

Piedmont Unified School District

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Piedmont Unified School District

FACILITIES ASSESSMENT

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INTRODUCTION

“The Piedmont Unified School District (PUSD) strives to provide a stimulating educational environment for approximately 2,600 students. The student population has become increasingly diverse and includes 20 percent who are Asian, 3 percent Hispanic, 3 percent African American, and 74 percent Caucasian. On California Standards Tests (CST) and STAR, PUSD is among the highest ranking unified school districts in the State, and over 95 percent of Piedmont Unified School District graduates pursue a college education.

A team of over 360 highly experienced and dedicated teachers, support staff, and administrators work with students at six school sites: three elementary schools, one middle school, one traditional high school, and one alternative high school. The district also includes an adult school that shares space with the district schools for evening and weekend classes”.¹

Wikipedia notes that Piedmont is a small, mostly-residential city located in Alameda County, California, United States. The City of Piedmont is surrounded by the city of Oakland. Piedmont's residential population was 10,667 at the 2010 census. The city has a total area of 1.7 square miles. It is located near the Hayward Fault, a fault line running through the Easy Bay Region.

Over the years the Piedmont community has passed a number of bond and tax measures that support Piedmont Unified School District educational goals and facility needs. The Measure E bond in 2006 was focused on seismic safety and stabilization. This bond resulted in comprehensive modernizations and upgrades at the three elementary schools as well as seismic stabilization improvements at the High School. While the Piedmont facilities have been well maintained and are in relatively good condition, the older facilities at the Magnolia Avenue high school and middle school campuses show evidence of years of use. PUSD has a diligent maintenance team, but improvements are necessary to enable the campuses to conform to current safety and accessibility requirements as well as to provide the facilities necessary to provide quality education in the twenty-first century. The school district and community recognizes these needs and understands that the campuses must be modernized to meet the demands of current and future educational programs. The recognition of this need led to the development of this Facilities Assessment and Recommendations Report.

¹ <http://www.piedmont.k12.ca.us/district-info/>

PROJECT TEAM

The following individuals and organizations participated in the planning process for the Piedmont Unified School District Facilities Assessment. We apologize for the omissions of any others who have been of great assistance.

Piedmont Unified School District

Superintendent, Randall Booker
Facilities Manager: Pete Palmer
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Mechanical Engineer

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Electrical Engineer

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Principal in Charge: Pieter Colenbrander
Engineer: Alvin Chu

PURPOSE OF FACILITIES ASSESSMENT

This Facilities Assessment Report will focus on the District's school facilities, with the aim of identifying facility deficiencies and recommended improvements including;

- Deferred maintenance issues.
- Improvements to remediate physical, health, fire, life, safety, and accessibility issues, to comply with current Division of State Architect (DSA) building codes.

Each site's Assessment Report will identify these improvements and remedial up-grades required to provide safe, secure and well-maintained campuses, appropriate to the needs of current educational programs.

Method of Assessment

To accomplish this, Quattrocchi Kwok Architects and our team of Consultants, conducted facility assessments and document reviews, including site visits with District Maintenance Staff to give us valuable insight into each sites unique deficiencies and assets. We visually surveyed the existing conditions at each campus, with follow-up reviews at selected sites that are more complex or had a greater number of issues.

The evaluations of the following are included in the Facility Assessment for each site.

Architectural:

- Site inspection of the building envelope and finishes (excluding windows), identifying areas where surfaces and components are nearing the end of their useful life and where corrective repairs are needed.
- Identify areas on each campus that require renovations to meet current Accessibility, Health, or Building Code requirements.
 - Accessibility upgrades are frequently thought of as building related and triggered with a construction project. However, it is important to remember that accessibility in the state of California is governed by the Unruh Civil Rights Act. California's disabled access laws protect the right of physically and mentally disabled individuals to obtain full and equal access to public accommodations, public transportation, telephone facilities, lodging, and entertainment. Government Code section 4450 et seq. requires buildings and facilities

remodeled after 1968 or built with state, county, or municipal funds to be accessible to the disabled and comply with accessibility standards adopted by the State Architect.

- All of the existing buildings were code compliant at their time of construction and certified by DSA. The code reviews contained within this report are intended to identify areas which may require additional clarification or improvements in order to meet California Building Code 2013 requirements because of revisions to the Code that have occurred since the original construction.
- Identify areas where improvements are needed to meet current student safety standards, such as door hardware and security systems.

Site :

- Evaluate condition and performance of storm drainage system.
- Evaluate condition and adequacy of fire department access and hydrant location.
- Review record drawings and interview maintenance staff to identify underground utilities issues.
- Evaluate paving, walkways, and site drainage for remaining service life.
- Evaluate site accessibility, including parking and pathways and identify areas where they do not meet ADA requirements.
- Evaluate roadways, parking lots, and play areas, identifying suggested repairs and improvements.

Plumbing:

- Evaluate the condition of existing plumbing fixtures and systems.
- Review hot water heating systems, and recommend upgrades, or replacement.
- Recommend improvements and repairs to decrease maintenance, energy, and water consumption, and improve performance.
- Survey existing fixtures and equipment, and select recommendations for adoption of District wide standards.

Mechanical:

- Evaluate the condition of existing mechanical systems.
- Review hot water heating systems, and recommend upgrades, or replacement.
- Recommend improvements and repairs to decrease maintenance, energy, and water consumption, and improve performance.

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- Recommendations for future systems.

Electrical & Low Voltage:

- Review adequacy of main electrical service at each campus. Recommend upgrades or replacement at older campuses.
- Review current fire alarm system and identify any improvements necessary to meet current DSA or District standards.
- Review current data and phone infrastructure, and typical classroom standards, for compliance to existing District Standards.
- Assess condition of phone, clock/bell, and P.A. systems, and recommend where upgrade or replacement is required.

The Facilities Assessment reviews existing construction, while the Piedmont Master Plan addresses long-term planning suggestions, including new construction.

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Narrative Levels of Modernization

Good: Building is in good condition, having certain building components in need of repair or replacement. Work required ranges from typical maintenance to minimal minor renovations.

Fair: Building is in fair condition, with several building systems in need of repair or replacement. In order to bring back to full operating condition, moderate renovation is required.

Poor: Building is in poor condition, with several major building systems requiring complete overhaul. Cost of renovations required to bring building back to full operating condition or meet educational program requirements, may justify complete replacement in lieu of major renovation.

Minor Renovation / Minor reconfiguration of spaces and selective upgrades of some systems or building components such as repair or replacement of: flooring ceiling lighting electrical upgrades painting

Moderate Renovation / This is similar to a major renovation but the work required would not be as extensive and will primarily include addressing code requirements.

Major Renovation / Extensive renovation, replacement and reconfiguration of spaces to meet code requirements as well as current and future educational program requirements. This may include replacement or upgrades for: ADA accessibility, HVAC, roof, electrical, windows, flooring, ceiling, lighting, technology, infrastructure, signal systems

Educational program requirements are described within each building description.

MANDATORY IMPROVEMENTS: Code & Other Safety Issues

NECESSARY IMPROVEMENTS: Preservation of School Plant

DESIRED IMPROVEMENTS Program Changes, Quality of Life Issues

PIEDMONT HS & MILLENNIUM HS Magnolia Campus



Campus Observations

The Piedmont High School / Millennium High School campus presents a cohesive imagery throughout with design elements that echo traditional Spanish style architecture without mimicking it directly. Large cream colored walls are topped with wood outriggers and trellising. Windows at the classroom buildings are focused on the interior of the campus, much like a courtyard, with few windows on the public street frontages. Alan Harvey Theater sits at street side with more presence and transparency.

With its hillside location, the site is topographically complex. From the edge abutting the park to the north down to Witter Field at the south there is an elevation change of approximately 160 feet. Therefore, providing a comprehensive accessible circulation path as required by the Division of the State Architect is challenging. Each of the construction projects over the years has contributed pieces that link together to provide the mandated path, but it is not always evident as to where this is. As is common in school campuses the need for elevators to provide vertical circulation is affected by the desire to control elevator access to avoid vandalism or inappropriate use. The school district has worked diligently to maintain the

path(s) but some of these improvements are old enough to have suffered the consequences of aging such as soil subsidence and subsequent concrete failures. A further complication is the tendency of the Division of State Architect to re-examine existing accessible features and require updating to the most current code.² It is important that a clearly defined path to all elements be available for all activities on the campus including after school games or events.

There is no easily identified “Front Entry” to the Piedmont High School Campus. Apart from the marquee sign, it is difficult for a new visitor to determine the location of the school office / entry. The new signage program has improved this for pedestrians with both directional signage and campus maps. There are two major campus access points between the 10’s Building and Alan Harvey Theater, and then again between the theater and the 40’s building, but both of these double as parking and driveways.

Millennium High School in the 40’s building has developed exterior signage to identify their school. Additional emphasis is needed for the office entry at the elevated walkway from Magnolia.

The campus is open on the eastern edge with walkways leading from the adjacent park. This is of concern to some, who would like to be able to physically secure the campus. It is important to remember that the school campuses are integral parts of the community who should be made to feel welcome outside school hours.

Parking in the City of Piedmont is consistently difficult. The traffic on Magnolia Avenue is affected by the presence of several public buildings along Magnolia such as the Piedmont Swim Center, Art Center, and City Hall at the north end of the street in addition to the schools. Many of the adjacent streets are limited to resident parking only. There are only 36 spaces available on campus so most staff parking is on the street. The City and the District have been working together to develop a joint solution, designating specific areas and times for parking or drop off and fine tuning permits for street parking. The District has redefined staff parking areas and provided gated access to the interior of the campus for those employees who may need to leave the campus and need a parking space upon their return.

² The Division of the State Architect adopts the California Building Code every three years incorporating state agency specific amendments. The language of these amendments has frequently differed from that of the Americans with Disability Act enacted in 1991. California has yet to have Chapter 11B (Accessibility) certified by the Department of Justice. It is only in the 2013 code that the elements constructed under the previous 2010 code were deemed as meeting mandated requirements. Additionally, for several years prior to 2010 DSA utilized a Universal Design document which differed from both the ADA and the CBC in detailed requirements and scoping.

Student drop off is on Magnolia Avenue. In order to maximize parking for staff and visitors, a row of parking spaces is next to the side walk and pickup/drop off appears to occur in the street. Most parents will queue in the traffic lane closest to the sidewalk, with through traffic moving in the adjacent lane. The amount of direct curb side drop off is extremely limited, and these cars must pull into the traffic lane. This is not a safe solution because of the pedestrian / vehicle cross overs. There are parking spaces on the opposite curb side of the street.

