

**ALBANY UNIFIED SCHOOL DISTRICT
BOARD AGENDA BACKUP**

Special Meeting of May 15, 2018

ITEM: WORK STUDY ON ELEMENTARY SCHOOL CONSTRUCTION

PREPARED BY: VALERIE WILLIAMS, SUPERINTENDENT

TYPE OF ITEM: REVIEW AND ACTION

PURPOSE: For the Board of Education to determine how AUSD can best satisfy educational needs, expand capacity, improve facilities, and build a permanent district office at the Ocean View site with the \$41.5 million that is budgeted

BACKGROUND INFORMATION/DETAILS: At the April 3, 2018 Board of Education meeting, information was presented on elementary school construction. The Board decided that Ocean View Elementary School would be the first of the elementary schools to undergo construction. Several community members and representatives from various organizations were invited to attend this work study session to provide their expertise in elementary school construction. Work study participants include architects, engineers, construction project managers, builders, AUSD educators, representatives from the City of Albany, current and former AUSD school board members, and members of the Facilities Steering Committee, Citizens' Bond Oversight Committee, Sustainability and Integrated Design Committee, and Yes on Measures B & E Campaign Committee.

FINANCIAL INFORMATION: \$41.5 million budgeted

STRATEGIC OBJECTIVES ADDRESSED:



Objective #1: *Assess and Increase Academic Success. Goal: We will provide a comprehensive educational experience with expanded opportunities for engagement, assessment, and academic growth so that all students will achieve their fullest potential.*



Objective #2: *Support the Whole Child. Goal: We will foster the social and emotional growth of all students, implement an array of strategies to increase student engagement, identify*

individual socio-emotional and behavioral needs, and apply collaborative appropriate interventions.



Objective #3: *Communicate and Lead Together. Goal: All stakeholders will collaborate and communicate about decisions that guide the sites and district.*

RECOMMENDATION: The Board of Education to determine how AUSD can best satisfy educational needs, expand capacity, improve facilities, and build a permanent district office at the Ocean View site with the \$41.5 million that is budgeted

AUSD Building Program

Facility Needs

- Facilities Master Plan (March 2014; May 2015): \$137 million
- Issues: crowding, enrollment projections, seismic safety, classroom size

Resources and Resource Constraints

- Measures B and E construction bonds: \$95 million
 - Series A issued in 2016: \$32.5 million
 - Series B approved by Board February 2018: \$44 million
 - Series C not yet approved for issuance: \$18.5 million
 - Series B and C require state bonding capacity waiver (requested)
 - Projected year to repay amount above bonding capacity: 2028
 - Bonding capacity waivers are routinely approved but typically require sufficient repayment to bring debt below bonding capacity
- Potential state funding: \$3 million
- Amount committed to AMS and AHS projects: \$23.5 million
- Series A, B, and C bond funds remaining: \$71.5 million

Plans and Progress

- AMS Annex: under construction, projected completion January 2019
- AHS addition: submission of plans to state in process; to open July 2019
- Board approved sequence with current (April 3, 2018) projected costs:
 - Ocean View (\$39.5 million from B&E plus \$2 million state Prop 51)
 - Marin (\$32 million from B&E plus \$1 million state Prop 51)
- Current projected completion: Ocean View 2021-2022, Marin 2023-2024
- Projects lacking funding within current resources: Cornell Elementary, Albany Children's Center modernization, District office, AMS lunch shelter, AHS Little Theater, maintenance center, Solano Avenue site

Essential Question:

How could AUSD best satisfy educational needs, expand capacity, improve facilities, and build a permanent district office at the Ocean View site with the \$41.5 million that is budgeted?

Four Potential Scenarios for Ocean View Elementary

- Scenarios A and C correspond to the two options that are analyzed in the AUSD document “A Study of Two Options to Address Seismic Safety & Enrollment Growth at Ocean View Elementary School,” prepared by Allan Garde and Juan Barroso, dated August 11, 2015 (Scenario A = “Demolish & Build New” and C = “Renovate & Add 2nd Story”).
- Scenario B is an option in which seismic retrofit and renovation are undertaken without adding a second story (pg. 19 of Board Packet)
- Scenario D is one possible combination of new construction and renovation.

Scenario A. Demolish & Build New

- Description: Demolish all existing buildings and replace them based on the current project design (seven buildings arrayed around a central area). Remove existing portables.
- Features: Does not include District Office; space may be available at current enrollment.
- Size: 57,000 sq ft (34 classrooms and afterschool, plus 8 specialty rooms)
- Estimated Cost: \$38 million (includes \$2 million for temporary housing) (\$41.5, including \$2 million state funding, according to presentation at Board meeting of April 3, 2018)

Scenario B. Seismic Retrofit and Renovate

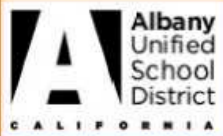
- Description: Seismic upgrade and complete renovation of the existing school.
- Features: Achieves all code requirements. Does not add space or include District Office.
- Size: 41,000 sq ft renovated (current total of 46,000 sq ft consists of 31 classrooms and afterschool, 4 specialty rooms, some portables - without portables, total is 41,000 sq ft)
- Estimated Cost: \$28 million (includes \$2 million for temporary housing)

Scenario C. Renovate & Add 2nd Story

- Description: Seismic upgrade and complete renovation of the existing school. This option adds a partial second story. The existing portables would be removed from the site.
- Features: Does not include District Office; space may be available at current enrollment.
- Size: 51,000 sq ft: 41,000 sq ft renovated plus 10,000 sq ft second story facing Jackson St.
- Estimated Cost: \$36 million (includes \$2 million for temporary housing).

Scenario D. Combination of New Building and Renovation

- Description: Build a new classroom building. Seismic upgrade and complete renovation of existing buildings possibly for library, site administration, afterschool, art, and science.
- Features: Use (some) existing buildings for District Office (seismic upgrade not required)
- Size: At least 55,000 sq ft: at least 14,000 sq ft new construction plus 41,000 sq ft renovated
- Estimated Cost: ~\$40 million (Scenario B cost plus approximate cost of AMS Annex)



OCEANVIEW ELEMENTARY SCHOOL PROGRAM CONFIRMATION

1000 JACKSON STREET | ALBANY, CA | 94706 | AUD | NOVEMBER 18, 2014

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**A Study of Two Options
to Address Seismic Safety & Enrollment Growth
at
Ocean View Elementary School**

Presented to:

**Board of Education
Albany Unified School District**

August 11, 2015

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Chief Business Official
Albany Unified School District

Juan G. Barroso
Managing Partner
Derivi Castellanos Architects

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INTRODUCTION

The Albany Unified School District (AUSD) studied two options to address seismic safety and enrollment growth at Ocean View Elementary School.

Seismic Safety. In 2012, AUSD commissioned a preliminary seismic evaluation of Ocean View Elementary School by R. P. Gallagher Associates. In 2013, AUSD commissioned a more detailed evaluation by WLC Architects/KPW Structural Engineers. The subsequent Seismic Evaluation Report prepared by KPW, dated April 24, 2013, concluded that certain structural elements at Ocean View Elementary School are significantly overstressed and do not meet the life safety criteria in the current building code. The primary elements found to be deficient were roof-to-wall collector connections and out-of-plane wall anchors. When subjected to seismic forces, damage to these connections can result in separation of the walls from the roof and possible collapse of the roof framing and walls. The KPW Report was the basis of the District's submittal to the Division of State Architect (DSA) for seismic mitigation funding eligibility.

Enrollment Growth. Albany Unified School District has three elementary schools and no school boundaries. This means students are placed based on the requested school and available space. Currently, the three elementary sites have a total of 22 temporary portables housing approximately 520 students. Ocean View Elementary is the largest elementary school in the District housing 612 students as of 2014. Based on the City of Albany's 2035 General Plan, the District can anticipate an increase between 60 to 232 elementary students. With this growth in enrollment expected, meeting the District's current class-size standards will be difficult without additional classrooms made available.

