in the transition area from shallow to deep.	Fix pool floor slope to have code compliant 1:3 slope to depths greater than 5'-0". Deepen deep end to meet minimum recommended water depths for diving (12'-0") and starting blocks (6'-6").
4	Only one (1) main drain suction outlet is located in the pool floor. The dimensions of the main drain grate and sump could not be determined at the time of the site visit. A Safety Vacuum Relief System (SVRS) is not provided for the recirculation pump.	OAR 333-060-0128(2) requires two main drain suction outlets at the lowest point of the pool floor. OAR 333-060-0128(3) lists all of the VGB requirements. Industry standard is two (2) VGB compliant main drain grates and sumps for all recirculation pumps. OAR requires that each main drain be capable of handling 100% of the recirculation flow rate.	Provide two (2) new 18" x 36" VGB compliant main drains with 3'-0" minimum spacing between.

5	Depth markings were observed to not meet current code requirements for location at 1 FT depth increments and to exceed the spacing requirements. Deck located depth markings did not appear to be slip-resistant.	OAR 333-069-0065(4-5) requires 4" high contrasting depth markings for 1 Foot Depth increments at a spacing of no more than 25 FT at horizontal and vertical locations.	Provide new vertical depth markings and warning signs at no more than 25'-0" intervals on face of gutter.
6	A contrasting band is provided at the slope break, but no lifeline was observed to be installed.	OAR 333-069-0065(2 -3) requires a 4" contrasting band and lifeline at the slope break from shallow to deep.	Provide 4" contrasting band and safety rope at 5'-0" water depth contour and slope break.
Note: According to OAR 333-060-0020(5) certain exemptions are provided to pools built prior to March 1, 1979 provided that the exemption does not present a health or safety hazard. Exemptions do not apply to any alteration or replacement of affected component.			