An Emergency Vehicle Access route from Magnolia Avenue is provided into the interior of the campus from the pathway between the Alan Harvey Theater and the 40's building, to the center student Quad. Fire hydrants are located along Magnolia Avenue and within the campus. Fire flow testing was not conducted as part of this facilities assessment, although previous findings indicate that the fire flow pressure from the East Bay Municipal District is quite high. Prior to any new work the hydrants closest to the work will need to be tested for flow.

With the school site being located on a steep hillside there are many accessibility (ADA) issues on the campus. There have been approved P.O.T. (Path of Travel) improvements in several projects reviewed by DSA over the years. As noted above, these routes will need to be readdressed with each new project. DSA will likely require vertical accessibility within each building and may require that all, or additional exits of the building be made accessible. The use of elevators in neighboring buildings as a means of access are generally not allowed by DSA as they have been found to not provide equitable access. The existing pathways within the campus have been reviewed by our consulting Civil Engineers Brelje and Race and can be found in the appendix section of the facilities assessment.

Technology Infrastructure: PUSD has a fully deployed and consistent technology backbone, designed to support instructional needs as well as the 1:1 Chrome book program at the Magnolia Campus. Therefore, rather than address this on a building by building basis, the recommendation is to continue to support the PUSD Technology Plan. Specific improvements required campus-wide include additional **power** for recharging devices and secure storage for the Chrome books during the summer.

The existing MDF room is cramped, but the data system is currently in reasonable shape, according to Staff, and includes adequate fiber (to each building) and horizontal station cabling (in each building), to serve the current IT needs. Horizontal cabling was upgraded to Category 6 cabling within the last year and half. Site-wide fiber was also upgraded to 10GB compatible single mode fiber, which can provide adequate bandwidth for some time to come.

Site Systems: In addition to the physical improvements noted, the Electrical Engineer has indicated that future additions to the campus may require an upgrading to the PG&E service.

Previous work on the site by the Civil Engineer has noted that while the fire flow pressure from the City fire lines is quite high, there may be some upsizing of building fire lines required depending on the extent of modernization that occurs.

Lighting & Electrical Systems / Fire Alarm: The Electrical Engineer's full report is provided in the appendices of the facility assessment. The telecom system, fire alarm, and AV / PA speaker systems have all been upgraded in the recent past and can generally remain. The clock systems are old and outdated and should be replaced with a new wireless system.

Apart from the specific recommendations for the upgrading of systems in future construction, the most notable concern is that of the existing main electric service at the High School.

The switchboard currently serves High School Buildings A through G (East end of the HS + MS Site), as well a number of smaller buildings, O, P, and Q. The switchboard has very little physical space to add new loads, making future renovations or new buildings hard to add. Depending on the required loads (with air-conditioning and/or elevators), the 1,200 amp capacity may also not be suitable for future load additions.

The branch panels at each building are primarily older Zinsco panels. Zinsco panels were discontinued many years ago and have a reputation of being problematic, hard to maintain, and have with limited parts availability. If and when work is done at the buildings, it is recommended that the panels be replaced (in place); at the same time the related feeders are tested.

There were specific instances of electrical clearance code violations noted, where the code required 3 feet of frontal clearance was obstructed by boxes, cleaning equipment, or other Storage items. Proper electrical space should be provided throughout, to provide adequate and safe working space as required by code.

Site Improvements: As has been noted consistently in previous reports and assessments, the existing site contains a number of challenges for accessibility. In addition to the issues of accessibility, the Civil Engineer's report addresses several specific concerns regarding storm drainage systems, both on and off the site.

Exterior lighting needs to be improved in both quantity and controls.

Safety and Security: The Piedmont Police Department (PPD) has walked the site with the Facilities Director. The District has also consulted with Crisis Management Solutions LLC. It is recommended that the entire site be securely fenced, with a 10 foot black metal fence along the southern edge adjacent to the park to allow and lower fencing along Magnolia street to allow more than three points of entry at the PHS / MHS site. This approach would be similar to that in place at the front of Havens Elementary School. Gates and fences along Magnolia should be carefully designed to provide security without being too visually intrusive and use building edges as fences where possible. Gate hardware will allow exiting during school hours but will not allow access by the general public.

Securing the PMS site from the adjacent maintenance building and access drive, as well as the neighboring parcels would require an extensive fencing system, which should be reviewed by the District for the visual and social impact on community members.

The District is continuously upgrading hardware and electronic security systems. Full implementation of the "Columbine" classroom security lock is a part of this. Panic hardware upgrades should be integrated into any building renovation.

Magnolia Site Recommendations:

Mandatory Improvements: Accessibility

- Develop a prioritized list of improvements required for an accessible pathway, including parking, and develop a formal transition plan in conjunction with DSA review. For example, DSA may accept a ramp with a slope greater than 8.3% if it is structurally integrated into adjacent construction. However, a cross-slope greater than 2% is seldom allowed.

Mandatory Improvements: Fire Life Safety

- Improve fire lane access at PMS.

Necessary Improvements:

- Underground storm and sewer system should be located and mapped for an accurate record. Sewer and storm drain lines should be video inspected to document existing conditions.
 - In conjunction with the City of Piedmont, review downstream drainage
- Complete storm drainage improvements noted in the Civil Engineer's assessment.
- Develop a preliminary estimate of PG&E upgrade impacts and develop an allowance and time line.

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- Replace existing electrical branch panels in association with proposed construction.
- Install new campus-wide clock system.
- Provide emergency lighting.
- Upgrade exterior lighting in association with proposed construction controlled by automatic devices.
- Provide targeted security cameras for known areas of vandalism.

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PHS Entry at Magnolia



Looking towards Administration



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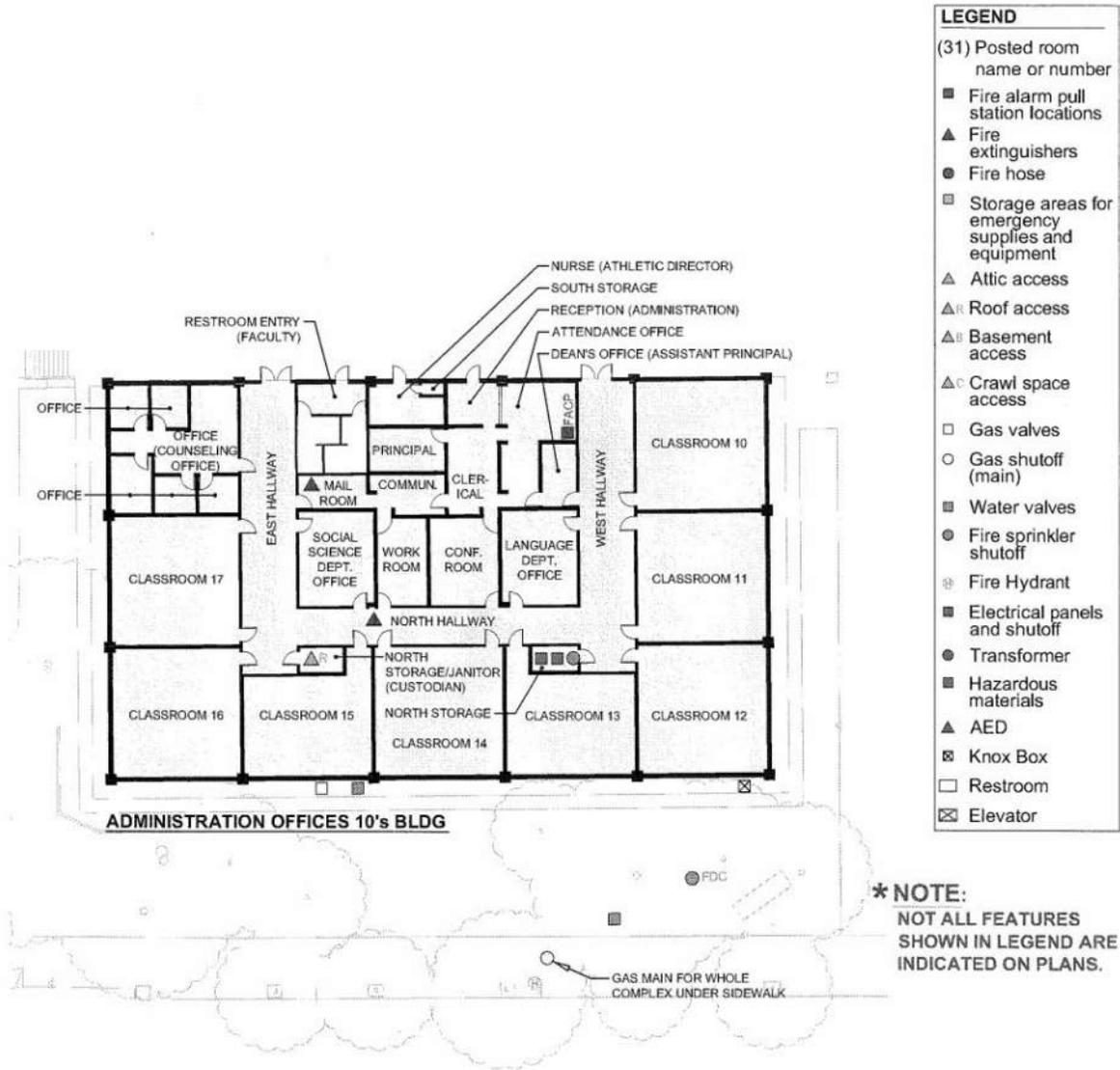
Stair at Park side of 30's building



Amphitheater

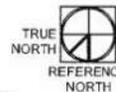


10's Building - Administration and Classrooms / Building D



BLDG D

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



10's Building - Administration and Classrooms / Building D

Original Construction: 1976

Reconstruction: 1988 Structural Renovation and Repair

Other work: None

Upon entering the campus off Magnolia Ave, the 10's wing, otherwise known as Building D is to the left. Building D houses the administration, counseling offices and 8 classrooms. It is one of the three buildings from the 1976 campus construction; the building structural system is based on a pipe column grid and exterior concrete walls. The roof framing is a system of glu-lam beams with solid blocking for a plywood roof deck. Standard classroom interiors are open to the underside of the roof framing, with suspended lighting panels centered in the structural bays. Smaller rooms have gypsum board ceilings (typical at corridors) or suspended acoustical tile ceilings depending on the function. Interior walls are wood framed with gypsum board, one - hour assemblies at corridors. The building has fire sprinklers.