In order to address seismic safety and enrollment growth at Ocean View Elementary School, the following two options were studied:

Option 1: Renovate and add a partial second story to Ocean View Elementary School

Option 2: Demolish and build a new Ocean View Elementary School

The purpose of this study is to:

- (A) determine the technical feasibility of the two options under study, and
- (B) evaluate the two options according to objective criteria

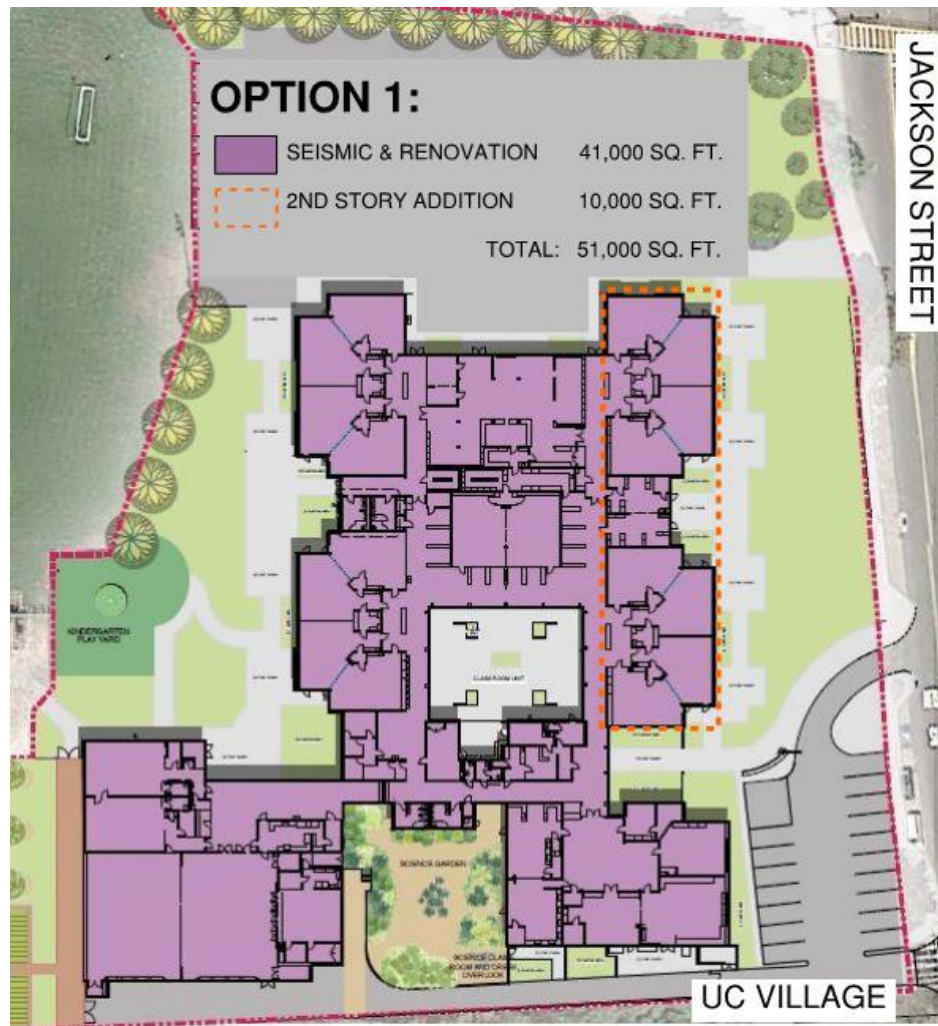
Evaluation Criteria applied to both options are as follows:

- Project Cost
- Time to Implement
- Seismic Safety
- Ability to Accommodate Enrollment Growth
- Quality of Learning Environment
- Sustainability
- Operating/Life Cycle Costs

Methodology. This study was informed by various sources, including: a Facilities Assessment (December 2013) and a Facilities Master Plan (March 2014) prepared by WLC Architects, a Seismic Evaluation (April 24, 2013) prepared by KPW Structural Engineers, a Project Budget (January 2015) prepared by Derivi Castellanos Architects, and a Schematic Design concept (July 2015) prepared by HY Architects. It should be noted that these various sources are all at a “conceptual” or “schematic” level of detail because of the preliminary nature of work undertaken up to this point in time. This preliminary information has been complemented by ongoing work within the District, industry-accepted planning methods, best practices, means-and-methods, new and forthcoming code/agency requirements, and past project experience. Above all, the methodology of this study is technical and objective. This study makes no recommendations and is intended to inform dialogue leading to a potential preference for Option 1 or Option 2 at Ocean View Elementary School.

DESCRIPTION OF OPTION 1

Option 1 consists of a seismic upgrade and complete renovation of the existing Ocean View Elementary School. This option also adds a partial second story to increase student capacity as, indicated on the site plan below. The existing portables would be removed from the site. By undertaking this project, AUSD would be required to upgrade the Site, Accessibility and Energy Efficiency of the existing school in order to meet current code requirements.



Seismic Upgrade. The seismic upgrade scope of work would ultimately be determined by a complete engineering analysis, detailed design and DSA-approved construction documents. The deficient seismic elements to be upgraded would include roof-to-wall collector connections and out-of-plane wall anchors. These elements occur throughout the construction of the original school; therefore, all original buildings would require a similar level of upgrade. It should be noted that completing the seismic scope

requires access to concealed spaces, which would be provided as part of the renovation scope (i.e. extensive removal and replacement of ceilings, drywall, cabinetry, etc.). Therefore, if the seismic scope is undertaken, the renovation scope will be required as well.

Renovation. The renovation scope of work would include removal and replacement of 90% of existing interior finishes and systems. The basic structure would remain (with seismic upgrades). A new building “envelope” would be provided (new roof, doors, windows, waterproofing) with much of the existing exterior finish material patched in place. Kitchen equipment, fire sprinklers, plumbing, HVAC, electrical, fire alarm and low voltage systems would be new. It should be noted that completing the seismic scope requires access to concealed spaces, which would be provided as part of the renovation scope (i.e. extensive removal and replacement of ceilings, drywall, cabinetry, etc.). Therefore, if the seismic scope is undertaken, the renovation scope will be required as well.

Second Story. A second story of approximately 10,000 square feet would be added as indicated on the site plan below. In order to support a second story, the existing foundation would have to be upgraded. This is typically accomplished by excavating and pouring new concrete in-place, alongside existing foundations and mechanically connecting the two with drilled and epoxied steel dowels at close center-to-center spacing. This method of upgrading foundations is common; however, it is “low productivity” work, and therefore considered an expensive option. A second story would require the existing “superstructure” below be upgraded as well. The most likely solution for this upgrade would be a secondary steel “X-Brace” structural system bearing on the upgraded footings. The new X-Braces would be visible from both the interior and exterior of the upgraded building. The second story would be built using conventional wood frame construction, with acoustic and fire rating materials between the first and second floors. Construction of the second story would also require special attention to waterproofing between existing and new. Interiors and systems of the new second floor space would be built to current educational standards and all applicable building codes. The second story would require an elevator and exterior stairways.

Other Code Requirements and Upgrades. By undertaking this project, AUSD would be required to upgrade the Site, Accessibility and Energy Efficiency of the existing school in order to meet current codes.

