



Juanita High School

Modernization vs. New-in-lieu of Modernization Report

January 2016

Summary

In consideration for a potential 2016 Bond measure for the Capital Facilities Program, Juanita High School was evaluated to determine whether modernization/additions to the existing school or building New-in-lieu (i.e., rebuild) of the existing school on site was the better approach to meeting the district’s long-range educational and facilities goals. Juanita High School is the second oldest high school site in the Lake Washington School District (District), with Juanita High School opening in 1971. Based on enrollment projections, the 71 teaching station (1,800 student capacity) Educational Specification (“Ed Spec”) standard was applied to both the modernization and the rebuild new approaches; with a building program of 290,697 square feet (i.e., the educational specification for a comprehensive high school). In both options the field house and pool are retained without improvements. The process included on-site visits, physical condition analysis, evaluation of the existing school’s program fit with the District’s educational delivery standards, review of OSPI guidelines, construction-phase logistics and comparative cost estimates.

To most effectively meet the District goals, this report recommends that Juanita High School be rebuilt new rather than modernized. The existing field house and pool would be retained without improvements.

Considerations	Modernization and Addition	New-in-lieu (Rebuild)
Temporary Housing Moving	Temporary housing required Numerous moves during phased modernization with major program disruption and cost	Temporary housing required Minimal moves and program disruption, rebuild occurs while existing academic building program uninterrupted
Phasing	Complicated phasing for work within existing occupied buildings	Less complex phasing, rebuild, demo, site work
Schedule	Longer schedule (about 42 months)	Shorter schedule (about 36 months)
Bus and Parking	New structured parking to maintain current parking capacity	Greater potential for improvement. No parking structure needed
Program	Does not fully meet current Educational Specification due to existing building constraints	Fully meets current Educational Specification and specialized site program emphasis
Maintenance, Operations and Resource Impact	Less efficient and more impactful on resources due to building configuration	More efficient and less impactful on resources, meeting current performance standards
Site Safety	Existing facility not built to current standards, retrofit upgrades required	Current safety standards built into new building
Future Expansion	Expansion options limited due to existing layout and site constraints	Planned for potential future expansion options

Construction Cost Estimate Comparison Chart (2016\$)

	Modernization and Addition	New-in-lieu (Rebuild)
New Construction	-	\$61,360,000
Addition	\$32,500,000	-
Modernization	\$32,000,000	-
Demolition	\$1,500,000	\$2,100,000
Site Construction	\$2,000,000	\$3,000,000

Temporary Housing	\$3,800,000	\$7,000,000
Parking Structure	\$4,600,000	\$0
General Conditions	\$9,500,000	\$9,000,000
Totals	\$85,600,000	\$82,460,000

The cost estimate demonstrates that the cost to modernize and expand Juanita High School is more than the cost to rebuild (i.e., new in lieu) the academic building. (Estimates above are construction costs only in 2016\$. Cost escalation, design fees, sales tax, furnishings and other costs required for complete project.)

Phasing Narrative

Following describes the general sequence of activities associated with each approach.

Modernization/Addition

1. Construct a 116,000sf new classroom wing
2. Establish temporary housing
3. Relocate students to new wing and temporary house, vacate existing Main Building
4. Renovate Main Building
5. Relocate students to completed project

New-in-Lieu

1. Establish temporary housing
2. Relocate students to temporary housing
3. Demolish Main Building
4. Construct new Main Building
5. Relocate students to completed

Analysis of Conditions and Considerations for Juanita High School

Existing Conditions

Original School Construction	1971
Site Area	42.72 acres
Building Area, GSF	205,165 square feet – includes both academic and field house/pool (Per District 2013 inventory of permanent school facilities report to Office of the Superintendent of Public Instruction)
	8 Existing Portable Classrooms
Student Capacity	1,232 permanent /1,411 with portable classrooms
2015 October Enrollment	1,432
Proposed Ed Specification Capacity	71 teaching station model (1,800 students)

The Juanita High School site is located off Northeast 132nd Street, Kirkland. The site is bounded on all sides by residential development with some tree and grade separation. The existing academic portion of the high school is a single story structure located at the north-central portion of the site with drop-off, bus lane and parking located at the front of the school. A large Gymnasium and 2 story pool/fitness/locker building is located down slope just west of the academic building and connected via 2 covered walkways. The service area at east side of school is accessed by a service road, which loops around from the front of the school and connects with NE 128th Street at the east side of the site. Service to the lower playfield portion of site is accessed by way of parking area located immediately to the west of the gymnasium. There are currently 8 portable classroom buildings scattered around the site. Outdoor play fields, tennis, softball, baseball, etc., are located to the southern and western side of the site. The

football field/track stadium is located down a grade change immediately south of the academic building with bleachers built into the slope.