Exterior windows and doors are a uniform storefront system, single glazed true divided lights.

The roof beams extend beyond the roof deck as outriggers and support a wood trellis. The roof framing at the Breezeway between this building and the adjacent library is an integral part of this building's structural system.

INDICATORS OF QUALITY

Code Compliance: The building is a multiple occupancy building with offices (B occupancy) and a classrooms (E occupancy).

General Allowable Floor Area	Construction Type V-B: (Table 503)	9,500 sf
Separation increase: Not Used *		
Fire Protection (Sprinklers) (506):	100%	+9,500sf
Multi-Story Factor: Not Used		
Total allowable floor area:		19,000 sf
Total actual floor area:		12,212 sf
Building Area including Breezeway Roof	(2,268)	14,480 sf

Allowable Height	Allowed: 40 feet, 1 story (Type V-B) (Table 5-B)
Existing Height	15 feet, 1 story
Occupancy separation 1-hr between B and E*** per Table 508.4	

*Yard increases in the original building application differ from current code. This is based on the original allowance of 100% increase where yards 20 feet or more occur on three sides of the building. Future modernization work may require an updated calculation per the equation below.

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If = $[F / P - 0.25]W / 30$ F=314 P=456 W(weighted) = 30 $(.75 \times 24.3) / 30 = 60\%$
Allowable area 15,300 sf.

**The existing building has fire sprinklers. System needs to be verified that it conforms to CBC 903

*** Rating between occupancy is 2-hours are reduced by 1 hour since the building is equipped throughout with automatic fire sprinklers.

Accessibility: The building is on an accessible circulation path. Many exterior thresholds are ½" high. Interior thresholds are flush finish to finish. Door hardware – lever handles and exit devices – are code complaint. The District is implementing a new hardware program for security purposes. This includes a battery operated card swipe at main exterior entries.

Within the 10's Building there are many accessibility issues. The major improvement that will need to occur is to the main toilet rooms and well as the toilet room at the nurse's room. These rooms do not conform to current accessibility codes and will be required to be completely rebuilt to bring them up to current accessibility codes. There are several smaller accessibility items that will need to be addressed within this building as well. Due to the number of occupants within this building it is required to have a drinking fountain within the building that is easily accessible. The cabinetry and counters within the administration have counter heights that exceed the required 34" height and do not have the required 27" high clearance for an accessible work space. These cabinets and counters will have to be modified to lower the height and to provide an accessible work space. Several rooms including the mailroom are too narrow to allow for a 5'-0" clear turning radius.

Within the corridors accessibility issues include providing accessible lockers, replacing the surface mounted fire extinguishers with brackets or cabinets within allowable mounting heights, and room signage. Several of the doors don't have the required 18" clear on the pull side and 12" on the push side. Most of these can be fixed by switching the swing of the door.

Fire Life Safety: Since the building is sprinkled, there is a required 1-hour occupancy separation between these two occupancies because the administration is over 25% of the building area. QKA cannot find any record drawings or DSA approval of the conversion of a classroom to counseling offices. The wall assemblies between the counseling and the classroom need to be investigated to ensure that the 1-hour requirement has been provided. Similar with the age of the building all the corridor walls need to be

investigated to verify that they provide the required 1-hour protection. When investigating the building there were door ratings that were painted over so their ratings could not be verified.

The sprinklers will require additional investigation by a protection professional to verify it conforms to section 903 of the (CBC) California Building Code. Any portion of the building that is worked on will be required to upgrade the fire alarm to current code requirements for automatic voice alarm.

Within the corridor there are several fire life safety items that need to be addressed. These items include tactile exit signs, illuminated exit signs at floor level. The "dog leg" door stops need to be removed from all the doors within the corridors. All doors within the corridors must have closers on them as the doors in their closed positions provide the continuous fire rating. If there is desire within the school to these doors remain open into the corridor, magnetic holders can be added. These holders are tied into the fire alarm system and automatically release when the fire alarm is activated. There is an added cost for this system that should be accounted for when considering this system.

All emergency lighting needs to be upgraded. Battery back-up lighting is required within the corridors. Additional fire extinguishers should be provided within the corridors or classrooms.

Structural: The building underwent a structural renovation and repair in 1988 which addressed major structural systems. Minor improvements as noted in the non-priority AB300 reports of 2007 reference only non-structural recommendations. The items that were noted in that report have since been anchored, and the facilities department is fairly rigorous in reviewing these on a regular basis. Maintenance repairs are needed at the exterior wood fascia and trellises.

Building Elements: The exterior walls are concrete which has remained in fairly good shape. The original windows remain. The existing roof will need replacement within the next few years.

Interiors / Finishes/ Fittings: are worn although in good repair considering their age.

Mechanical Systems / Plumbing Systems: Existing rooftop heat pump units are ineffective. The attic space above the corridor is a return air plenum, which is not allowed according to current standards. Supply air ducts are constructed of fiberglass duct board and are damaged. In each class room the side wall supply air and return air registers are at the same elevation and are fairly close together. There is one thermostat for three to four rooms. Unacceptably loud exposed exhaust fans in several rooms.

The buildings mechanical systems are in poor condition.

Educational Appropriateness:

CDE recommend that all standard classrooms be 960 square feet. The classrooms in building D are 784 square feet, which is about 18% smaller than the CDE recommended size. The size of the administration is much smaller than other schools of Piedmont High's size. The counseling offices have expanded across the corridor into a converted classroom space.

Technology Infrastructure: Refer to notes under site. Any proposed modernization of this building should preserve the existing IDF room.

Safety and Security: The location of the administration offices at the interior of the building serves the campus well, but relies on signage to be found by visitors. The current location doesn't allow sufficient oversight of the main Magnolia entry point.

Concern has been expressed over the fact that most of the existing classrooms have a single exit door, into the corridor. While one exit meets the building code requirements based on the classroom size, it is thought that having a second door leading to the exterior would be advantageous in allowing a second separated egress path in case of emergency. Although egress doors in existing construction do not have to be accessible, these new doors should meet accessibility requirement to improve the link to outdoor spaces. The hardware should allow easy egress, but control entry into the building, or the adjacent area should be secured by fencing.

The physical security assessment by Crissis Management solutions recommends that the PHS / MHS site

10's Building: Recommendations

Mandatory Improvements: Accessibility

- Provide accessible thresholds at exterior doors in accordance with DSA requirements.
- Revise door swings at interior classroom doors as required for clearances.
- Continue hardware replacement program.
- Complete upgrades of the restrooms will be required in any modernization. At the minimum the building should contain one accessible unisex restroom with directional signage.
- Remount fire extinguishers as required.
- Provide an accessible hi-lo drinking fountain.
- Replace the hardware at existing lockers to meet the 5% accessibility requirement for both locks and location.

Mandatory Improvements: Fire Life Safety

- Provide emergency lighting.
- Remove door stops. Replace with magnetic hold opens linked to the fire alarm system.

Necessary Improvements:

- HVAC: Replace existing heat pumps with new. Install new sheet metal supply air and return air ducts to each zone, thus eliminating return air plenum over corridor. Add exposed supply air duct work into each class room for more effective air distribution. Add variable air volume (VAV) boxes for each classroom for individual room control. Add controls and economizer to roof top unit to control outside air and exhaust air where gas turrets are present. Add new exhaust fans with sound attenuator. Add central controls for entire facility. Add CO2 sensors for demand control ventilation.
- Electrical:

Desired Improvements:

- While the building meets the necessary needs for classrooms, these are undersized. Future modernization work that increases the classroom size will affect the overall campus classroom count. It will be necessary for the District to determine whether this is acceptable.
- The Administration office should be reconfigured to provide oversight of the campus entry points.
- Add an exterior door to the classrooms as a second exit.
- Full replacement of the window systems with energy efficient systems that are easily repaired is suggested.
- A full re-roofing project may be incorporated with the proposed PV system.

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Entry to Administration



Administration Entry

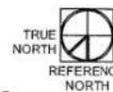


20's Building - Science Classrooms / Building E



BLDG E

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



20's Building – Science Classrooms / Building E

Original Construction: 1976

Reconstruction: 1988 Structural Renovation and Repair

Other work: None

One of the three original buildings from the 1976 campus construction, the building structural system is based on a pipe column grid and exterior concrete walls. The roof framing is a system of glu-lam beams with solid blocking for a plywood roof deck. Standard classroom interiors are open to the underside of the roof framing, with suspended lighting panels centered in the structural bays. Smaller rooms have gypsum board ceilings (typical at corridors) or suspended acoustical tile ceilings depending on the function. Interior walls are wood framed with gypsum board, one – hour assemblies at corridors. The building does not have fire sprinklers, although it houses science classrooms. One classroom appears to have spray-on fire protection at the ceiling.

Exterior windows and doors are a uniform storefront system, single glazed true divided lights.

The roof beams extend beyond the roof deck as outriggers and support a wood trellis.

INDICATORS OF QUALITY

Code Compliance: The classroom building is a single E- occupancy.

General Allowable Floor Area	Construction Type V-B: (Table 503)	9,500 sf
Separation increase: Yards*	43%	+4,085 sf
Fire Protection (Sprinklers)	None**	
Multi-Story Factor:	Not Used	

Total allowable floor area:	13,585 sf
Total actual floor area:	11,950 sf
Allowable Height	Allowed: 40 feet, 1 story (Type V-B) (Table 5-B)
Existing Height	15 feet, 1 story

*Yard increases in the original building application differ from current code. This is based on the original allowance of 100% increase where yards 20 feet or more occur on three sides of the building. Future modernization work may require an updated calculation in which an additional 60% of building area is allowed for a total of 15,200 sf.

$$If = [F / P - 0.25]W / 30 \quad F=314 \quad P=456 \quad W(\text{weighted}) = 30 \quad (.75 \times 24.3) / 30 = 60\%$$

**The existing building does not have fire sprinklers. Per CBC 903 if any of the existing science classrooms are reconfigured, an automatic fire suppression system will be required in the area of work.