1.4 Site Photographs






5 FT.


7
6
NO DIVING

II. Pool Deck Items

2.1 Pool Deck Items

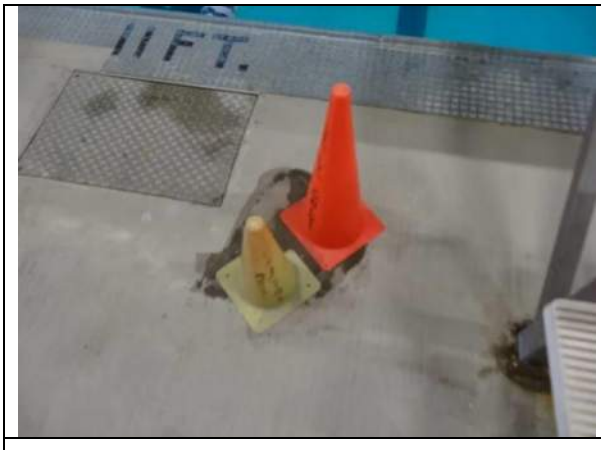
2.2 Site Photographs

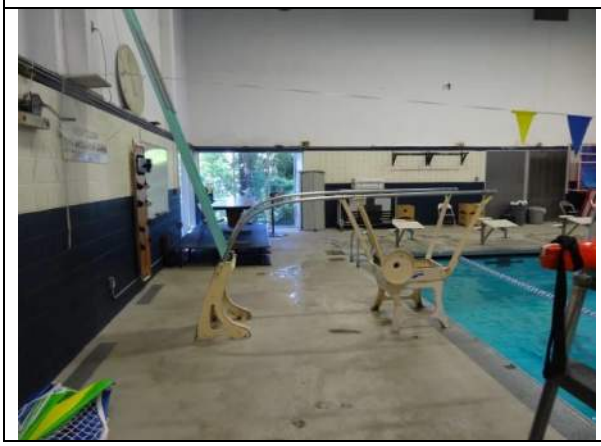
2.1 Pool Deck Items

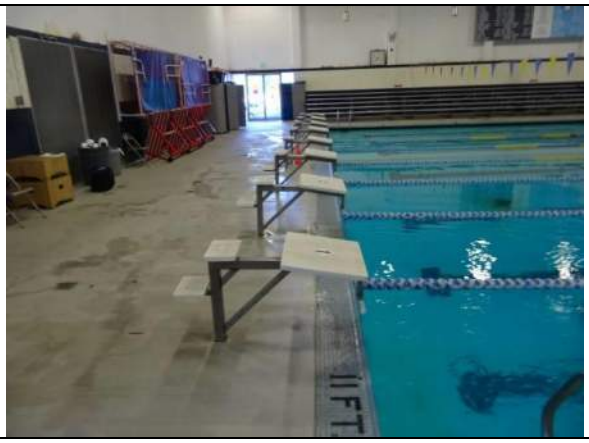
Pool Deck Items			
Item No.	Observation	Applicable Code Section	Recommendation
1	The existing pool deck appears to be past its useful life. There are several areas of the deck that have been coned off due to safety hazards of uneven and sharp deck surfaces. There are visual areas of water ponding throughout the pool deck. The mixed surface of tile band and concrete does not appear to be slip-resistant in both wet and dry conditions.	OAR 333-060-0110(4) requires that the deck be constructed of concrete, non-slip tile, or equally impervious material with a slip-resistant, easily cleanable surface. OAR 333-060-0110(8) requires deck surface elevations to vary no more than 1/4". OAR 333-060-0110(3) requires a minimum deck drainage slope of 1/4" per foot.	Replace pool deck and provide a finish that is slip resistant under dry and wet conditions with no trip hazards or obstructions. Correct pool deck slope to properly drain water away from the pool edge and to the deck drainage system.
2	There are visual areas of water ponding throughout the pool deck.	OAR 333-060-0110(3) requires a minimum deck drainage slope of 1/4" per foot. Industry standards requires all deck drainage to slope away from the pool wall and for there to be no standing water on the pool deck.	Replace pool deck drainage system to ensure that there is not standing water, low spots, or ponding on the pool deck.
3	Depth markings were observed to not meet current code requirements for location at 1 FT depth increments and to exceed the spacing requirements. Deck located depth markings did not appear to be slip-resistant.	OAR 333-069-0065(4-5) requires 4" high contrasting depth markings for 1 Foot Depth increments at a spacing of no more than 25 FT at horizontal and vertical locations.	Provide new slip-resistant horizontal depth markings and warning signs at no more than 25'-0" intervals.
4	The grab rail anchors were observed to not have escutcheon plate covers. Additionally, severe signs of corrosion were observed at the anchors.	OAR 333-060-0080(9) requires that all ladders and handrails be securely mounted.	Replace grab rails and associated anchors, and provide escutcheon plates for anchors.
5	A portable lift was observed to be in the pool storage room at the time of the site visit. The working order of the lift could not be determined.	ADA regulations for public swimming pools require that a pool with a linear perimeter of less than 300 FT have one (1) primary means of access. A pool lift satisfies this requirement if it is properly secured to the deck, installed, and ready for use whenever the pool is open to the public.	Replace portable ADA lift with new fixed battery operated ADA compliant lift with carrying caddie, folding arm rests, belt, foot rest, spineboard attachment, and spare battery.