Site improvements would include removal of all hazardous materials and upgrades to fire lane, parking areas, pick up/drop off, storm water retention, electrical/low voltage service, and underground utilities. (Applicable Codes: CA Building Code 2013, CA Fire Code 2013 and Americans with Disabilities Act 2010)

Accessibility improvements would include replacement of accessible paths of travel throughout the campus, removal of exterior/interior barriers, wholesale replacement of restrooms, door hardware, and new signage. (Applicable Codes: CA Building Code 2013 and Americans with Disabilities Act 2010)

Mandated energy efficiency upgrades would include a reduction in energy use of 10-15% over current standard. This reduction would be accomplished with high efficiency equipment, more robust controls and monitoring. The new codes also require reduction of exterior light pollution. Water use would have to be reduced by 20-30%. Third-party commissioning will also apply. (Applicable Codes: CA Green Code 2013)

DESCRIPTION OF OPTION 2

Option 2 consists of completely demolishing the existing site and building a new Ocean View Elementary School. The existing portables would be removed from the site. This option addresses seismic safety, student capacity and all current code requirements in one phase.

The new classroom wings would be 2-stories to help maximize the site, as indicated on the plan below. Furthermore, this plan provides infrastructure for the addition of four classrooms to address future enrollment growth. This concept would improve disabled access, parking, pick up/drop off and pedestrian safety around the site. Option 2 would also create opportunities for courtyards, play areas and outdoor classrooms. Because the new school design would be guided by teacher and parent input, the quality of the learning environment would be significantly enhanced over the current, outdated facility.



TECHNICAL FEASIBILITY

Although the two options being studied would require different approaches, with unique challenges, they are both technically feasible. A summary of challenges for both options are presented below.

Option 1 Challenges:

- Access for Seismic Work – because the seismic work requires access to concealed spaces above ceilings or inside wall cavities, proceeding with this work essentially requires that the renovation scope of work be done concurrently.
- Upgrading Existing Structure – upgrading the existing foundations and superstructure to support a second story is technically challenging and is low productivity work that represents an increased risk of unforeseen conditions and potential cost overruns.
- Site Challenges – because the existing school would remain on the site, achieving full code compliance for fire lane, parking, pick up/drop off may be difficult or require variances.
- New Energy Code – because this school has smaller than typical classrooms (avg 800 Sq. Ft.), this will make achieving the new energy efficiency requirements related to HVAC and lighting within the existing building structure and campus layout very difficult to achieve.
- Learning Environment – because this school has smaller than typical classrooms and support spaces with poor adjacencies, it will be difficult to create an optimal learning environment within the existing building structure and campus layout.
- Traffic and Site Disruption – the option to renovate/add a second story will create traffic and site disruptions in the immediate vicinity of the project. This will require ongoing communication and coordination with the City and neighbors prior to and during construction.
- Temporary Housing – the District will have to find temporary housing for the school on-site or off-site for at least one year. Because the existing site is relatively small, providing temporary housing on-site will be very difficult.

Option 2 Challenges:

- Competing Stakeholder Interests – as compared to a renovation of an existing school, a new school campus will typically go through a more rigorous stakeholder input process. This can include internal and external stakeholders. The architect leading the design process must be skilled in design facilitation and consensus building.
- Significant Traffic and Site Disruption – the option to demolish and build a new school will create significantly more traffic and site disruptions in the immediate vicinity of the project, particularly during the demolition and site work phase. This will require ongoing communication and coordination with the City and neighbors prior to and during construction.
- Site Development – building a new site involves variables related to soil characteristics, unknown subsurface conditions and potential coordination issues with outside agencies. This represents an increased risk of potential delays or cost overruns.
- Temporary Housing – because construction will affect the entire site, temporary housing for the school will have to be provided off-site for at least one year.

EVALUATION CRITERIA

Project Cost

This study included a conceptual cost estimate for each option, attached as Appendix 1, and summarized below.

Option	Total Project Cost
Option 1: Renovate & Add 2 nd Story	\$36.2 million
Option 2: Demolish & Build New	\$38.0 million

Time to Implement

Options 1 and 2 would have similar overall implementation timelines summarized below.

Option	Design	Construction
Option 1: Renovate & Add 2 nd Story	12 months	12-14 months
Option 2: Demolish & Build New	12 months	12-14 months

Seismic Safety

Options 1 and 2 can both achieve the same level of seismic safety. Option 1 achieves seismic safety in a less cost-effective manner due to existing constraints and unknown conditions.

Ability to Accommodate Enrollment Growth

Because Option 2 allows for complete re-design of the site, this option can include provisions to accommodate future enrollment growth in a cost-effective manner. Opportunities to accommodate future enrollment growth in Option 1 are limited.

Quality of Learning Environment

Option 2 would allow the design of the new school to be guided by teacher and parent input, which would result in a learning environment superior to the best scenario possible under Option 1 (due to existing constraints). Because the existing school has 22 classrooms that are 100-200 sq. ft. smaller than typical classrooms and support spaces with poor adjacencies, it will be difficult to create an optimal learning environment within the existing building structure and campus layout under Option 1.

Sustainability

The design of either Option can and should include significant Green/Sustainable features. Examples of features that can be incorporated into either option include: material re-use, recycling, landfill diversion, selection of sustainable building materials, Forest Stewardship Council certified lumber, local sourcing of materials, electric vehicle charging stations, LED lighting, and many more.

Option 2 would lend itself much better to features such as: recycled water system, building-integrated photovoltaic panels, ultra high-efficiency HVAC, optimal daylighting, and others.

Operating/Life Cycle Costs

The operating/life cycle costs for both options would be an improvement over the current facility. Energy and physical plant costs are typically reduced by 15-30% based on more efficient equipment and operating conditions. The new Cal Green Code, which would apply to both options requires a 10-15% improvement over the current Title 24 energy efficiency benchmarks. A significant savings would also result from selection of equipment and systems that require less maintenance.

Because Option 1 would keep the existing smaller classrooms (approx. 800 Sq. Ft.), this would require more pieces of equipment, controls and devices to operate a school of the same square footage. Option 2, with larger classrooms (approx. 1,000 Sq. Ft.), would require less equipment, controls and devices to operate. Therefore, Option 2 would result in lower energy, resource and maintenance costs over its service life.

EVALUATION SUMMARY

Evaluation Criteria	Option 1	Option 2
Project Cost	+	-
Time to Implement	-	-
Seismic Safety	-	-
Enrollment Growth	-	++
Learning Environment	-	+++
Sustainability	-	++
Operating/Life Cycle Costs	-	++

+ = slightly better option
 ++ = better option
 +++ = significantly better option

ALBANY UNIFIED SCHOOL DISTRICT**Ocean View Elementary School****Two Options to Address Seismic Safety & Enrollment Growth****Estimator:** Juan Barroso**Architect:** -**Date of Plans:** -**Date of Specs:** -**Date of Estimate:** 7/24/15**TOTAL PROJECT COST ESTIMATE****EXECUTIVE SUMMARY**

Item	Description	Option 1: Renovate & Add 2nd Story				Option 2: Demolish & Build New			
		Building Area (Sq Ft)	Construction Cost	Total Project Cost	Constr Cost Per SF	Building Area (Sq Ft)	Construction Cost	Total Project Cost	Constr Cost Per SF
1.0	SEISMIC SAFETY/CODE*	-	3,842,283	4,793,705	-	-	-	-	-
2.0	RENOVATION or BUILD NEW	40,893	11,051,199	13,787,686	270	57,105	22,632,021	28,236,165	396
3.0	ADD 2ND STORY TO EXISTING STRUCTURE	10,000	6,510,046	8,122,057	651	-	-	-	-
4.0	HAZMAT/SITE DEV/CODE	-	2,897,878	3,615,448	-	-	6,266,805	7,818,560	-
5.0	ACCESSIBILITY/CODE	-	1,437,042	1,792,881	-	-	-	-	-
6.0	ENERGY EFFICIENCY/CODE	-	1,646,693	2,054,445	-	-	-	-	-
7.0	TEMP HOUSING	-	-	2,000,000	-	-	-	2,000,000	-
TOTAL PROJECT COST ESTIMATE		50,893	27,385,141	36,166,223	538	57,105	28,898,826	38,054,725	506

TOTAL WITHOUT SECOND STORY	40,893	20,875,095	28,044,166	510
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Notes:

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. "Total Project Cost" includes: <ul style="list-style-type: none"> a. General Contractor markups b. Insurance and Bonds c. Design and Construction Contingencies d. Escalation to June 2017 e. Architect/Engineer Fees f. Permits g. Soft Costs | 2. "Total Project Cost" excludes: <ul style="list-style-type: none"> a. Work in the Public Right of Way b. CEQA fees or mitigation costs c. Furniture, fixtures, equipment d. Technology, IT systems |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

* Seismic Safety (Item 1.0) will require access to areas of work provided by the Renovation Scope (Item 2.0), it will also trigger full compliance with current codes (Items 4.0, 5.0 & 6.0).