Accessibility: The building is on the accessible circulation path. Refer to the Civil Engineer's assessment in the appendix for additional path of travel requirements. Many exterior thresholds are ½" high, which will require new transitional thresholds. Interior thresholds are flush finish to finish. However, door side strike clearances do not meet existing requirements. Door hardware – level handles and exit devices – are code complaint. The District is implementing a new hardware program for security purposes. This includes a battery operated card swipe at main exterior entries.

The toilet rooms were modernized to meet the applicable code at the time of construction; however, these rooms do not conform to current accessibility codes and will be required to be completely rebuilt to bring them up to current accessibility codes. Existing restrooms have been modernized to provide an accessible water closet stall and sinks. The Boys room does not have an accessible urinal. It should be noted that with a major modernization of the toilet rooms the number of fixtures within the boy's toilet room will be greatly decreased as the total number of fixtures between the boys and girls toilets rooms should be equal and meet CDE requirements.

Similar to the 10's building, there are several smaller accessibility items that will need to be addressed within the 20's building as well. Due to the number of occupants within this building it is required to have a drinking fountain within the building that is easily accessible. The current drinking fountain in the corridor is not an accessible high low drinking fountain. The cabinetry and counters within the science classrooms and the preparation rooms have counter heights that exceed the required 34" height and do not have the required 27" high clearance for an accessible work space. A portion of these cabinets and counters will have to be replaced to lower the height and to provide accessible work space. All the demonstration stations are currently non accessible and will be required to be made accessible.

Within the corridors there are several accessibility issues that will need to be addressed. These issues include providing accessible lockers, replacing the surface mounted fire extinguishers with semi recessed cabinets, room signage. Several of the doors don't have the required 18" clear on the pull side and 12" on the push side. Most of these can be fixed by switching the swing of the door.

Fire Life Safety: Building E does not have a sprinkler system.. Since the building is not sprinkled, DSA will require them to be added if the uses of these rooms change. With the age of the building all the corridor walls need to be investigated to verify that they provide the required 1-hour protection. When investigating the building there were door ratings that were painted over so their ratings could not be verified.

FACILITIES ASSESSMENT
Piedmont Unified School District

The current Fire alarm system is not up to the current code. The code now mandates that the fire alarm be voice addressable. Any portion of the building that is worked on will be required to upgrade the fire alarm.

Within the corridor there are several fire life safety items that need to be addressed. These items include tactile exit signs, illuminated exit signs at floor level. The “dog leg” door stops need to be removed from all the doors within the corridors. All doors within the corridors must have closers on them as the doors in their closed positions provide the continuous fire rating. If there is desire within the school to these doors remain open into the corridor, magnetic holders can be added. These holders are tied into the fire alarm system and automatically release when the fire alarm is activated. There is an added cost for this system that should be accounted for when considering this system. The fume hoods within the science rooms should be replaced to bring them up to current accessible and fire codes. The building has eyewashes in some of the prep rooms but lacks emergency showers.

All emergency lighting needs to be verified to ensure that it meets current codes. Battery back-up lighting is required within the corridors. Additional fire extinguishers should be provided within the corridors or classrooms.

Structural: The building underwent a structural renovation and repair in 1988 which addressed major structural systems. Minor cosmetic repairs are needed at the exterior wood fascia and trellises.

Technology Infrastructure: No additional comments

Educational Appropriateness:

Building E houses the science and math classrooms. CDE recommend that all standard classrooms be 960 square feet. The non-science classrooms in building E are 784 square feet, which is about 18% smaller than the CDE recommended size. The sizes of the existing science classrooms are large enough per CDE recommendations.

Envelope Windows/ Roofing/ Finishes: Warn although in fair condition considering their age. Trellis system requires some dry rot repair/replacement. Roof is in need of replacement.

Interiors / Finishes/ Fittings: Most finishes are worn although in good repair considering their age. Science classrooms have emergency eye washes, but not emergency showers.

Mechanical Systems / Plumbing Systems: As noted in the 10's building, existing rooftop heat pump units are ineffective. The attic space above the corridor is a return air plenum, which is not allowed

according to current standards. Supply air ducts are constructed of fiberglass duct board and are damaged. In each class room the side wall supply air and return air registers are at the same elevation and are fairly close together. There is one thermostat for three to four rooms. Unacceptably loud exposed exhaust fans in several rooms.

The buildings mechanical systems are in poor condition.

Lighting & Electrical Systems / Fire Alarm

Safety and Security: Concern has been expressed over the fact that the math classrooms have a single exit door (sciences rooms have 2) , into the corridor. While one exit meets the building code requirements based on the classroom size, it is thought that having a second door leading to the exterior would be advantageous in allowing a second separated egress path in case of emergencies.

20's Building: Recommendations

Mandatory Improvements: Accessibility

- Provide accessible thresholds at exterior doors in accordance with DSA requirements.
- Continue hardware replacement program.
- All future improvements shall meet the requirements of Chapter 11B of the California Building Code for Accessibility.

Mandatory Improvements: Fire Life Safety

- Provide emergency lighting.
- Remove door stops. Replace with magnetic hold opens linked to the fire alarm system.
- Fire sprinklers will be required if science spaces are reconfigured.

Necessary Improvements:

- Replace existing heat pumps with new. Install new sheet metal supply air and return air ducts to each zone, thus eliminating return air plenum over corridor. Add exposed supply air duct work into each class room for more effective air distribution. Add variable air volume (VAV) boxes for each classroom for individual room control. Add controls and economizer to roof top unit to control outside air and exhaust air where gas turrets are present. Add new exhaust fans with sound attenuator. Add central controls for entire facility. Add CO2 sensors for demand control ventilation.

Desired Improvements:

- While the building meets the necessary needs for classrooms, these are undersized. Future modernization work that increases the classroom size will affect the overall campus classroom count. It will be necessary for the District to determine whether this is acceptable.
- Add an exterior door to the classrooms as a second exit.
- Full replacement of the window systems with energy efficient systems that are easily repaired is suggested.
- A full re-roofing project may be incorporated with the proposed PV system.

FACILITIES ASSESSMENT
Piedmont Unified School District



Drinking Fountains



Typical Classroom Interior

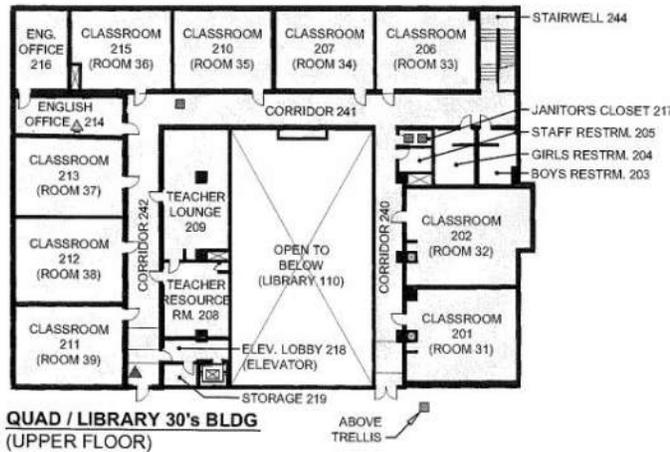


Boys' Restroom 1

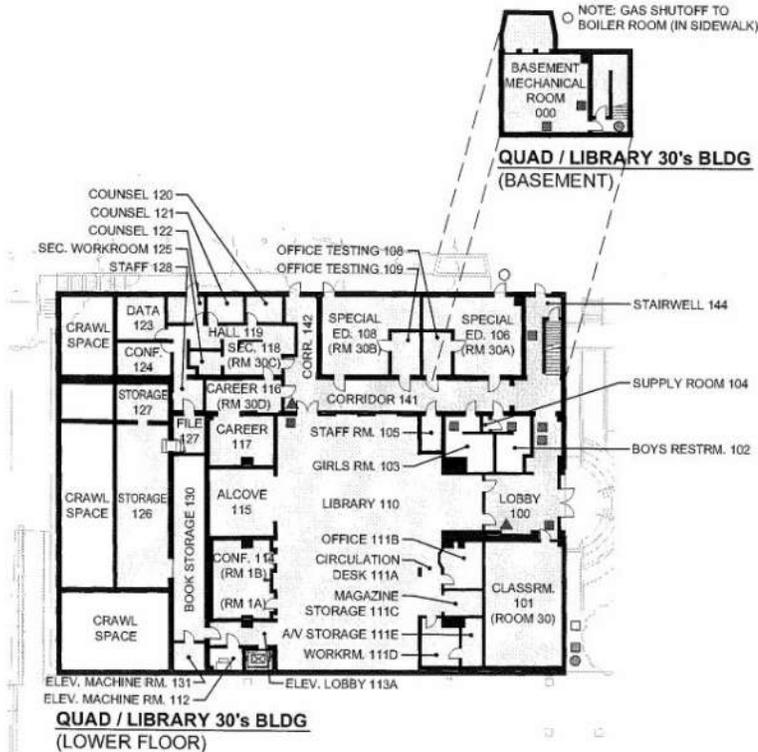


Storage and Office

30's Building - Classrooms and Library / Building A



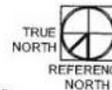
LEGEND	
(31)	Posted room name or number
■	Fire alarm pull station locations
▲	Fire extinguishers
●	Fire hose
■	Storage areas for emergency supplies and equipment
▲	Attic access
▲	Roof access
▲	Basement access
▲	Crawl space access
□	Gas valves
○	Gas shutoff (main)
■	Water valves
●	Fire sprinkler shutoff
⊕	Fire Hydrant
■	Electrical panels and shutoff
●	Transformer
■	Hazardous materials
▲	AED
⊗	Knox Box
□	Restroom
⊞	Elevator



*** NOTE:**
 NOT ALL FEATURES SHOWN IN LEGEND ARE INDICATED ON PLANS.

BLDG A

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



30's Building - Classrooms and Library / Building A

The Library Building has had multiple additions built onto a remnant of the historic 20's construction. The first addition in the 30's created more classrooms and formed the L configuration of the building. In the mid 70's, a third structure was built. In the mid 90's, the final two structures, the library expansion and the mezzanine space was constructed. Most recently, in 2009 the building received a comprehensive modernization. This work included the voluntary seismic strengthening of the building and accessibility improvements.

The building structural system is complex, utilizing concrete walls and concrete floor slabs. The roof framing is wood framed roof deck. The seismic upgrade added concrete shear walls and steel beams to improve the structural system.

Interior walls are wood framed with gypsum board, one - hour assemblies at corridors. The building has fire sprinklers.