6	The deck clearance behind the diving board was observed to not meet the current code standards. The area behind the diving board produces a pinch point on the pool deck and poses a potential safety hazard for patrons walking behind the board and lifeguards in the event of a rescue in the deep end of the pool.	OAR 333-060-0110(1) requires 8 FT of unobstructed deck width around all general-use swimming pools.	Replace diving 1-meter diving board and stand. Relocate to the starting block side of pool to provide adequate deck clearance behind the board.
7	The existing starting blocks were observed to be potentially hard for swimmers to climb up and down with the spacing of the rear step and the platform top.	Current starting blocks available for the commercial aquatics industry have rear or side steps located adjacent to the starting platform. A track-start platform top provides more surface area for swimmers and easier access on and off the block.	Replace starting blocks and anchors. Provide track start platforms with side step for easier access.
8	The pool was open for lap swimming and lesson teaching at the time of observation. The starting blocks were observed to be uncovered and not blocked off.	Starting blocks should only be used for competitive swimming competition or practice by those trained to use them. The starting blocks should be covered to prevent accidents during non-competition programming.	Provide cone shaped plastic safety covers for all starting blocks when they are not in use.
Note: According to OAR 333-060-0020(5) certain exemptions are provided to pools built prior to March 1, 1979 provided that the exemption does not present a health or safety hazard. Exemptions do not apply to any alteration or replacement of affected component.			

2.2 Site Photographs





III. Pool Mechanical Items

3.1 Pool Mechanical Items

3.2 Site Photographs

3.1 Pool Mechanical Items

Pool Mechanical Items			
Item No.	Observation	Applicable Code Section	Recommendation
1	The existing exposed pool piping in the pool mechanical room and tunnel area was observed to be a mix of original ferrous piping, and various types of PVC piping.	Current industry standards for commercial swimming pool are based around Schedule 80 PVC for all Mechanical Room piping and CPVC for all heater loop piping.	Replace all related exposed pool piping (pressure, suction, gravity, and chemical feed) with Schedule 80 PVC piping in the Pool Mechanical Room and Pool Tunnel.
2	Not all of the piping was observed to have color coded directional flow arrows. None of the valves were observed to be tagged. No piping or valve schematic was observed to be posted.	Industry standards require proper color coded directional flow arrows on all piping, all valves to be tagged, and a posted piping and valve chart schematic.	Provide color coded directional arrows on all piping in mechanical room and tunnel. Install valve tags on all valves and provide a posted piping and valve schematic.
3	The existing recirculation pump appears to have had its motor replaced. The hair and lint strainer and pump volute appear to be original. The piping on the suction and discharge sides of the pump reduces without concentric reducers. It does not appear that there is enough access on the backside of the pump motor. No isolation valves were observed to be installed for the below grade strainer.	OAR 333-060-0160(1)(a) requires 3 FT of unobstructed access to all operational and maintenance portions of the equipment. OAR 333-060-0135(1)(b) requires strainers below water level have isolation valves for cleaning.	Replace recirculation pump, hair and lint strainer, vacuum gauge, and pressure gauge. Pump should have the following characteristics: 15 HP, 600 GPM @ 75' TDH, 1750 RPM, 3 Phase, Premium Efficiency Motor, TEFC, close-coupled, and end suction. Provide spare basket for hair and lint strainer.
4	Existing recirculation does not appear to have a dedicated Motor Control Panel or Variable Frequency Drive.		Provide aquatics programmed VFD to match the new recirculation pump electrical demand.
5	The existing flow meter was observed to be installed incorrectly prior to the filter system.	OAR 333-060-0155(1) requires that flow meters be mounted per the manufacturer's recommendations.	Replace flow meter with digital magmeter style flow meter with digital readout on the pool return line after the filters and connect to the VFD and