ALBANY UNIFIED SCHOOL DISTRICT
 Ocean View Elementary School
 Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso
 Architect: -
 Date of Plans: -
 Date of Specs: -
 Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: SEISMIC SAFETY/CODE

Work Item	Qty	Unit	Labor Rate	Cost	Materials Rate	Cost	Equipment Rate	Cost	Subcontractors Rate	Cost	Other Rate	Cost	Subtotal	Division Subtotal
DIV 1 - GENERAL CONDITIONS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 2 - SITEWORK & DEMOLITION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 3 - CONCRETE				-		-		-		-		-	-	-
Seismic Rehabilitation	40,893	sf		-		-		-	5.00	204,465		-	204,465	204,465
				-		-		-		-		-	-	-
DIV 4 - MASONRY				-		-		-		-		-	-	-
Seismic Rehabilitation	40,893	sf		-		-		-	5.00	204,465		-	204,465	204,465
				-		-		-		-		-	-	-
DIV 5 - METALS				-		-		-		-		-	-	-
Seismic Rehabilitation	40,893	sf		-		-		-	10.00	408,930		-	408,930	408,930
				-		-		-		-		-	-	-
DIV 6 - CARPENTRY & PLASTICS				-		-		-		-		-	-	-
Seismic Rehabilitation	40,893	sf		-		-		-	50.00	2,044,650		-	2,044,650	2,044,650
				-		-		-		-		-	-	-
DIV 7 - THERMAL & MOISTURE PROTECTION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 8 - DOORS & WINDOWS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 9 - FINISHES				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 10 - BUILDING SPECIALTIES				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 11 - EQUIPMENT				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 12 - FURNISHINGS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-

ALBANY UNIFIED SCHOOL DISTRICT

Ocean View Elementary School

Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso

Architect: -

Date of Plans: -

Date of Specs: -

Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: SEISMIC SAFETY/CODE

Work Item	Qty	Unit	Labor		Materials		Equipment		Subcontractors		Other		Subtotal	Division Subtotal
			Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost		
DIV 13 - SPECIAL CONSTRUCTION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 14 - CONVEYING SYSTEMS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 15 - MECHANICAL & PLUMBING				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 16 - ELECTRICAL & LOW VOLTAGE				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
Subtotal of Direct Costs				-		-		-		2,862,510		-		2,862,510

ALBANY UNIFIED SCHOOL DISTRICT

Ocean View Elementary School

Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso

Architect: -

Date of Plans: -

Date of Specs: -

Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: SEISMIC SAFETY/CODE

Work Item	Qty	Unit	Labor		Materials		Equipment		Subcontractors		Other		Subtotal	Division Subtotal
			Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost		
GC MARK-UPS														
Preconstruction Svcs:											0.5%		14,313	
General Conditions:											6.0%		171,751	
Overhead & Profit:											3.5%		106,199	
Insurance:											1.0%		31,405	
P&P BondS:											1.5%		47,578	
GC Mark-ups Subtotal:											12.5%			371,245
Current Construction Cost:														3,233,755
CONTINGENCIES														
Escalation to 2017 (4%/yr):											8.2%		263,874	
Design Contingency:											5.0%		161,688	
Contingencies Subtotal:											13.2%			425,562
Bid Day Construction Cost:														3,659,317
Arch/Eng Fee:														182,966
Construction Contingency:														182,966
SOFT COSTS														
Permits:											1.0%		36,593	
Other Soft Costs:											20.0%		731,863	
Soft Costs Subtotal:											21.0%			768,457
Total Project Cost:														4,793,705

ALBANY UNIFIED SCHOOL DISTRICT

Ocean View Elementary School

Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso

Architect: -

Date of Plans: -

Date of Specs: -

Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: BASIC RENOVATION

Work Item	Qty	Unit	Labor Rate	Cost	Materials Rate	Cost	Equipment Rate	Cost	Subcontractors Rate	Cost	Other Rate	Cost	Subtotal	Division Subtotal
DIV 1 - GENERAL CONDITIONS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 2 - SITEWORK & DEMOLITION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 3 - CONCRETE				-		-		-		-		-	-	-
Basic renovation	40,893	sf		-		-		-	2.50	102,233		-	102,233	102,233
				-		-		-		-		-	-	-
DIV 4 - MASONRY				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 5 - METALS				-		-		-		-		-	-	-
Basic renovation	40,893	sf		-		-		-	2.50	102,233		-	102,233	102,233
				-		-		-		-		-	-	-
DIV 6 - CARPENTRY & PLASTICS				-		-		-		-		-	-	-
Basic renovation	40,893	sf		-		-		-	25.00	1,022,325		-	1,022,325	1,022,325
				-		-		-		-		-	-	-
DIV 7 - THERMAL & MOISTURE PROTECTION				-		-		-		-		-	-	-
Basic renovation	40,893	sf		-		-		-	20.00	817,860		-	817,860	817,860
				-		-		-		-		-	-	-
DIV 8 - DOORS & WINDOWS				-		-		-		-		-	-	-
Basic renovation	40,893	sf		-		-		-	10.00	408,930		-	408,930	408,930
				-		-		-		-		-	-	-
DIV 9 - FINISHES				-		-		-		-		-	-	-
Basic renovation	40,893	sf		-		-		-	50.00	2,044,650		-	2,044,650	2,044,650
				-		-		-		-		-	-	-
DIV 10 - BUILDING SPECIALTIES				-		-		-		-		-	-	-
Basic renovation	40,893	sf		-		-		-	5.00	204,465		-	204,465	204,465
				-		-		-		-		-	-	-
DIV 11 - EQUIPMENT				-		-		-		-		-	-	-
Basic renovation - kitchen	618	sf		-		-		-	750.00	463,500		-	463,500	463,500
				-		-		-		-		-	-	-
DIV 12 - FURNISHINGS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-

ALBANY UNIFIED SCHOOL DISTRICT

Ocean View Elementary School

Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso

Architect: -

Date of Plans: -

Date of Specs: -

Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: BASIC RENOVATION

Work Item	Qty	Unit	Labor		Materials		Equipment		Subcontractors		Other		Subtotal	Division Subtotal
			Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost		
DIV 13 - SPECIAL CONSTRUCTION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 14 - CONVEYING SYSTEMS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 15 - MECHANICAL & PLUMBING				-		-		-		-		-	-	-
Basic renovation	40,893	sf		-		-		-	35.00	1,431,255		-	1,431,255	1,431,255
				-		-		-		-		-	-	-
DIV 16 - ELECTRICAL & LOW VOLTAGE				-		-		-		-		-	-	-
Basic renovation	40,893	sf		-		-		-	40.00	1,635,720		-	1,635,720	1,635,720
				-		-		-		-		-	-	-
Subtotal of Direct Costs				-		-		-		8,233,170		-		8,233,170