Exterior windows and doors differ according to the time of construction.

Code Compliance: The classroom building has three occupancies:
 E (Education), A-3 (Assembly), B (Business- offices) S (Storage) .

General Allowable Floor Area Construction Type III-B: (Table 503)

A-3 OCC	9,500 sf
E- OCC	14,500 sf
B-OCC	19,000 sf
S-OCC	

Separation increase: Yards* 35%

Total allowable floor area:	A-3 OCC	12,730 sf
	E- OCC	19,340 sf
	B-OCC	25,640 sf

Fire Protection (Sprinklers) (506):

Multi-Story Factor: x2

Total actual floor area: 27,495 sf

Allowable Height** Allowed:55 feet 2 story (Type III-B) (Table 503)

Existing Height

*Yard increases in the original building application differ from current code. The original allowance of 100% increase where yards 20 feet or more occurred on three sides of the building. For future modernization work the updated calculation in which an additional 34.4% of building area is used.

$$If = [F / P - 0.25] W / 30 \quad F=314 \quad P=487 \quad W(\text{weighted}) = 26.9 \quad (.75 \times 24.3) / 30 = 34.3\%$$

**The existing building has fire sprinklers. Fire sprinklers are used to allow for a second floor and do allow for additional square footage.

Accessibility: There are many accessibility issues within the building. Most of the items are fairly minor. There are two main improvement that will need to occur is to the main toilet rooms. These rooms do not conform to current accessibility codes and will be required to be upgraded to bring them up to current accessibility codes. The second main improvement that needs to occur is there needs to be an accessible path of travel from the egress doors along the east wall. There are several smaller accessibility items that will need to be addressed within this building as well.

Within the corridors there are several accessibility issues that will need to be addressed. These issues include providing accessible lockers, replacing the surface mounted fire extinguishers with semi recessed cabinets, room signage. Several of the doors don't have the required 18" clear on the pull side and 12" on the push side. Most of these can be fixed by switching the swing of the door.

Fire Life Safety: Building A has a sprinkler system within it. This system needs to be verified that it conforms to CBC Section 903. With the age of the building all the corridor walls need to be investigated to verify that they provide the required 1-hour protection. When investigating the building there were door ratings that were painted over so their ratings could not be verified.

The current Fire alarm system is not up to the current code. The code now mandates that the fire alarm be voice addressable. Any portion of the building that is worked on will be required to upgrade the fire alarm.

All emergency lighting needs to be verified to ensure that it meets current codes. Battery back-up lighting is required within the corridors. Additional fire extinguishers should be provided within the corridors or classrooms.

It was observed that there are large cracks on the exterior plaster. These should be investigated by a structural engineer to ensure that there isn't structural damage to the building framing system.

Structural: The building was originally constructed in the 1920's and then added on to in the 1930, 1976, and 1995. In the 2007 structural report from Murakami/Nelson, it identified the A building as being structurally insufficient. After the passage of the bond measure in 2008 the building was structurally strengthen to the requirements of the 2007 CBC. Additional structural upgrades may be required with any modernization depending on the scope of the modernization.

Technology Infrastructure: None at this time.

Educational Appropriateness: The 30's building houses the learning commons and the Library. CDE recommend that all standard classrooms be 960 square feet. The classrooms in building E vary in size, but at significantly under the CDE recommended size.

Building Elements:

Envelope Windows/ Roofing/ Finishes:

Interiors / Finishes/ Fittings: Are worn although in good repair considering their age.

Mechanical Systems / Plumbing Systems

The heating system consists of a problematic ageing steam boiler and window wall radiators for the original portion of the building. Controls are adjustable knobs on inlet of radiators. The ventilation system is operable windows. The original portion of the building's mechanical system is in poor condition.

The newer portion of the building is conditioned by gas/electric rooftop units. These are in good condition.

Plumbing vent systems do not meet requirements. Future renovation may need to relocate the plumbing and exhaust vents per current standards.

Lighting & Electrical Systems / Fire Alarm:

30's Building: Recommendations

Mandatory Improvements: Accessibility

- None required at this time, due to recent upgrades

Mandatory Improvements: Fire Life Safety

- None required at this time, due to recent upgrades

Necessary Improvements:

- HVAC: At older mechanical system: Replace steam boiler and window wall radiators with heating hot water and unit ventilators in each classroom. Given that this portion of the building is constructed of concrete, this may be challenging. Install digital control centralized system.
-

Desired Improvements:

FACILITIES ASSESSMENT
Piedmont Unified School District

- Non-structural improvements to the Library to develop a “Learning Commons” as a part of the educational program goals.

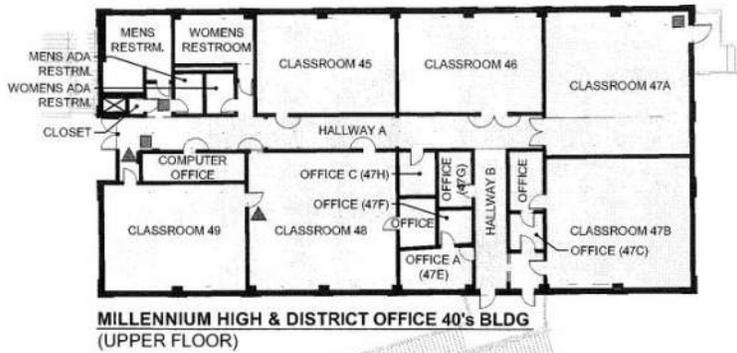
FACILITIES ASSESSMENT
Piedmont Unified School District

Older heating systems

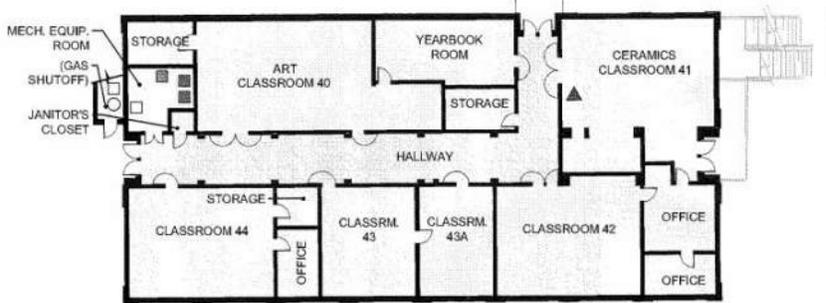


Building adjacent to park

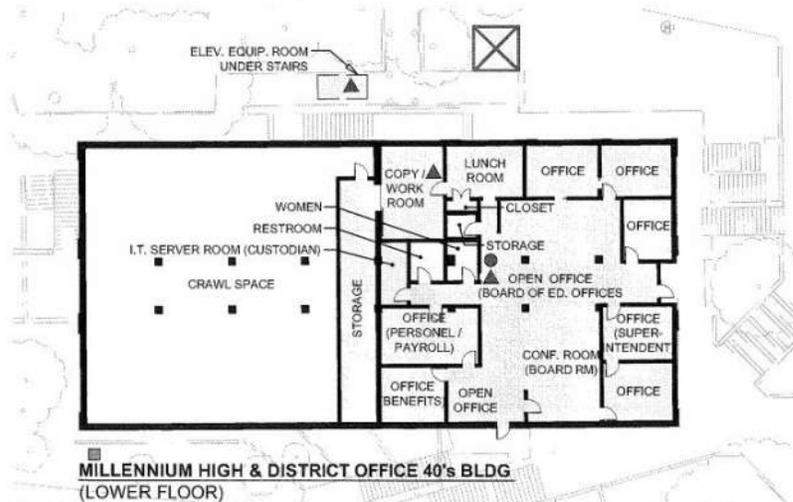
40's Building -Piedmont HS, Millennium HS, District Office / Building G



**MILLENNIUM HIGH & DISTRICT OFFICE 40's BLDG
 (UPPER FLOOR)**



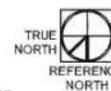
**MILLENNIUM HIGH & DISTRICT OFFICE 40's BLDG
 (MIDDLE FLOOR)**



**MILLENNIUM HIGH & DISTRICT OFFICE 40's BLDG
 (LOWER FLOOR)**

LEGEND	
(31)	Posted room name or number
■	Fire alarm pull station locations
▲	Fire extinguishers
●	Fire hose
□	Storage areas for emergency supplies and equipment
△	Attic access
△	Roof access
△	Basement access
△	Crawl space access
□	Gas valves
○	Gas shutoff (main)
■	Water valves
●	Fire sprinkler shutoff
⊛	Fire Hydrant
■	Electrical panels and shutoff
●	Transformer
■	Hazardous materials
▲	AED
⊛	Knox Box
□	Restroom
⊞	Elevator

*** NOTE:**
 NOT ALL FEATURES SHOWN IN LEGEND ARE INDICATED ON PLANS.



40's Building -Piedmont HS, Millennium HS, District Office Building G

Original Construction: 1961

Reconstruction: 1976 and 1997

The 40's Building also known as building G contains multiple occupancies. The Millennium High School occupies four classrooms on the upper floors. Art classrooms and special education are on the second and third floors are an E-occupancy. The PUSD Administrative Offices on the first floor is a B-occupancy. The B-occupancy does not require an occupancy separation as the area (4,352) does not exceed 25% of the building's total square footage.

Due to the adjacent topography, the building has several access stairs, ramps and walkways. At the lower level, the District office is accessed from ground level doors on the south and west side of the building, but requires a stair to access it from Magnolia Avenue. The top floor is accessed by a non-compliant ramp on the east side off the pathway between the 40's building and the Allen Harvey Theater and a stair that goes up from Magnolia. There is a second ramp at the east side that slopes down and accesses the east side of the middle floor. There are sets of stairs that access all the floors on the north and south sides of the building.

Code Compliance: According to record drawings, the interior walls are 1 hour wood framed construction, thereby making this building a Type III - A. The classroom/District office building has 2 occupancies, (E-occ) Classrooms and (B) offices (District and MHS).

General Allowable Floor Area	Construction Type III-A: (Table 503)	(E occ) 23,500 sf (B occ) 28,500 sf
Separation increase: Yards:	Not used*	
Fire Protection (Sprinklers)	None**	
Analysis based on E occupancy allowable area		23,500 sf
Multi-Story Factor: x2		+47,000 sf
Total allowable floor area:		70,500 sf
Total actual floor area:		20,208 sf
Allowable Height	Allowed: 65 feet, 3 story (Type IIIA) (Table 503)	
Existing Height	48 feet, 3 story	

Accessibility: The 40's building was last modernized in 1997 and addressed several ADA issues; however there are still many accessibility issues with the building. During the 1997 modernization the staff toilet rooms were made accessible, but the student toilet rooms were not. The staff toilet rooms have

minor dimensional issues with the plumbing fixtures to bring them up to the current code. The student toilet rooms have no accessible toilets and at the girls toilet room the entry door does not have the required door clearances.