	Current flow meter was observed to be installed prior to the filter system.		Pool Chemical Controller.
6	The filter system appears to be past its useful life and does not have proper maintenance access, or floor anchors. Could not confirm the working order of the pressure gauges while onsite. The flow meter display mounted on the filter gauge panel does not appear to be working.	Industry standard warranty for high rate sand filters is 15 years. OAR 333-060-0155(2) requires that pressure gauges be installed for all filter systems. OAR 333-060-0160(1)(a) requires 3 FT of unobstructed access to all operational and maintenance portions of the equipment.	Provide a new high rate sand filtration system capable of handling a flow rate of 600 GPM. Filter system should have the following characteristics: NSF, total system filter area of 50.0 SF, filtration rate of 12.0 GPM/SF of Filter Area.
7	The existing pool gutter was observed to be flooded at the time of the site visit and not operating correctly. The piping to the surge tank did not appear to meet gravity flow requirements. The surge tank was observed to have unsafe access and to also be in a flooded condition.	OAR 333-060-0120(3) requires that the overflow system handle at least 50% of the recirculation water. Surge tanks are classified as a confined space by OSHA and should have safe access for maintenance staff.	Replace surge tank with new reinforced concrete surge tank in the mechanical room. Disconnect main drain suction piping from surge tank and connect to suction side of recirculation pump with a balancing valve. Provide new gravity gutter dropout piping to surge tank. Provide access ladder rungs on exterior and interior of tank with a bilco type access hatch in the surge tank lid. Provide a tank vent to the building exterior. Completely waterproof interior of surge tank and conduct a water tightness test. The suction line from the surge tank to the recirculation pump should have an anti-vortex plate in the surge tank.
8	The pool sanitizer chemicals (Calcium Hypochlorite) and pH Buffer chemicals (Carbon Dioxide Gas) were observed to be stored in the general pool mechanical room space. The quantities of calcium hypochlorite onsite appear to greatly exceed the allowable quantities per the IBC.	The International Building Code (IBC) and Local Fire Marshal provide requirements for the storage and use of hazard materials. Calcium Hypochlorite is classified as an oxidizer and typically is required to be stored in a fire rated room with sprinkling and proper ventilation to the building exterior. Carbon Dioxide should also be stored in a separate chemical storage room with proper ventilation since it is classified as a health hazard.	Provide sealed, ventilated, and fire rated chemical storage rooms for the pool chemical delivery systems.

9	Existing chemical controller appears to not be installed properly. The chemical controller was observed to not be recording the proper flow rate and not all of the sensors appear to be connected.		Replace chemical controller with new chemical controller that can control automatic filter backwashing and interface with the recirculation pump VFD for optimum energy efficiency.
10	Currently no UV System is installed.	The Model Aquatic Health Code (MAHC) proposes the use of UV systems on all indoor natatoriums. UV systems as a tertiary water treatment help reduce chloramines and combat cryptosporidium in the pool water.	Provide an ultraviolet light (UV) disinfection and dechloramination system for tertiary water treatment to help maintain better water and air quality in the natatorium.
11	Existing fill system appears to be routed to the pool wall.	Industry standard for pools with a surge tank, is a surge tank mounted water level control sensor with a fill funnel to the surge tank.	Provide an automatic water level control system complete with a monitor located in the pool mechanical room, surge tank mounted sensors for normal and high water levels, and automatic solenoid valves on the fill water manifold.
12	Currently there is no way to monitor the pool water usage from the rest of the building.		Provide a water totalizer meter for the domestic fill water system for the pool with a digital readout.
13	The majority of the pool equipment was observed to not have proper housekeeping pads, anchorage, or maintenance access.	OAR 333-060-0160(1)(a) requires 3 FT of unobstructed access to all operational and maintenance portions of the equipment.	Provide housekeeping pads and proper anchorage for all pool equipment (e.g. pump, filters, etc.).
Note: According to OAR 333-060-0020(5) certain exemptions are provided to pools built prior to March 1, 1979 provided that the exemption does not present a health or safety hazard. Exemptions do not apply to any alteration or replacement of affected component.			

3.2 Site Photographs


IAE
INFLUENT
EFFLUENT
SIGNET

IV. Conclusion

CONCLUSION

The items/issues addressed in this report reflect only the observable conditions during the site visit. It is therefore suggested that the report be amended and/or expanded as necessary by individuals that have been involved with the day-to-day operation of the facility. Their experience and knowledge of the pool's history is vital in preparing a comprehensive appraisal of the facilities shortcomings and specific defects.