Date of Estimate: 7/24/15

SCOPE OF WORK: BASIC RENOVATION

15-08-03 Ocean View Cost Study
Renov

ALBANY UNIFIED SCHOOL DISTRICT

Ocean View Elementary School

Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso

Architect: -

Date of Plans: -

Date of Specs: -

Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: ADD 2ND STORY TO EXISTING STRUCTURE

Work Item	Qty	Unit	Labor Rate	Cost	Materials Rate	Cost	Equipment Rate	Cost	Subcontractors Rate	Cost	Other Rate	Cost	Subtotal	Division Subtotal
DIV 1 - GENERAL CONDITIONS				-		-		-		-		-	-	-
DIV 2 - SITEWORK & DEMOLITION Demo existing roof structure	10,000	sf		-		-		-	15.00	150,000		-	150,000	150,000
				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 3 - CONCRETE Upgrade foundations	10,000	sf		-		-		-	40.00	400,000		-	400,000	400,000
				-		-		-		-		-	-	-
DIV 4 - MASONRY				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 5 - METALS Upgrade seismic design	10,000	sf		-		-		-	50.00	500,000		-	500,000	500,000
				-		-		-		-		-	-	-
DIV 6 - CARPENTRY & PLASTICS New construction complete - 2nd story	10,000	sf		-		-		-	350.00	3,500,000		-	3,500,000	3,500,000
				-		-		-		-		-	-	-
DIV 7 - THERMAL & MOISTURE PROTECTION Patch roofing, building envelope	10,000	sf		-		-		-	5.00	50,000		-	50,000	50,000
				-		-		-		-		-	-	-
DIV 8 - DOORS & WINDOWS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 9 - FINISHES				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 10 - BUILDING SPECIALTIES				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 11 - EQUIPMENT				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 12 - FURNISHINGS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-

ALBANY UNIFIED SCHOOL DISTRICT

Ocean View Elementary School

Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso

Architect: -

Date of Plans: -

Date of Specs: -

Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: ADD 2ND STORY TO EXISTING STRUCTURE

Work Item	Qty	Unit	Labor		Materials		Equipment		Subcontractors		Other		Subtotal	Division Subtotal
			Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost		
DIV 13 - SPECIAL CONSTRUCTION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 14 - CONVEYING SYSTEMS				-		-		-		-		-	-	-
Elevators, ext stairs	1	ls		-		-		-	250,000.00	250,000		-	250,000	250,000
				-		-		-		-		-	-	-
DIV 15 - MECHANICAL & PLUMBING				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 16 - ELECTRICAL & LOW VOLTAGE				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
Subtotal of Direct Costs				-		-		-		4,850,000		-		4,850,000

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: ADD 2ND STORY TO EXISTING STRUCTURE

15-08-03 Ocean View Cost Study
2ndStory

ALBANY UNIFIED SCHOOL DISTRICT
 Ocean View Elementary School
 Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso
 Architect: -
 Date of Plans: -
 Date of Specs: -
 Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: HAZMAT/SITE DEV/CODE

Work Item	Qty	Unit	Labor Rate	Cost	Materials Rate	Cost	Equipment Rate	Cost	Subcontractors Rate	Cost	Other Rate	Cost	Subtotal	Division Subtotal
DIV 1 - GENERAL CONDITIONS				-		-		-		-		-	-	-
DIV 2 - SITEWORK & DEMOLITION				-		-		-		-		-	-	-
New UG utilities, parking, site development, complete	181,535	sf		-		-		-	7.50	1,361,513		-	1,361,513	
Hazmat removal	40,893	sf		-		-		-	12.00	490,716		-	490,716	
Soft demolition "full gut"	40,893	sf		-		-		-	7.50	306,698		-	306,698	
				-		-		-		-		-	-	2,158,926
DIV 3 - CONCRETE				-		-		-		-		-	-	-
DIV 4 - MASONRY				-		-		-		-		-	-	-
DIV 5 - METALS				-		-		-		-		-	-	-
DIV 6 - CARPENTRY & PLASTICS				-		-		-		-		-	-	-
DIV 7 - THERMAL & MOISTURE PROTECTION				-		-		-		-		-	-	-
DIV 8 - DOORS & WINDOWS				-		-		-		-		-	-	-
DIV 9 - FINISHES				-		-		-		-		-	-	-
DIV 10 - BUILDING SPECIALTIES				-		-		-		-		-	-	-
DIV 11 - EQUIPMENT				-		-		-		-		-	-	-
DIV 12 - FURNISHINGS				-		-		-		-		-	-	-

ALBANY UNIFIED SCHOOL DISTRICT

Ocean View Elementary School

Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso

Architect: -

Date of Plans: -

Date of Specs: -

Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: HAZMAT/SITE DEV/CODE

Work Item	Qty	Unit	Labor		Materials		Equipment		Subcontractors		Other		Subtotal	Division Subtotal
			Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost		
DIV 13 - SPECIAL CONSTRUCTION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 14 - CONVEYING SYSTEMS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 15 - MECHANICAL & PLUMBING				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 16 - ELECTRICAL & LOW VOLTAGE				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
Subtotal of Direct Costs				-		-		-		2,158,926		-		2,158,926

Estimator: Juan Barroso
Architect: -
Date of Plans: -
Date of Specs: -
Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE
SCOPE OF WORK: HAZMAT/SITE DEV/CODE

Work Item	Qty	Unit	Labor Rate	Cost	Materials Rate	Cost	Equipment Rate	Cost	Subcontractors Rate	Cost	Other Rate	Cost	Subtotal	Division Subtotal					
GC MARK-UPS																			
Preconstruction Svcs:											0.5%	10,795							
General Conditions:											6.0%	129,536							
Overhead & Profit:											3.5%	80,096							
Insurance:											1.0%	23,686							
P&P Bonds:											1.5%	35,884							
GC Mark-ups Subtotal:											12.5%		279,996						
Current Construction Cost:															2,438,922				
CONTINGENCIES																			
Escalation to 2017 (4%/yr):											8.2%	199,016							
Design Contingency:											5.0%	121,946							
Contingencies Subtotal:											13.2%		320,962						
Bid Day Construction Cost:															2,759,884				
Arch/Eng Fee:															5.0%		137,994		
Construction Contingency:															5.0%		137,994		
SOFT COSTS																			
Permits:											1.0%	27,599							
Other Soft Costs:											20.0%	551,977							
Soft Costs Subtotal:											21.0%		579,576						
Total Project Cost:															3,615,448				

ALBANY UNIFIED SCHOOL DISTRICT
 Ocean View Elementary School
 Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso
 Architect: -
 Date of Plans: -
 Date of Specs: -
 Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: ACCESSIBILITY/CODE

Work Item	Qty	Unit	Labor Rate	Cost	Materials Rate	Cost	Equipment Rate	Cost	Subcontractors Rate	Cost	Other Rate	Cost	Subtotal	Division Subtotal
DIV 1 - GENERAL CONDITIONS				-		-		-		-		-	-	-
DIV 2 - SITEWORK & DEMOLITION Site accessibility improvements	1	ls		-		-		-	350,000.00	350,000		-	350,000	350,000
				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 3 - CONCRETE Rebuild bathrooms	1,242	sf		-		-		-	50.00	62,100		-	62,100	62,100
				-		-		-		-		-	-	-
DIV 4 - MASONRY				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 5 - METALS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 6 - CARPENTRY & PLASTICS Rebuild bathrooms	1,242	sf		-		-		-	200.00	248,400		-	248,400	248,400
				-		-		-		-		-	-	-
DIV 7 - THERMAL & MOISTURE PROTECTION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 8 - DOORS & WINDOWS Accessible door hardware	50	ea		-		-		-	750.00	37,500		-	37,500	37,500
				-		-		-		-		-	-	-
DIV 9 - FINISHES Rebuild bathrooms	1,242	sf		-		-		-	100.00	124,200		-	124,200	124,200
				-		-		-		-		-	-	-
DIV 10 - BUILDING SPECIALTIES				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 11 - EQUIPMENT				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 12 - FURNISHINGS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-