The school houses students in grades 9-12, a new grade configuration implemented in 2012 when 9th graders were added to the high schools. The school plan layout currently has educational spaces located off double loaded corridors within the large single story academic building. Due to the large floor plate and original 'open plan' design, many of the spaces, including the Library, Student Services, Classrooms, Science and Art Rooms are locked into the middle off the building with no exterior exposure for natural light or ventilation. There is a system of linear roof monitors, which bring daylight into some interior spaces of the building with mixed success. The one and a half story tall single floor design precludes building another floor over the existing building and creates difficulty in tying in a new multi-story building adjacent to it.

Site Considerations

Current vehicle access to the site is by way of a drive, 105th Ave NE, from NE 132nd Street, which provides the main campus access to a roundabout at the front of school. From here, vehicular traffic splits off to parking and drop-off areas at each side at front of school. The bus lane also splits off with a drop-off in front of the Auditorium, and a separate lane that loops around the parking area and back to the entrance drive. Parking wraps around to the east side of Academic Building, connecting to site access at NE 128th Street, and at the west side of gymnasium with service access to the lower level playfields. Overall traffic and parking flow on-site is concentrated at the front of the school.

The site appears to have been terraced in original construction with an upper level area at the north for the academic building and parking, then stepping down to the Gymnasium/Pool and to the lower playfields and football stadium along the southern portion of the site. The site is separated from a neighboring residential development with up and down-slope grade separations, tree screening and a drainage way along the southern edge of the site which directs storm water flow to a retention basin at west side of site. Tennis courts, parking and limited hard surface play areas are located west of the gymnasium.

Modernization/New-in-lieu Considerations

The site area for modernization/additions of the existing school or to rebuild a new school to meet the current Educational Specification program is limited. Phasing modernization/additions with ongoing school operations also add difficulties due to existing site area limitations and site access.

Options for creating a facility that meets the District's High School Educational program with ongoing school operations appears to be limited to the following, based on site conditions (both options retain the current field house and pool building without modernization):

- Option 1: Provide temporary housing on lower playfields; complete demolition (except for the field house and pool) of the existing facility and build a new academic building on existing footprint. In addition to the cost of a temporary housing facility, access issues to the SW area of the site for students, staff and services, having to pass through construction activities at north end of site make it difficult to maintain a safe separation between construction and education activities. Though the new academic building would have more classrooms, it also would have a smaller footprint on the site than the current building (due to its multiple floors), so parking capacity can be maintained.
- Option 2: A phased modernization/addition approach. Modernize the current academic building and enlarge the school by building a new four story building to house core learning suites and science classrooms in the area opened up between existing structures; modernize the remaining academic

building structure for remaining Science, Technology, Library/Media, Music and Commons/Food Service programs. Modernization/additions onto Music and Performing Arts area. To reduce the impact on education in the existing building during modernization, a temporary housing facility would be utilized. The existing building is a one and a half story structure and cannot accommodate the construction of a second story. To meet the educational specification, the required four-story addition would reduce existing parking capacity by approximately 170 stalls. A new multi-story parking structure would need to be built over existing parking stalls to maintain current parking capacity.

Application of the Education Specification

The existing Juanita High School academics and field house/pool buildings total 205,165sf. The educational specification totals 290,697 sf. In the 2016 bond scope, the field house/pool building will be retained to continue to serve all of the PE/Athletics functions of the school. For the modernization option, the existing academic building was assumed to be 85% efficient in meeting the educational specifications, an industry standard factor. In addition to renovating all existing areas in the academic building, an additional 106,000 square feet of new building is required. For the new-in-lieu rebuild option, a new building to house all of the remaining program areas in the educational specifications will be built next to the existing field house/pool building. When the PE/Athletics program areas are removed from the educational specifications, the overall area for the new-in-lieu rebuild option is 217,000 square feet.