0 - 5 Years (Short-Term / Immediate)

- Completely drain the pool. Sandblast and remove existing epoxy paint pool finish down to bare concrete. Repair any cracks and imperfections in the concrete pool shell.
- Conduct a water tightness test for the existing pool shell, main drains, and main drain piping to determine if there are any remaining water leaks.
- If the pool shell is not watertight, completely waterproof the interior of the pool shell and the main drain sumps. Perform a second water tightness test for the entire pool shell and main drain sumps prior to application of the pool finish. Provide a bonding agent and apply the epoxy paint finish.
- The concrete surface needs to be properly cleaned and smooth for an effective bond with the epoxy paint. Provide a new epoxy paint finish. Provide new pool floor lane markings and wall targets. All lane markings and wall targets should meet the requirements of NFHS.
- Provide new vertical depth markings and warning signs at no more than 25'-0" intervals on face of gutter.
- Provide a 4” wide contrasting paint band at the 5’-0” depth contour. Band shall go along the pool floor and up the pool walls to the waterline tile. Add two (2) cup anchors and a safety line 24” in front of the 4” band on the shallower side of the 5’-0” contour.
- Provide new PVC grating for the gutter dropouts.
- Replace all gutter dropout piping with new Schedule 80 PVC piping.
- Perform a water tightness test on the gutter system to ensure that there are not any
- Provide new slip-resistant horizontal depth markings and warning signs at no more than 25'-0" intervals.
- Replace portable ADA lift with new fixed battery operated ADA compliant lift with carrying caddie, folding arm rests, belt, foot rest, spineboard attachment, and spare battery.
- Replace all related exposed pool piping (pressure, suction, gravity, and chemical feed) with Schedule 80 PVC piping in the Pool Mechanical Room and Pool Tunnel. Replace all valves with Schedule 80 PVC true union style ball valves and butterfly valves when the pool mechanical room piping is replaced with Schedule 80 PVC. Provide isolation valves for each piece of equipment (e.g. pump, filter system, heater, etc.). Provide valve tags for each valve and post a piping and valve chart system schematic in the pool mechanical room.

- Provide color coded directional arrows on all piping in mechanical room and tunnel. Install valve tags on all valves and provide a posted piping and valve schematic.
- Replace Recirculation pump. Pump should have the following characteristics: 15 HP, 600 GPM @ 75' TDH, 1750 RPM, 3 Phase, Premium Efficiency Motor, TEFC, close-coupled, and end suction. Provide vacuum gauges on the intake suction side and pressure gauges just after the pump on the discharge side. Provide a new hair and lint strainer and a spare hair and lint strainer basket for the new recirculation pump.
- Provide an aquatics programmed VFD to match the new recirculation pump electrical demand.
- Replace flow meter with digital magmeter style flow meter with digital readout on the pool return line after the filters and connect to the VFD and Pool Chemical Controller.
- Provide a new high rate sand filtration system capable of handling a flow rate of 600 GPM. Filter system should have the following characteristics: NSF, total system filter area of 50.0 SF, filtration rate of 12.0 GPM/SF of Filter Area.
- Replace surge tank with new reinforced concrete surge tank in the mechanical room. Disconnect main drain suction piping from surge tank and connect to suction side of recirculation pump with a balancing valve. Provide new gravity gutter dropout piping to surge tank. Adequate overhead clearance will need to be provided over the surge tank lid for the access ports. The surge tank should have a minimum capacity of 4,200 Gallons in addition to a 36" water depth operating level. Provide a lid for the surge tank with an access hatch and adequate ladder rungs on the inside and outside of the surge tank. Completely waterproof the interior surfaces of the surge tank and conduct a water tightness test. All valves in the surge tank shall have valve extensions and be accessible through access ports in the surge tank lid. All lines connected to the surge tank floor should have anti-vortex plates.
- Provide sealed, ventilated, and fire rated chemical storage rooms for the pool chemical delivery systems.
- Replace chemical controller with new chemical controller that can control automatic filter backwashing and interface with the recirculation pump VFD for optimum energy efficiency.
- Provide an ultraviolet light (UV) disinfection and dechloramination system for tertiary water treatment to help maintain better water and air quality in the natatorium.
- Provide an automatic water level control system complete with a monitor located in the pool mechanical room, surge tank mounted sensors for normal and high water levels, and automatic solenoid valves on the fill water manifold.
- Provide a water totalizer meter for the domestic fill water system for the pool with a digital readout.
- Provide housekeeping pads and proper anchorage for all pool equipment (e.g. pump, filters, etc.).