ALBANY UNIFIED SCHOOL DISTRICT

Ocean View Elementary School

Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso

Architect: -

Date of Plans: -

Date of Specs: -

Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: ACCESSIBILITY/CODE

Work Item	Qty	Unit	Labor		Materials		Equipment		Subcontractors		Other		Subtotal	Division Subtotal
			Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost		
DIV 13 - SPECIAL CONSTRUCTION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 14 - CONVEYING SYSTEMS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 15 - MECHANICAL & PLUMBING				-		-		-		-		-	-	-
Rebuild bathrooms	1,242	sf		-		-		-	200.00	248,400		-	248,400	248,400
				-		-		-		-		-	-	-
DIV 16 - ELECTRICAL & LOW VOLTAGE				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
Subtotal of Direct Costs				-		-		-		1,070,600		-		1,070,600

ALBANY UNIFIED SCHOOL DISTRICT

Ocean View Elementary School

Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso

Architect: -

Date of Plans: -

Date of Specs: -

Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: ACCESSIBILITY/CODE

Work Item	Qty	Unit	Labor		Materials		Equipment		Subcontractors		Other		Subtotal	Division Subtotal
			Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost		
GC MARK-UPS														
Preconstruction Svcs:											0.5%		5,353	
General Conditions:											6.0%		64,236	
Overhead & Profit:											3.5%		39,719	
Insurance:											1.0%		11,746	
P&P BondS:											1.5%		17,795	
GC Mark-ups Subtotal:											12.5%			138,848
Current Construction Cost:														1,209,448
CONTINGENCIES														
Escalation to 2017 (4%/yr):											8.2%		98,691	
Design Contingency:											5.0%		60,472	
Contingencies Subtotal:											13.2%			159,163
Bid Day Construction Cost:														1,368,612
Arch/Eng Fee:														68,431
Construction Contingency:														68,431
SOFT COSTS														
Permits:											1.0%		13,686	
Other Soft Costs:											20.0%		273,722	
Soft Costs Subtotal:											21.0%			287,408
Total Project Cost:														1,792,881

ALBANY UNIFIED SCHOOL DISTRICT
 Ocean View Elementary School
 Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso
 Architect: -
 Date of Plans: -
 Date of Specs: -
 Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: ENERGY EFFICIENCY/CODE

Work Item	Qty	Unit	Labor Rate	Cost	Materials Rate	Cost	Equipment Rate	Cost	Subcontractors Rate	Cost	Other Rate	Cost	Subtotal	Division Subtotal
DIV 1 - GENERAL CONDITIONS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 2 - SITEWORK & DEMOLITION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 3 - CONCRETE				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 4 - MASONRY				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 5 - METALS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 6 - CARPENTRY & PLASTICS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 7 - THERMAL & MOISTURE PROTECTION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 8 - DOORS & WINDOWS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 9 - FINISHES				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 10 - BUILDING SPECIALTIES				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 11 - EQUIPMENT				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 12 - FURNISHINGS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-

ALBANY UNIFIED SCHOOL DISTRICT
 Ocean View Elementary School
 Two Options to Address Seismic Safety & Enrollment Growth

Estimator: Juan Barroso
 Architect: -
 Date of Plans: -
 Date of Specs: -
 Date of Estimate: 7/24/15

CONSTRUCTION COST ESTIMATE

SCOPE OF WORK: ENERGY EFFICIENCY/CODE

Work Item	Qty	Unit	Labor		Materials		Equipment		Subcontractors		Other		Subtotal	Division Subtotal
			Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost		
DIV 13 - SPECIAL CONSTRUCTION				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 14 - CONVEYING SYSTEMS				-		-		-		-		-	-	-
				-		-		-		-		-	-	-
DIV 15 - MECHANICAL & PLUMBING				-		-		-		-		-	-	-
New energy code requirements	40,893	sf		-		-		-	15.00	613,395		-	613,395	613,395
				-		-		-		-		-	-	-
DIV 16 - ELECTRICAL & LOW VOLTAGE				-		-		-		-		-	-	-
New energy code requirements	40,893	sf		-		-		-	15.00	613,395		-	613,395	613,395
				-		-		-		-		-	-	-
Subtotal of Direct Costs				-		-		-		1,226,790		-		1,226,790

Date of Estimate: 7/24/15

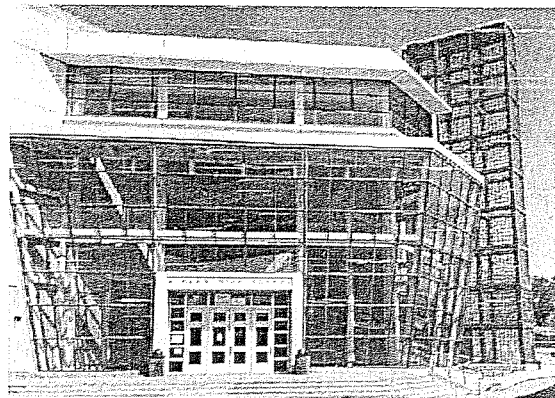
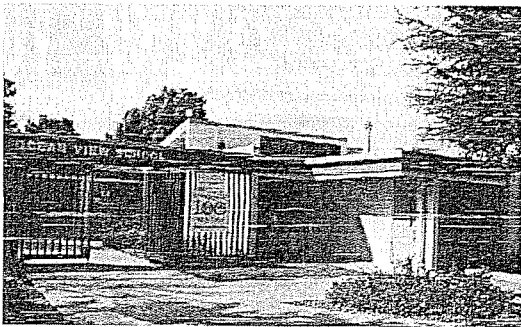
SCOPE OF WORK: ENERGY EFFICIENCY/CODE

15-08-03 Ocean View Cost Study
CodeEnergy

E1

ALBANY UNIFIED SCHOOL DISTRICT SEISMIC EVALUATION

Prepared for WLC Architects and Albany USD



KPW Project No. 13C133

April 24, 2013

F2

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Ocean View Elementary School Results2

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Introduction

The seismic evaluation reports prepared by R.P. Gallagher Associates, Inc. identified several building elements at Ocean View Elementary School and Marin Elementary School which did not meet the Life Safety Performance Level of ASCE 31. Our firm subsequently performed an additional analysis of these suspect buildings as well as a general seismic study of the remainder of the district school buildings.

The buildings in question at Ocean View Elementary School and Marin Elementary School were built in 1975 and 1973, respectively. The buildings at each campus consist of wood-framed roofs supported by masonry and wood bearing and shear walls. When built before the more stringent provisions of later building codes were implemented, buildings of this type are regularly found to have several deficiencies, the most common being inadequate wall to roof connection.

The buildings at the balance of the Albany USD campuses are generally of more recent construction, light-frame wood construction, or have been recently retrofitted.

The reports by R.P. Gallagher Associates, Inc titled "Seismic Evaluation of Ocean View Elementary School" dated October 2012 and "Seismic Evaluation of Marin Elementary School" dated November 2012 detail the complete results of their seismic assessments of these campuses. The report titled "Initial Seismic Study of Albany USD Schools and Facilities" provides an overview of each building in the District's portfolio, site geologic hazards, and a discussion of DSA AB300 issues. Refer to these reports for a complete discussion of their findings as well as building key plans and photographs.

KPW Evaluation Procedure

Our evaluation primarily focused on the buildings at Ocean View and Marin Elementary Schools which were previously found to have to have seismic deficiencies. In addition to studying the results presented in the previously prepared reports, we performed an independent seismic analysis of these structures using the provisions of ASCE 31 "Seismic Evaluation of Buildings" as well as the current code, the 2010 California Building Code. Our analysis included performing structural calculations, completing the ASCE 31 Tier 1 checklists and visiting the two campuses.