The hand rails on the existing stairs are non-compliant on all three sets of stairs. The contrasting strips at the top and bottom of the stairs are either worn or missing all together. The ramp in the upper floor corridor is non-compliant and lacks handrails. There are fixtures within the corridor that project more than 4" into the corridor. There are no accessible lockers in corridors. The drinking fountains in the corridors are not accessible. The signage within the building has been upgraded but requires upgrade to make it compliant to current codes. Hardware has been upgraded but there are still some doors that required to be brought up to the current accessible code requirements.

There is no accessible path of travel that meets current code from the entry doors on the second and third floors. Current codes do not require that these all entry be upgraded on an existing building, but is at least one needs to be accessible. It is desired by DSA to make all exterior door accessible if feasible. There is an elevator outside the building which only accesses the lower and middle floors. The lack of an elevator that accesses all the floors creates an extremely long path of travel to get from the District Office to the upper floor. Unlike the stairs that access all the floors the path of travel is not covered and protected from rain which requires a user to enter to be exposed to all the elements just to access a different floor.

On the middle floor in the art classrooms lack an accessible sink. The cabinets throughout the classrooms are not at an accessible height. Accessible work stations need to be added. The special education kitchen is not fully accessible.

In the District office there are several accessible issues that need to be addressed. These include non-accessible sinks and work stations, non-compliant toilet rooms, non-accessible kitchen, doors and drinking fountain. In addition the reception counter is not accessible and lacks an accessible workstation.

Fire Life Safety: Building The 40's building/Building G is unique, in that fire sprinklers occur at exterior walls over windows, but not at the interior and therefore is not a fire sprinkled protected building.

All emergency lighting needs to be verified to ensure that it meets current codes. Battery back-up lighting is required within the corridors. Additional fire extinguishers should be provided within the corridors or classrooms. Low level exit lights are required in the corridors and need to be added. Tactile

exit signs are required at all egress exits. This signs need to let users know if there are stairs in the egress pathway.

The according to the existing building documents the existing corridor are not directly identified as 1-hour rated. It may be possible to create an 1-hour rating by using the wall assemblies list in chapter 7 of the building code. It appears that these walls Doors into the one hour corridor are not rated as required by the building code. There are a couple of rooms on the different floors that have their exit egress through multiple rooms. The code only allows for exiting to be through one intervening room.

Structural: Constructed with reinforced poured in place concrete walls with wood framed floors and roof, this building underwent a structural renovation and repair in the 1976 remodel. No seismic upgrades were done as part of the 1997 modernization. In the reports done by Murakami Nelson in 2007, Building G was noted as a non-priority building as was not fully seismic investigated. A nonstructural Seismic Hazards review was none and noted many items within or on the build that needed to be addressed. Many of these items were related to items that are susceptible to overturning like cabinets that weren't attached to the walls and mechanical units that weren't anchored to the roof or a concrete pad. The list also included attaching items that could fail in a seismic event due to a lack of bracing. These items included acoustical ceiling without compression struts, and lighting fixtures that aren't braced. Prior to any modernization work Building G should have a complete structural investigation to verify that it conforms to current structural codes.

Educational Appropriateness:

Envelope Windows/ Roofing/ Finishes: Existing windows are old, leaky and inoperable. Replacement is suggested, with shading as required to avoid heat gain at the classrooms. In addition re-roofing is necessary. The exterior concrete walls have held up quite nicely.

Interiors / Finishes/ Fittings: The 40's building is unusual in that it was originally constructed as a multi-use and classroom building for the Middle School campus, with the district office at the ground floor. The subsequent interior partitioning subdivided the space, but the walls were not appropriately detailed for acoustical separation, and therefore there is a great deal of sound transference between classrooms. Future modernizations should address this, looking at the connections of the walls to the framing and the wall assembly itself.

For future planning, it should be noted that the exterior stairs at the southwest corner are a noisy distraction.

Mechanical Systems / Plumbing Systems: The heating system is roof mounted air handlers with a hot water loop. Both the air handling units and the boiler serving this building are outdated, inefficient and difficult to maintain. The server room on the lower floor has no cooling.

Lighting & Electrical Systems / Fire Alarm: No additional comments other than the general comments under the Magnolia Campus Site.

40's Building: Recommendations

Mandatory Improvements: Accessibility

- Provide accessible thresholds at exterior doors in accordance with DSA requirements.
- Continue hardware replacement program.
- Modernize staff and student toilet rooms
- Provide accessible access to all floors
- Provide Accessible lockers

Mandatory Improvements: Fire Life Safety

- Provide emergency lighting.

Necessary Improvements:

- HVAC: Replace both the boiler and air handling units with a new system. Provide cooling at the lower floor server room.

Desired Improvements:

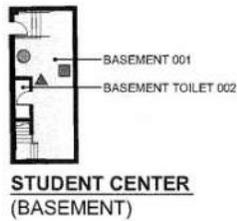
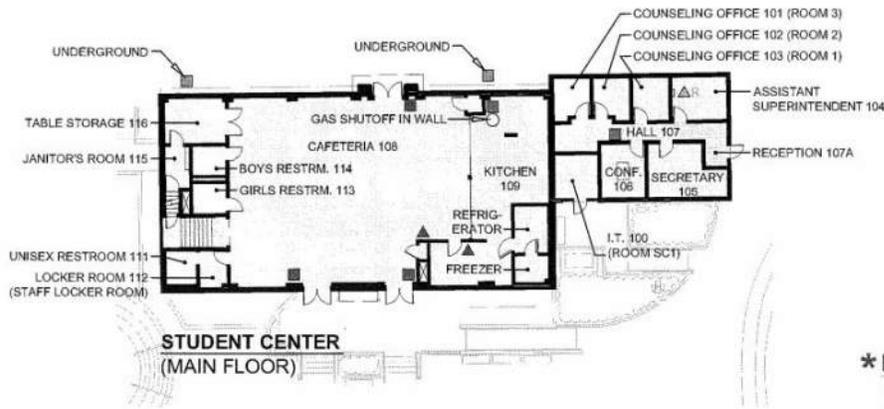
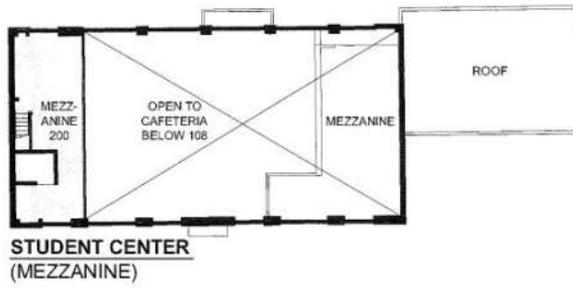
- While the building meets the necessary needs for classrooms, these are undersized. Future modernization work that increases the classroom size will affect the overall campus classroom count. It will be necessary for the District to determine whether this is acceptable.
- Full replacement of the window systems with energy efficient systems that are easily repaired is suggested.
- A full re-roofing project may be incorporated with the proposed PV system.

FACILITIES ASSESSMENT
Piedmont Unified School District



Millennium Entry

Student Services Building/ Building B

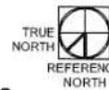


- LEGEND**
- (31) Posted room name or number
 - Fire alarm pull station locations
 - ▲ Fire extinguishers
 - Fire hose
 - Storage areas for emergency supplies and equipment
 - △ Attic access
 - △ Roof access
 - △ Basement access
 - △ Crawl space access
 - Gas valves
 - Gas shutoff (main)
 - Water valves
 - Fire sprinkler shutoff
 - ⊕ Fire Hydrant
 - Electrical panels and shutoff
 - Transformer
 - Hazardous materials
 - ▲ AED
 - ⊗ Knox Box
 - Restroom
 - ⊠ Elevator

*** NOTE:**
 NOT ALL FEATURES SHOWN IN LEGEND ARE INDICATED ON PLANS.

BLDG B

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



Student Services Building/ Building B

Original Construction: 1921

Reconstruction: 2008

Other work: Not noted

The Student Services Building is one of the oldest buildings. It is also known as the Building B. Building B houses the cafeteria, kitchen, and offices.

INDICATORS OF QUALITY

Code Compliance: The building is a multiple occupancy building with offices (B occupancy) and a classrooms (E occupancy).

General Allowable Floor Area Construction Type V-A: (Table 503) (A-4) 11,500sf
(B) 18,000 sf

Separation increase: Not Used *

Fire Protection (Sprinklers): Not Used

Multi-Story Factor: Not Used

Total allowable floor area: 15,000 sf

Total actual floor area: 5,484 sf

Allowable Height Allowed: 50 feet, 2story (Type V-A) (

Existing Height 20 feet, 1 story above ground plane

Occupancy separation 1-hr between B and E*** per Table 508.4

Mixed use ratio: (A-4 occ) Actual sf/ Allowable sf (B) Actual sf / Allowable sf ≤ 1

Main Floor $(3662/9,000) = .41 + (1,055/6,000) = .18: .41+.18 =.59$ $1.07 \leq 1$: Over area

*Yard increases in the original building application differ from current code. This is based on the original allowance of 100% increase where yards 20 feet or more occur on three sides of the building. Future modernization work may require an updated calculation per the equation below.

If $= [F / P - 0.25] W / 30$ $F=314$ $P=456$ $W(\text{weighted}) = 30$ $(.75 \times 24.3) / 30 = 60\%$

**The existing building has fire sprinklers. System .

*** Rating between occupancy is 2-hours are reduced by 1 hour since the building is equipped throughout with automatic fire sprinklers.

Accessibility: There are many accessibility issues within the building. Most of the items are fairly minor. These will be required to be upgraded to bring them up to current accessibility codes. The second main improvement that should occur is to create an accessible path of travel from the egress doors along the east wall. The basement and mezzanine are not accessible. Stairs to mezzanine and basement are non-conforming to accessible codes. As these spaces are mechanical spaces that have no students access this is acceptable. The toilet room in the basement is too small to be accessible. This room will need to be removed or expanded and modernized to bring it up to current accessibility codes. There are two minor code items that would need to be addressed on any modernization project that affected these areas. Since the 2010 DSA has required different floor clearances around toilets. The distances of the toilet off the adjacent walls aren't up to current codes. The change in the code has the sink and the toilet to close to each other.