The following observations relate to the fitness of existing facilities in meeting the educational specifications:

Core Instruction/Learning Suites

The Lake Washington School District Educational Specification for the high school level incorporates learning suites in a clustered learning environment which incorporates 6 learning settings (classrooms), 1 shared learning area, 2 small group areas, 1 teacher prep, storage areas, and toilet room facilities centered around the shared learning space. The current layout of Juanita High School does not support this model. There are currently 31 standard classroom spaces of many sizes and configurations currently spread around the school in a mostly departmental manner. Given the current structural and plan configuration and circulation layout it would be difficult to create or add learning suites with shared instructional space to the existing configuration and meet the current educational model without substantial reconfiguration of the existing layout.

Specialized Learning Science Classroom/Lab and Technology spaces are to be easily accessible to each learning suite per the current education plan to emphasize the project-based science and technology education program approach. Currently there are 7 Science Lab/Classroom spaces grouped together in the southwestern portion of the school plan. Given clustered, departmental grouping of the existing science spaces, it would be difficult to meet the Ed Spec intent to integrate science into the learning suites in a modernization of the existing plan.

While just a few existing classroom spaces have exterior exposure, the existing openings are limited. Natural lighting and ventilation is compromised and inadequate due to classroom configuration and layout. A series of linear roof monitors brings light to some interior spaces, including some classrooms, with limited success.

Specialized Instruction

The current plan layout and area provides program spaces for Family and Consumer Science Lab and Instructional areas, 2 shop spaces (Wood and Metal) currently used as a Shop and Material Science Lab, Design/Imaging (CADD) Lab space, 2 Art Studio/Labs, Special Needs and Resource Specialists. See above for Science Classroom/Lab spaces. Because of the 1-to-1 distribution of portable technology devices to students, there is not a need for the number of computer labs found in older educational specifications. Instead, in the current Educational Specification, computer lab space is to be provided in areas like CTE (Career and Technical Education) or STEM Signature programs.

Music/ Performing Arts

Music and performing arts program is currently located at the front of the school with an auditorium space (168 seats), including Vocal Music/Little Theater space, Instrumental Music Room, Piano Lab and several medium-small practice rooms, office, and storage areas. The existing theater space is undersized per the current program standard space, adaptable to a variety of performance configurations. Current instrumental practice space is adequate, however there is only 1 shared space for Choral and Drama; the current education specification lists a teaching station for each. The number and size configuration of practice rooms does not meet program requirements.

Physical Education

The current Gymnasium location near front of the school adjacent to the main entrance meets the intent of the Ed Spec of providing easy community access and also provides direct access to the exterior play areas and fields at the south and west edge of the site. The current Gymnasium (Fieldhouse) is oversized for program, however additional space provides an educational and community resource. Fitness/Weight Room areas are located on the mezzanine level above the locker room areas and are somewhat remote from access and the Gym and PE office areas for direct supervision. Locker rooms and storage area are located appropriately for access to gymnasium and exterior.

Current PE/Gymnasium on site is oversized per the standard Ed Spec even if the area for the Auxiliary Gymnasiums is taken from the overall Gymnasium/Fieldhouse area. The existing Gymnasium is approximately 34,375 square feet, and along with existing PE spaces (locker, wrestling, weight, fitness and pool) the total area is approximately 69,520 square feet. The total area is significantly larger than the program area of 38,895 square feet for PE/Athletics and includes areas, such as the swimming pool, not programmed in the current Education Specification. This program area overage would need to be acknowledged in the overall campus area calculations and square footage per student factors.

Library /Media Center

The existing Juanita High School Library/Media Center is approximately 6,300 square feet, which is less than the 7,500 square feet of the area required by the current high school Education Specification. Its central location at the middle of the school serves student access well but is not as successful creating the visibility required for the space to be visible and easily accessed from the school main entry for parent and community meetings. The current Library layout also limits natural light and ventilation, which should be addressed in a New-in-lieu program. The existing, adjacent Computer Lab function is not defined in the current Ed Spec.

Food Service/Commons

The Commons area is located at the back corner of the school adjacent to the attendance office and at the intersection of 2 main circulation corridors. Food service/Kitchen area opens to Commons and has direct exterior service access at the back of the school. Area of kitchen, serving and food storage is less than the required program area for a complete production kitchen and serving area. The corner of the Commons opens to the exterior courtyard area for some natural lighting and exterior access. Currently the Commons lacks storage for chairs and tables.