Our study of the remaining Albany USD campuses consisted only of tabulating the construction type, construction date, and retrofit date of each building for purposes of categorizing the potential seismic hazards to each building. Modular buildings were not reviewed.

This report summarizes the results of our in-depth analysis and general district survey.

Ocean View Elementary School

Built in 1975, the main buildings at Ocean View Elementary School consist of three single story structures connected by covered walkways. The roof is generally flat with a sloped, elevated clerestory roof in each classroom. The wood frame roof is supported by masonry and plywood walls on conventional shallow foundations. Lateral forces are resisted by the plywood roof diaphragm and the interior plywood and exterior masonry shear walls.



A review of the as-built structural drawings found that the lateral force resisting elements were relatively well engineered and better than average for the era. Design consideration was given to the primary seismic elements including the roof diaphragm, chords, collectors, shear walls and key connections.

Several modular classroom buildings installed at a later date occupy the rear portion of the campus; these were not part of our seismic evaluation.

The results of our seismic study of Ocean View Elementary School are as follows:

Roof Diaphragm

A building's horizontal diaphragm transfers lateral forces generated by wind or earthquake loads to the perpendicular shear walls through in plane shear. The roof diaphragm at Ocean View Elementary School consists of ½" plywood with edge blocking and relatively tight edge nailing. Our study found that the roof diaphragms have both adequate shear and chord strength to resist current code level forces.

Collectors

Collectors are intended to transfer the horizontal diaphragm forces to the in-plane shear walls. Recognizing the importance of these elements, current codes apply an amplification factor to the calculated seismic forces when designing these components. Collectors at Ocean View consist of wood beams connected to the masonry or plywood shear walls with bolted metal angles. These collector elements often extend across wall or roof openings to connect portions of the roof diaphragm to somewhat distant shear walls.

Our analysis found that in general the collector connections are significantly overstressed when compared to current code level forces. Refer to Figure 1 for a typical collector connection.

Shear walls

Shear walls transfer building lateral forces to the supporting foundations. At each of the three buildings the exterior masonry walls consist of fluted 8" concrete masonry. The masonry walls are fully grouted and well-reinforced in a similar manner to what would be required by current standards. Interior plywood shear walls are sheathed on one or both sides with plywood and are connected to the foundation with sill bolts and holdowns. In-plane shear forces are transferred to both wall types with blocking and shear clips.

We found that both the masonry and plywood shear walls have adequate strength to resist the applied current code level forces.

Out-of-Plane Wall Anchorage

When subjected to earthquake shaking the connections between the heavy masonry walls and the light, flexible wood roof can be subjected to significant out-of-plane forces. Damage to these connections could result in separation of the walls from the roof and possible loss of support and collapse of the roof framing and walls. Building damage observed as a result of subsequent

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earthquakes has led to the adoption of stricter anchorage standards in the building code since the time of Ocean View Elementary School's construction.

The out-of-plane wall connections at Ocean View generally consist of a steel angle bolted to the side of a roof joist and the top of the masonry wall as shown in figure 1. Our analysis of these connections found that they are significantly overstressed when subjected to the design forces of the current building code.

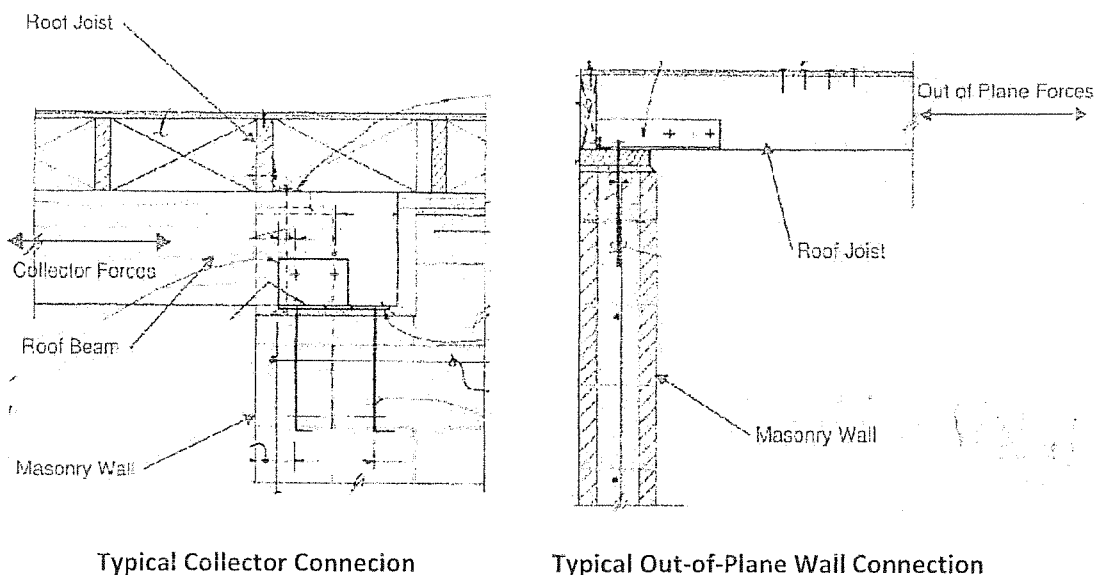


Figure 1: Typical Wall-Roof Connections

Marin Elementary School

The Marin Elementary School campus consists primarily of 6 hexagonally shaped classroom buildings (Buildings A, B, D, E, F, & G) and a multi-purpose building (Building C) built in 1973. The 1973 buildings consist of a wood frame roof supported by masonry and plywood walls on conventional shallow foundations. Lateral forces are resisted by the plywood roof diaphragm and the interior plywood and exterior masonry shear walls.

A rectangular, wood-framed classroom building (Building H) of unknown date and several modular buildings also occur on the campus. These buildings were not studied as part of our in-depth analysis.

A review of the 1973 as-built structural drawings found that the lateral force resisting elements of the wood/masonry buildings were relatively well engineered and perhaps better than average for the era. Consideration was given to the primary elements including the roof diaphragm, chords, collectors, shear walls and key connections.

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The results of our seismic study of Marin Elementary School are as follows. Also refer to our discussion of Ocean View Elementary School for a general definition of each lateral force resisting element.

Roof Diaphragm

The roof diaphragm at Marin Elementary School consists of ½" plywood with edge blocking and relatively tight edge nailing. Our study found that the roof diaphragms have both adequate shear and chord strength to resist current code level forces.

Collectors

As buildings are fairly regular in shape with limited wall openings roof diaphragm collectors are not a major component of the building's lateral force resisting system. However, in two locations the collector elements were found to be overstressed.

Shear walls

The exterior masonry walls generally consist of fluted 6" concrete masonry, with thicker block at the taller multi-purpose building wall. The masonry walls are fully grouted and well- reinforced in a similar manner to what would be required by current standards. Interior plywood shear walls are sheathed on one or both sides with plywood and are connected to the foundation with sill bolts and holdowns. In-plane shear forces are transferred to both wall types with blocking and shear clips.

We found that the masonry shear walls would have adequate strength to resist the applied current code level forces. The plywood shear walls were found to be overstressed.

Out-of-Plane Wall Anchorage

Similar to Ocean View Elementary School, the out-of-plane wall connections reflect practices common before the adoption of stricter anchorage criteria found in today's building code. The out-of-plane wall connections at Marin also consist of a steel angle bolted to the side of a roof joist and the top of the masonry wall. Our analysis of these connections found that they are significantly overstressed when subjected to the design forces of the current building code.

District Facilities Overview

Our survey of the remaining Albany Unified School District campuses consisted of determining the general characteristics of each building in order to identify potential seismic issues. We considered type of construction, building age, and whether past retrofits had been performed. Neither structural calculations nor a detailed as-built drawing review was performed for these buildings.