Fire Life Safety: Building B has a sprinkler system within half of the building. This system needs to be verified that it conforms to CBC Section 903. There are two different occupancies within the building. A-3: Assembly and B: business. Since the building is not fully sprinkled there is 2 hour fire separation required (1-hour if fully sprinkled). The partition between the kitchen and the offices was constructed as a 1-hour wall.

Building B is a Type V-B (wood framed, non-protected) construction which allows a maximum of 1 story. Since the building has sprinklers it is allowed to have a second floor, but the sprinklers cannot be used to increase the allowable square footage as well. The square footage of the mixed use of the building is well within the code allowable limits.

All emergency lighting needs to be verified to ensure that it meets current codes. Battery back-up lighting is required within the corridors. Additional fire extinguishers should be provided within the corridors or classrooms.

Structural: The building was identified in the 2008 Murakami & Nelson report as being structurally insufficient and a priority building to upgrade. After the passage of the bond measure in 2008 the student services building was structural upgraded and modernized to the requirements of the 2007 CBC. Additional structural improvements maybe required on any future modernization depending on the scope of the modernization.

Educational Appropriateness: The Culinary Arts program uses the Cafeteria for class, which has a small impact on the ability to use the room for multiple functions.

Envelope Windows/ Roofing/ Finishes: No improvements required.

Interiors / Finishes/ Fittings: The interior of the cafeteria needs acoustic improvements to reduce reverberation for better presentation capabilities.

Mechanical Systems / Plumbing Systems: No improvements required.

Lighting & Electrical Systems / Fire Alarm: No improvements required.

Student Services Building: Recommendations

Mandatory Improvements: Accessibility

- None required at this time, due to recent upgrades

Mandatory Improvements: Fire Life Safety

- None required at this time, due to recent upgrades

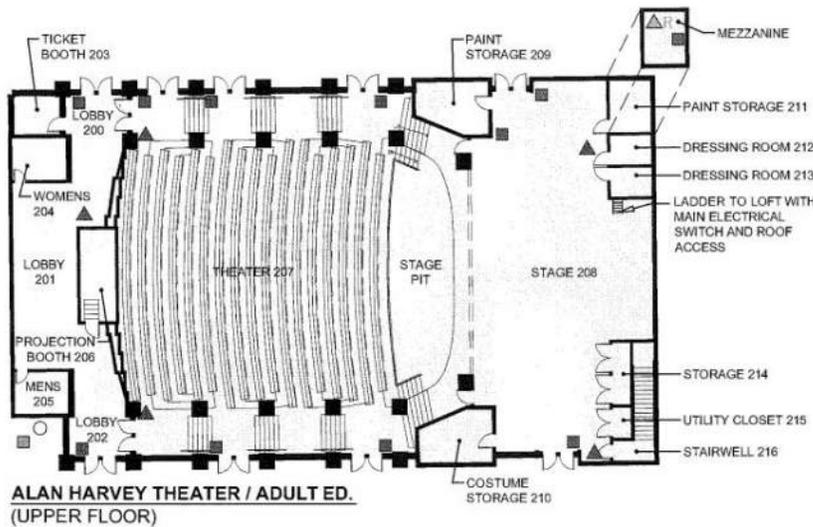
Necessary Improvements:

- None required at this time, due to recent upgrades

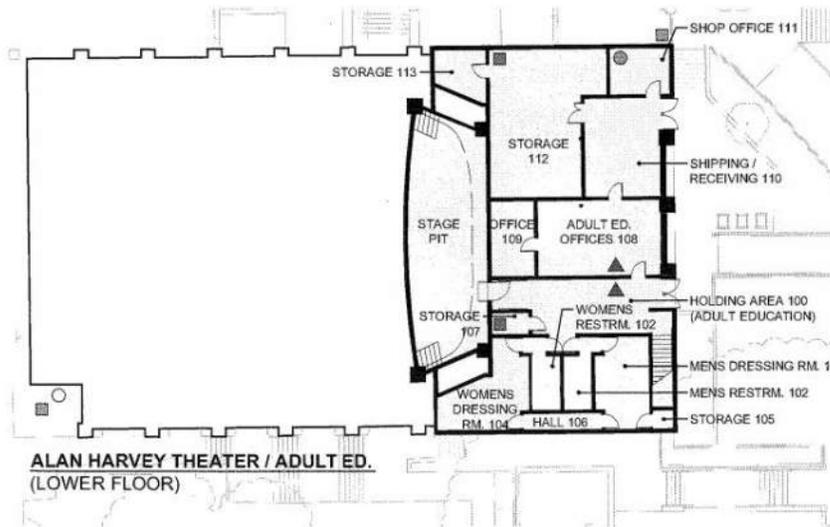
Desired Improvements:

- Add acoustic panels to reduce reverberation for better presentation capabilities.

Alan Harvey Theater / Building C



LEGEND	
(31)	Posted room name or number
■	Fire alarm pull station locations
▲	Fire extinguishers
●	Fire hose
□	Storage areas for emergency supplies and equipment
▲	Attic access
▲R	Roof access
▲B	Basement access
▲C	Crawl space access
□	Gas valves
○	Gas shutoff (main)
■	Water valves
●	Fire sprinkler shutoff
⊕	Fire Hydrant
■	Electrical panels and shutoff
●	Transformer
■	Hazardous materials
▲	AED
⊗	Knox Box
□	Restroom
⊠	Elevator



*** NOTE:**
 NOT ALL FEATURES SHOWN IN LEGEND ARE INDICATED ON PLANS.

BLDG C

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



Alan Harvey Theater / Building C

Original Construction: 1976

Reconstruction:

Other work:

Allen Harvey Theater was constructed in the mid 70's along with many of the other building on the high school campus. It is a two story building with the storage and old dressing rooms on the lower level and the theater, stage, toilet rooms and auxiliary spaces on the upper floor. The lower floor is accessed through the path of travel that runs between the theater and Millennium High School. The upper floor is accessed from 2 places, the main entry to the school off of Magnolia Ave and from the student concourse. Both of these entrances go into the Lobby. There are several other points of entry along the side of the theater that are used for egress.

Exterior windows and doors are a uniform storefront system, single glazed true divided lights.

The roof beams extend beyond the roof deck as outriggers and support a wood trellis. The roof framing at the Breezeway between this building and the adjacent library is an integral part of this building's structural system.

Code Compliance:

The theater is a single A-1- occupancy. 2013 CBC (current code)

General Allowable Floor Area	Construction Type V-N: (Table 503)	5,500 sf
Separation increase: Yards*		+4,125 sf
Fire Protection (Sprinklers)	n/a	
Allowable Stories:	1	
Actual Stories	1 (above grade plane)	
Total allowable floor area:		9,625 sf
Total actual floor area:		10,814 sf***
Allowable Height	40'	
Existing Height	30'	
If $= [F / P - 0.25] W / 30$ F=432 P=432 W(weighted) = 30 $(.75 \times 24.3) / 30 = 75\%$		

**The existing building is not fully fire protected with sprinklers.

*** See Fire Safety below for fire protection options

Accessibility: Alan Harvey Theater was designed to follow the slope of the ground with multiple entries along both sides at stepped elevations. While the lobby entries are at grade, all other entries (and exits) are accessed by stairs. The CBC does not require egress from existing buildings to be made accessible (CBC 1007). However, there must be a way to move through and around the building equivalent to the general circulation path.

There are many significant accessibility issues within the building. Originally sized for 500 seats the seat rows are stepped, with angled and awkward stairs to access the aisles between the seats. There is no dispersed seating although the school did remove the rear row of fixed seating to allow for wheel chair and companion spaces. Full compliance would require 6 dispersed wheel chair spaces with accompanying companion seats. Non-ambulatory seat requirements are set at 5% of the total and should be close to an accessible path of travel, which doesn't exist. While there is a wheelchair lift, it is not along the accessible path of travel, which actually requires the person to leave the building and re-enter it. The only ramped access from the exterior goes to the stage door. DSA requires the accessible path of travel to coincide with the general circulation paths.

The interior stairways that lead to the seating area are non-compliant. Railings and contrasting striping are required. The stairs risers are not uniform.

The District recently replaced the thrust stage with new system. The orchestra pit is reached by stairs only. Toilet rooms are not accessible. The California Plumbing Code requirements for a 500-seat theater are 3 water closets and 3 urinals for men and 11 water closets for women. However, DSA will allow the use of school restrooms to serve the needs of the theater if they are adjacent and accessible. The nearest accessible restrooms are found in the Library building. Any modernization of the theater will require resolution of this need.

Stairs lead from the stage floor to the lower floor and from the lower floor to the orchestra pit. All stage stairs are too steep, need handrails and striping. DSA may allow a hardship for the pit stairs due to physical constraints, but would likely require a revised stage stair as well as an accessible path from the stage to the lower area and / or orchestra pit.

The dressing rooms that are located on the stage are not accessible. These rooms have cabinets that are not at accessible heights and lack the 5' turning circle in them. AV control room utilizes a small set of stairs to gain access to the control counter. The cabinetry in this room is also at non-conforming heights.

An assisted listening system is required.

Fire Life Safety:

The seating rows only exit through the ends, without intermediate aisles. In current code, the maximum number of seats between two aisles is 24. Currently there are 28 or 29 seats between the end aisles.

Building C is not a fully sprinkled building. Only the basement area and stage have fire sprinklers.

Additional fire life safety items that need to be addressed as well include emergency lighting. Battery back-up lighting is required within the corridors. Additional fire extinguishers should be provided.

The electrical panel location is very difficult to access. The lower floor of the building has had interior partition walls added that we cannot find any DSA approved drawings of. These walls created storage rooms out of the old music room. Since these storage rooms are over 10% of the floor space they are required to be separated by 1-hour walls and ceilings. The existing corridor wall in the lower floor also needs to be investigated to ensure that they are 1 hour rated.

Structural: The building was identified in the 2008 Murakami & Nelson report as being structurally insufficient and was named as one of three priority building to upgrade on the PHS campus. After the passage of the bond measure in 2008 the quad building/A/30's and the student services buildings received a structural upgrade. However the structural upgrades were not done to the Allen Harvey. The minor structural upgrade identified for this building are at the connections between the roof and concrete columns.