- Provide a Safety Vacuum Release System for the Recirculation Pump until a VGB compliant dual main drain system is added.

5 -10 Years (Long-Term / Future)

- Fix pool floor slope to have code compliant 1:3 slope to depths greater than 5'-0". Deepen deep end to meet minimum recommended water depths for diving (12'-0") and starting blocks (6'-6").
- Provide two (2) new 18" x 36" VGB compliant main drains with 3'-0" minimum spacing between. Hydrostatic relief valves should be provided in each main drain sump for pool draining purposes. If they are not provided, they could be added when the deep end pool wall modifications take place. It will require partial saw cutting of the pool floor to add the perforated pipe laterals for the hydrostatic relief system.
- Replace pool deck and provide a finish that is slip resistant under dry and wet conditions with no trip hazards or obstructions. Correct pool deck slope to properly drain water away from the pool edge and to the deck drainage system.
- Replace pool deck drainage system to ensure that there is not standing water, low spots, or ponding on the pool deck.
- When the pool deck is replaced and the deck drainage system is added, complete the following: Provide “No Diving Signs” with new slip-resistant markings at the 3’-6” and 5’-0” water depth marking. Add the international “No Diving” symbol to all “No Diving Signs” to be in accordance with industry standards. All tiles located on the pool deck must be slip-resistant.
- When the pool deck replacement is taking place, replace all of the gutter dropout piping, main drain piping, and pressure return piping going between the pool shell and the pool mechanical room with new Schedule 80 PVC piping.
- Replace grab rails and associated anchors, and provide escutcheon plates for anchors.
- Replace diving 1-meter diving board and stand. Relocate to the starting block side of pool to provide adequate deck clearance behind the board.
- Replace starting blocks and anchors. Provide track start platforms with side step for easier access.
- Provide cone shaped plastic safety covers for all starting blocks when they are not in use.
- Recommend purchasing a Pooltest 6 by Palintest that is photometric and utilizes tablet reagents for stability that will allow accurate measurement of free and total chlorine (0-10 ppm), bromine, pH, alkalinity, calcium hardness, and cyanuric acid.
- Provide a new portable filtered vacuum with a booster pump and built in canister filter that returns clean water to the pool.

Anytime (Energy Saving)

- Provide thermal pool covers for when the pool is not in use to reduce pool heating costs

- Consider replacing high rate sand filtration system with regenerative media filtration system to reduce water consumption and pool chemical usage similar to Neptune Benson Defender Model # SP-33-48-732. Filter should be designed to handle a flow rate of 600 GPM, have a filter area of 572 SF, and have a filtration rate of 1.05 GPM/ SF of Filter Area. Filter should use synthetic perlite filter media in lieu of actual DE media.

V. Opinion of Probable Cost

OPINION OF PROBABLE CONSTRUCTION COST

Preparing a budget to restore the pool and putting the pool back into a “new” operating condition must take into account possible "surprises" that may surface during the process. Accordingly, the recommendations for remedial work and/or equipment described in this report must be assumed to be the minimum required based on visual assessments and from commentary by staff.

The following cost estimate addresses the items identified in this report needing repair, replacement, or renovation. The estimate addresses the deficiencies of the aquatic center and swimming pool, safety related items for the facility, and code related items that are required by local governing agencies.