Administration and Student Services

Administration area is currently located near the main student entrance area to the school meeting the education specification intent to provide a view of the front of the school and parking area for supervision. The

Administration area is undersized for this area and the teacher support program areas outlined in the Education Specification and layout of spaces is not optimal.

The Student Services/Counseling area occupies an adjacent area to the Attendance area and is easily accessible for students from the Commons area. There are dedicated spaces for Special Needs and ELL (English Language Learning), specialists and therapists.

Adaptability/Flexibility

Originally constructed as an open plan school in the 1970s, and later remodeled to a more traditional educational plan layout (double loaded corridors, self-contained general classrooms, departmental layout), the existing structural frame grid pattern has an inherent amount of flexibility built in. The existing 55-foot grid module does not work with the current Ed Spec spatial requirements. The existing continuous crawl space and the utility trench below the building footprint could help in rerouting utilities and building services to meet the new educational delivery program. The relatively high structure (one and a half stories) and ceiling height of the building also adds to the limitation of flexibility of this building.

Extensive alterations of the existing building as well as added building area would be required for the existing facility to meet the current Ed Spec and educational goals as well as community expectations. Reconfiguration of buildings and systems would be costly and disruptive to ongoing educational programs. Phased construction activity and additions would generate: multiple moves/phases; incur the cost of temporary housing of program areas elsewhere on site; and increased construction costs due to the multiple phases. Program support areas (such as Cafeteria/Commons) would need larger areas, which cannot be accommodated within the existing building footprint. Existing building mechanical, power and technology systems would need extensive updating or replacement to meet the current education expectations and energy requirements.

Long Term Operating Cost – Sustainability

Given the age of the existing school building (originally built 1971) it does not conform to current energy standards for both building envelope and systems (especially because of the high volume 1 ½ story single story structure and also poor insulation). The Juanita High School academic building consumes approximately 15% more energy per month than modern Lake Washington School District high schools. This incurs an added cost of \$5,000 - \$10,000 per year to the district operational budget.

The latest OSPI (Office of the Superintendent of Public Instruction) Study & Survey and ICOS (OSPI Inventory Condition of Schools) scores place Juanita High School near the middle of facility building evaluation scores. Building reconfiguration would require new building systems including new mechanical, electrical and lighting systems to meet current energy standards. The building envelope is also a challenge given the predominant concrete and masonry construction and would require an insulation layer added to the exterior or interior walls (reducing program area) to meet the new energy code. Natural daylighting and ventilation for a typical classroom area is also problematic with the current plan configuration and existing program layout.

School Use During Modernization/New in Lieu

Modernizing the Existing Facility

Modernizing the existing school facility creates difficulties in housing the existing program during this work effort. Whether phased or completed all at once, temporary housing would need to be provided for the current student population. The site area available for temporary classroom portables is limited without impacting the program area or site parking layout. The parking area at the front and sides of school is a likely candidate for portables

during mod/construction work, as well as the baseball/softball playfields located at the lower elevation SW corner of the site for temporary additional building area.

A modernized facility does not meet stakeholder and community expectations. The opportunity to dramatically improve the efficiency and architectural presence of the school is most likely in the New-in-lieu scenario.

Constructing a New School Building in Lieu of Existing

A scenario in which the existing education program continues while rebuilding a new facility is the preferred project approach, however, limited site area for new construction is a challenge. Phasing demolition and new construction could be an option where new facility might be located on or near the existing footprint.

Constructing a replacement facility on-site with existing academic building learning spaces in use solves the temporary housing issue, but creates issues of safe site access for construction activities as well as providing a safe outdoor play/activity area for students during the construction and site work period. A phased approach would allow creating a replacement site program such as parking and playfields in the area of the existing school once it is removed.

Conclusion

As stated at the beginning of this report, to most effectively meet the District goals, the findings of this study recommend that Juanita High School's academic building be rebuilt new rather than modernized and enlarged. The existing field house and pool would be retained without improvements.

Report Preparation

This study and report was prepared by: McGranahan Architects; OAC Services (construction management); and, RLB – Rider Levett Bucknall (cost estimating)