Cornell Elementary School

The main building at Cornell Elementary School consists of the seismically separated south, north, and admin wings and several modular buildings. The south wing and north wing, built in

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1948 and 1950 respectively, are two story buildings with wood roofs and floors supported by reinforced concrete walls. The admin wing is a two story wood frame building built in 1974.

The north and south wing buildings were seismically retrofitted in 1997 and 2001, with the retrofit consisting of reinforcing the connection between the concrete walls and the wood floor and roof.

Given the type of construction and the past seismic retrofit these buildings these buildings would be considered to have a lower risk than older or more damage prone building types.

Albany Middle School

Built in 1997 with a steel braced frame lateral force resisting system, Albany Middle School could be expected to have a lower risk of damage when subjected to a large seismic event.

Albany High School

Albany High School was significantly rebuilt in 1999, with the addition of 4 new steel braced frame buildings. A reinforced concrete Fine Arts building with an unknown construction date remained on the site.

The 1999 steel frame buildings would be expected to have a lower risk of earthquake damage. The reinforced concrete Fine Arts building has been classified as Category 1 (expected to perform reasonably well in an earthquake) by the DSA AB300 list and the R.P. Gallagher Reports.

Albany Children's Center

The Children's Center consists of 5 wood frame buildings connected by a covered walkway and two modular buildings. The date of construction of the wood buildings is unknown though based upon our observations we estimated the buildings to be of 1950's or 1960's construction.

Macgregor High School

Macgregor High School Consists of 6 wood frame buildings and several modular buildings. The date of construction is unknown.

Conclusion and Recommendations

Our study found that certain elements at both Ocean View and Marin Elementary schools do not meet the life safety criteria of either ASCE 31 or the current building code. The primary elements found to be deficient were collector connections and out-of-plane wall anchors. Given the increased demand on these components prescribed by recent building codes, these deficiencies are commonly found in buildings of this type and vintage. The results of our evaluation are similar to those presented in the reports by R.P. Gallagher Associates Inc.

We would recommend that these deficient elements be strengthened as part of an overall seismic retrofit program. Retrofits of this nature are commonly performed and often can be implemented economically and with a minimal impact to the function or appearance of the buildings.

ALBANY UNIFIED SCHOOL DISTRICT POST-EARTHQUAKE INSPECTION REPORT

Prepared for the Albany Unified School District



KPW Project No. 15C283

August 18, 2015

On August 17, 2015 a magnitude 4.0 earthquake struck the Hayward Fault in Piedmont, CA at 6:49am. Later that day, a Joseph Liberman from KPW Structural Engineers, Inc. visited two Albany elementary schools to inspect for post-earthquake damage. The buildings inspected, Ocean View Elementary School and Marin Elementary School, were built in 1975 and 1973, respectively. The buildings at each campus consist of wood-framed roofs supported by masonry and wood bearing and shear walls. This report summarizes our survey of both schools.

Ocean View Elementary

Built in 1975, the main buildings at Ocean View Elementary School consist of three single story structures connected by covered walkways. The roof is generally flat with a sloped, elevated clerestory roof in each classroom. The wood frame roof is supported by masonry and wood stud walls on conventional shallow foundations. Lateral forces are resisted by the plywood roof diaphragm and the interior plywood and exterior masonry shear walls.

KPW inspected the exterior walls and the accessible areas of building interiors. Particular attention was paid to locations that were found to be deficient in our previous report titled, "Albany Unified School District Seismic Evaluation" dated April 24, 2013. The only damage noted included very minor cracking in finishes at four locations. Three locations occurred in the gymnasium next to the large clerestory windows where the ceiling meets the wall (Photo 1). The other location occurred at the corner of a skylight in the covered hallway (Photo 2).

The observed cracking found is not believed to be structural nor to have been caused by the earthquake on August 17th.

Marin Elementary School

The Marin Elementary School campus consists primarily of 6 similar hexagonally shaped classroom buildings (Buildings A, B, D, E, F, & G) and a multi-purpose building (Building C) built in 1973. The 1973 buildings consist of a wood frame roof supported by masonry and plywood walls on conventional shallow foundations. Lateral forces are resisted by the plywood roof diaphragm and the interior plywood and exterior masonry shear walls. A rectangular, wood-framed classroom building (Building H) of unknown date and several modular buildings also exist on the campus.

KPW inspected the exterior walls, accessible areas of building interiors, and the site retaining walls. Particular attention was paid to locations that were found to be deficient in our previous report titled, "Albany Unified School District Seismic Evaluation" dated April 24, 2013. The only damage noted included minor cracking in the CMU where the roof purlins connect to the wall (Photo 3). These cracks were found consistently in every building.

The damage observed cracking is noted to have previously existed and does not appear to have worsened following the earthquake.

Conclusion

KPW has determined that the earthquake on August 17th does not appear to have caused any additional structural damage to any of the buildings on the Ocean View Elementary School or Marin Elementary School campuses. The recommendations from our 2013 report to address the seismic deficiencies are still strongly recommended to avoid structural damage that will occur with a code-level design earthquake which could leave the buildings unable to be occupied.

Appendix: Photos

Photo 1: Ocean View Elementary – Gymnasium

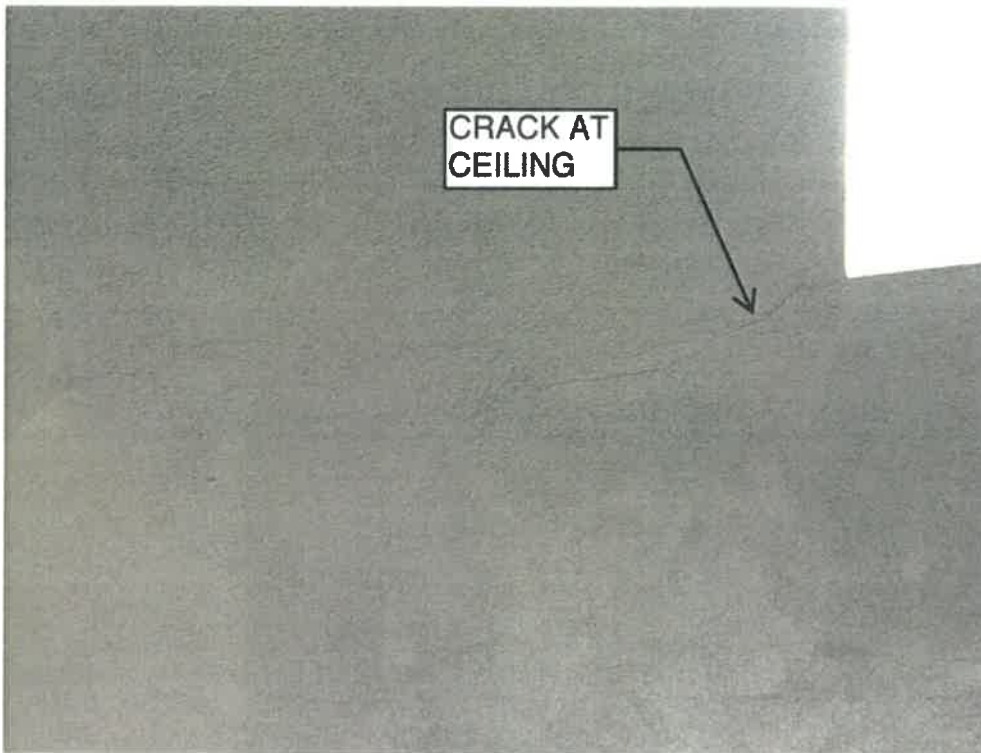


Photo 2: Ocean View Elementary - Skylight



Photo 3: Ocean View Elementary - Skylight