The opinion of probable costs provided for all of the options listed are strictly “ball park” numbers and are meant as a starting point for budgetary and planning purposes to schedule repairs in the future. Terracon and the Design Team highly recommends soliciting multiple bid quotes for each item prior to contracting any work to ensure the most competitive and up to date bid numbers.

POOL DECK ITEMS	1	Replace pool deck and provide a finish that is slip resistant under dry and wet conditions with no trip hazards or obstructions. Correct pool deck slope to properly drain water away from the pool edge and to the deck drainage system.	5000	sf	$30/sf	$150,000.00
	2	Replace pool deck drainage system to ensure that there is not standing water, low spots, or ponding on the pool deck.	325	lf	$60/lf	$19,500.00
	3	Provide new slip-resistant horizontal depth markings and warning signs at no more than 25'-0" intervals.	16	units	$250/unit	$4,000.00
	4	Replace grab rails and associated anchors, and provide escutcheon plates for anchors.	4	units	$2,500/unit	$10,000.00
	5	Replace portable ADA lift with new fixed battery operated ADA compliant lift with carrying caddie, folding arm rests, belt, foot rest, spineboard attachment, and spare battery.	1	unit	$6,500/unit	$6,500.00
	6	Replace diving 1-meter diving board and stand. Relocate to the starting block side of pool to provide adequate deck clearance behind the board.		ls	$15,000.00	$15,000.00
	7	Replace starting blocks and anchors. Provide track start platforms with side step for easier access.	8	units	$3000/unit	$24,000.00
	8	Provide cone shaped plastic safety covers for all starting blocks when they are not in use.	8	units	$250/unit	$2,000.00
					TOTAL COST	$231,000.00

POOL ITEMS	1	Sandblast and remove existing epoxy paint pool finish down to bare concrete. Repair any cracks and imperfections in the concrete pool shell.	5800	sf	$2/sf	$11,600.00
	2	Replace epoxy paint pool finish.	5800	sf	$4/sf	$23,200.00
	3	Fix pool floor slope to have code compliant 1:3 slope to depths greater than 5'-0". Deepen deep end to meet minimum recommended water depths for diving (12'-0") and starting blocks (6'-6").		ls	$150,000	$150,000.00
	4	Provide two (2) new 18" x 36" VGB compliant main drains with 3'-0" minimum spacing between.	2	units	$10,000/unit	$20,000.00
	5	Provide new vertical depth markings and warning signs at no more than 25'-0" intervals on face of gutter.	16	units	$250/unit	$4,000.00
	6	Provide 4" contrasting band and safety rope at 5'-0" water depth contour and slope break.		ls	$2,000	$2,000.00
					TOTAL COST	$210,800.00

POOL MECHANICAL ITEMS	1	Replace all related exposed pool piping (pressure, suction, gravity, and chemical feed) with Schedule 80 PVC piping in the Pool Mechanical Room and Pool Tunnel.		ls	$70,000	$70,000.00
	2	Provide color coded directional arrows on all piping in mechanical room and tunnel. Install valve tags on all valves and provide a posted piping and valve schematic.		ls	$1,500	$1,500.00
	3	Replace recirculation pump, hair and lint strainer, vacuum gauge, and pressure gauge. Pump should have the following characteristics: 15 HP, 600 GPM @ 75' TDH, 1750 RPM, 3 Phase, Premium Efficiency Motor, TEFC, close-coupled, and end suction. Provide spare basket for hair and lint strainer.	1	unit	$10,000/unit	$10,000.00
	4	Provide aquatics programmed VFD to match the new recirculation pump electrical demand.	1	unit	$10,000/unit	$10,000.00
	5	Replace flow meter with digital magmeter style flow meter with digital readout on the pool return line after the filters and connect to the VFD and Pool Chemical Controller.	1	unit	$1,000/unit	$1,000.00
	6	Provide a new high rate sand filtration system capable of handling a flow rate of 600 GPM. Filter system should have the following characteristics: NSF, total system filter area of 50.0 SF, filtration rate of 12.0 GPM/SF of Filter Area.	2	units	$25,000/unit	$50,000.00
	7	Replace surge tank with new reinforced concrete surge tank in the mechanical room. Disconnect main drain suction piping from surge tank and connect to suction side of recirculation pump with a balancing valve. Provide new gravity gutter dropout piping to surge tank. Provide access ladder rungs on exterior and interior of tank with a bilco type access hatch in the surge tank lid. Provide a tank vent to the building exterior. Completely waterproof interior of surge tank and conduct a water tightness test. The suction line from the surge tank to the recirculation pump should have an anti-vortex plate in the surge tank.		ls	$40,000	$40,000.00
	8	Provide sealed, ventilated, and fire rated chemical storage rooms for the pool chemical delivery systems.	100	sf	$250/sf	$25,000.00
	9	Replace chemical controller with new chemical controller that can control automatic filter backwashing and interface with the recirculation pump VFD for optimum energy efficiency.	1	unit	$10,000/unit	$10,000.00
	10	Provide an ultraviolet light (UV) disinfection and dechloramination system for tertiary water treatment to help maintain better water and air quality in the natatorium.	1	unit	$40,000/unit	$40,000.00
	11	Provide an automatic water level control system complete with a monitor located in the pool mechanical room, surge tank mounted sensors for normal and high water levels, and automatic solenoid valves on the fill water manifold.		ls	$2,500	$2,500.00
	12	Provide a water totalizer meter for the domestic fill water system for the pool with a digital readout.	1	unit	$1,500	$1,500.00
	13	Provide housekeeping pads and proper anchorage for all pool equipment (e.g. pump, filters, etc.).		ls	$5,000	$5,000.00
					TOTAL COST	$266,500.00

All rates current as of September 2015. See Cost Analysis for itemized price listings.	TOTAL COST TO REPAIR	$708,300.00
	NEW EIGHT (8) LANE 25 YARD POOL (75'-0" X 56'-0", 4,200 SF)	$945,000.00
	NEW POOL DECK	$150,000.00
	NEW POOL DECK DRAINAGE SYSTEM	$19,500
	NEW CHEMICAL ROOMS	$25,000
	TOTAL COST TO REPLACE*	$1,139,500.00

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School Building	Num. of APs	Enrollment 09-2015	APs Required	AP Deficit	% 8-wire CAT-5	% 4-wire CAT-5	% Add'l drops req'd	
LOH	29	1348	90	-61	100%	0%	30	(for AP installation and lab enhancements)
LHS	33	1153	77	-44	100%	0%	30	(for AP installation and lab enhancements)
LOJ	33	924	62	-29	15%	85%	150	
LJH	24	785	52	-28	38%	62%	150	
FH	12	452	30	-18	66%	33%	200	
OCE	16	536	36	-20	100%	0%	200	
LG	18	413	28	-10	35%	65%	200	
RG	15	501	33	-18	100%	0%	200	
WR	14	480	32	-18	75%	25%	200	
HAL	14	436	29	-15	75%	25%	200	
TOTALS	208	7028	469	-261				

Notes:

a) Recommended AP-to-device ratio (per County support technician), 1:30

b) AP requirements assume 3 devices per student, 2 connected at any one time

c) AP requirements include other wireless connected devices in the count

d) 4-wire CAT-5 must be completely replaced, cannot carry signal for "modern" devices

e) Additional drops needed includes increasing drops-per-classroom and infrastructure necessary for AP installation

f) Numbers do NOT include required hardware to replace decade-old switching equipment

g) Numbers do NOT include necessary facility build-out for creation of IDF closets to host switching equipment

i) AP required calc is (enrollment X 2 devices), then divided by 30 handled by each AP