Technology Infrastructure: None at this time

Educational Appropriateness: Allen Harvey Theater lacks many of the support facilities required for a 21st century theater. The theater lacks green rooms, appropriate sized dressing rooms and toilet rooms, an operable orchestra pit. Spaces for set design and construction do not exist within or adjacent to the building. The lack of a large roll up doors to access the stage prevents large set being built outside of the building. The supporting theater spaces are not suitable for instruction including, sound and lighting control. The theater also lacks smaller instruction spaces. Currently the drama class has to use the theater for class which prevents the theater for being used for any other activity/lecture. The theater is also located away from other programs that use the facilities like choral and music. Currently if a performance was to occur in the theater, large instruments have to be moved across campus from the music room. With the slope changes in the campus this is not an easy task.

Envelope Windows/ Roofing/ Finishes:

Interiors / Finishes/ Fittings are worn. The lobby finishes are unacceptably worn and the lighting quality is poor. The seats are in fairly good shape.

Mechanical Systems / Plumbing Systems: The building's existing mechanical systems have exceeded their useful life. This includes, roof mounted a/c units, ductwork, supports, registers and grilles, controls, all associated appurtenances.

Lighting & Electrical Systems / Fire Alarm: The building is currently served with a 300 amp, 480V underground feeder from the Campus Main Switchboard located at the North exterior side of the Science Building. The feeder comes into the building at the South basement level, and rises up to a mezzanine electrical room above the stage area. The fire marshal would like to have the switchyard relocated so that it meets safe access requirements.

The District is in the process of upgrading the theater lights to LEDs.

Alan Harvey Theater Recommendations:

Mandatory Improvements: Accessibility

- Provide a fully compliant accessible path of travel from the auditorium to the stage, lower orchestra pit and other areas.
- Provide fully dispersed wheel chair and companion spaces, or request a hardship exemption from DSA.
- Provide required semi-ambulatory spaces.
- Provide accessible restrooms either within the building or immediately adjacent.

Mandatory Improvements: Fire Life Safety

- New emergency lighting
- New aisle lighting.
- Additional fire extinguishers.
- Provide code required exiting from seating.

Necessary Improvements:

- Mechanical: Provide new mechanical systems consisting of high efficiency single zone, roof mounted, gas fired, DX cooled, unitary packaged A/C units. All systems will be traditional overhead mixing systems.

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Piedmont Unified School District

- Electrical: Substantial modernization of the interior will create additional secondary requirements for power for new items such as elevators, upgraded general lighting, data and audio-visual control panels. It is suggested that there be a new minimum 500 amp (480V) feeder upgrade to replace the existing 300 amp feeder. New service feeder shall be installed overhead from the Main Switchboard, via the covered canopy areas to the renovated building.
- Continue interior maintenance upgrades.

Desired Improvements:

- Consider adding a dedicated drama classroom.
- Consider remodeling the building to add adequate support spaces.

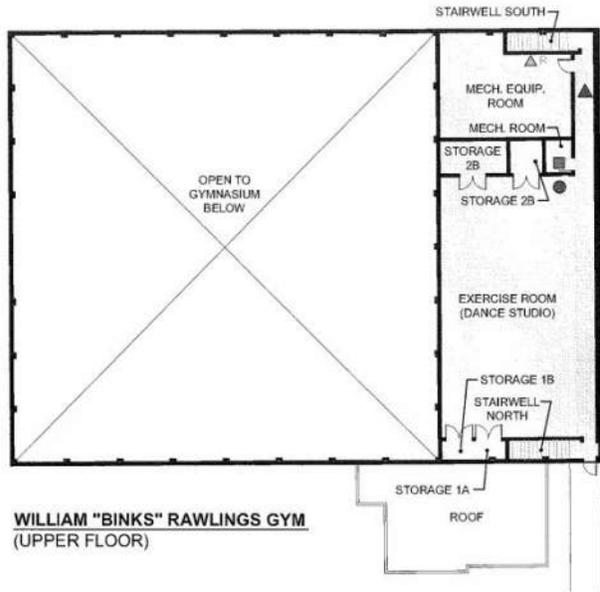
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Aisle ends



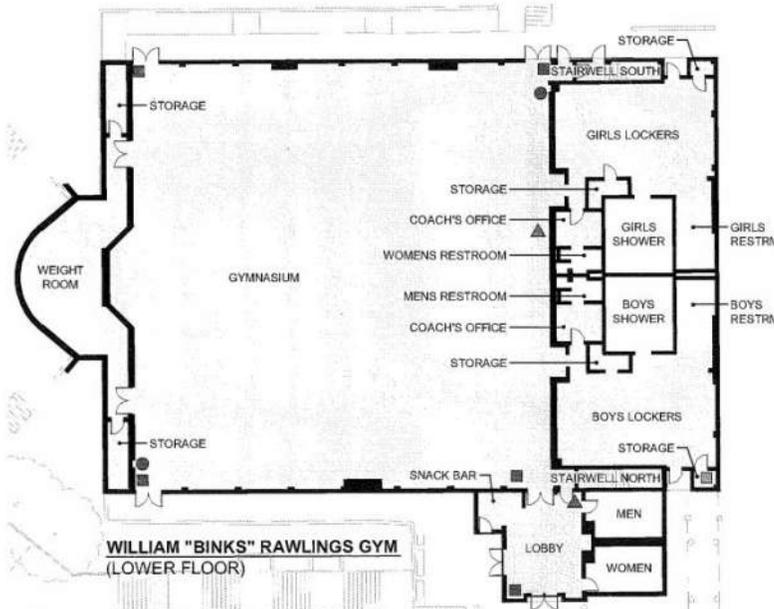
Stepped exterior pathway

"Binks" Gym / Building F



**WILLIAM "BINKS" RAWLINGS GYM
 (UPPER FLOOR)**

LEGEND	
(31) Posted room name or number	
■	Fire alarm pull station locations
▲	Fire extinguishers
●	Fire hose
■	Storage areas for emergency supplies and equipment
▲	Attic access
▲R	Roof access
▲B	Basement access
▲C	Crawl space access
□	Gas valves
○	Gas shutoff (main)
■	Water valves
●	Fire sprinkler shutoff
⊕	Fire Hydrant
■	Electrical panels and shutoff
●	Transformer
■	Hazardous materials
▲	AED
⊗	Knox Box
□	Restroom
⊠	Elevator



**WILLIAM "BINKS" RAWLINGS GYM
 (LOWER FLOOR)**

*** NOTE:
 NOT ALL FEATURES
 SHOWN IN LEGEND ARE
 INDICATED ON PLANS.**

BLDG F

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



“Binks” Gym / Building F

Original Construction: 1976

Other work: 1988 Structural Renovation and re-roof; 2002 Lobby and Elevator addition

Rawlings Gym was constructed in the mid 70’s along with many of the other building on the high school campus. The building structural system is based on a concrete column grid and exterior concrete walls. The roof framing is a system of glu-lam beams with solid blocking for a plywood roof deck. . Many interior walls at the locker rooms are concrete masonry units. Others are wood framed with gypsum board. The building has fire sprinklers.

The gym is a two story building with the Gym and locker rooms on the lower level and an exercise room and several mechanical and storage spaces on the upper floor above the locker rooms. The lower floor is accessed through a lobby that was added to the building in 2002, and included new accessible restrooms. The upper floor is accessed from two sets of stairs on either side of the space. There is an accessible path of travel to the second floor via a raised bridge that extends over to the central elevator at the outside of the 40’s building.

Code Compliance: Based upon the last DSA application, the building is code compliant for construction, size and location.

The building occupancy is A4, with an E occupancy at the second floor dance room per DSA IR A-26.

	A4	E
General Allowable Floor Area Construction Type III-A: (Table 503)	14,000	23,500
Separation increase:	+7,000	+11750
Fire Protection (Sprinklers): Not Used		
Multi-Story Factor:		
Total allowable floor area:	21,000	35,250
Total actual floor area:	14,000	3,500

Allowable Height	Allowed: 65 feet, 3 story
Existing Height	28 feet, 2 story

Mixed Use: $.66 + .1 < 1$ okay

*Yard increases in the original building application differ from current code. Current code per the equation below.

$$If = [F / P - 0.25] W / 30 \quad F=229 \quad P=458 \quad W(\text{weighted}) = 30 \quad (.5 \times 30) / 30 = 50\%$$

The existing lobby is not considered in this calculation.

Accessibility: Toilet rooms within the locker rooms do not conform to current accessibility codes. These will be required to be completely redone for accessibility as well as aged finishes. In addition to having 5% of the lockers accessible (location and locks) an accessible changing bench is required. If desired the lockers can be reutilized in a new configuration although the age and condition would appear to warrant full replacement.

Coaches' restrooms are non-compliant as well. The Coaches' offices are of a good size, but compromised by the amount of storage.

The original bleachers do not have accessible seating nor aisles and handrails. The bleachers should be replaced to bring them up to current accessibility codes as they cannot be retrofitted to be made accessible. It should be noted that it will be a challenge to maintain the existing number of seats with new bleachers due to the loss of seating with the addition of aisles and increased row depth. Accessible seating can be configured to standard seating, if needed.

There are several smaller accessibility items that will need to be addressed within this building as well. These include clearances at doors and providing accessible lockers at the locker room and signage.

Fire Life Safety: Exiting calculations have been revised since both the original construction and subsequent modernizations. DSA occupancy load calculations require that the bleacher seating of 1,114 must be added to the occupants of the remaining open floor area (651) for a total of 1,765. The existing exit doors provide 360 inches of exit, which can accommodate 1,800 total occupants. (Based on CBC requirements of .2 inches per occupant.)

There are several small fire life safety items that need to be addressed. Tactile and low level exit signs need to be added. The existing fire hose and cabinet should be supplemented with fire extinguishers.

All emergency lighting needs to be verified to ensure that it meets current codes. Battery back-up lighting is required within the corridors.

Structural: The building underwent a structural renovation and repair in 1988 which addressed major structural systems. Minor cosmetic repairs are needed at the exterior wood fascia and trellises.

Educational Appropriateness: There is a lack of small instruction spaces for PE classes. Acoustics within the space make it difficult to hear in smaller groups.

Envelope Windows/ Roofing/ Finishes The concerns are the same as those of the equivalent 10's and 20's building – however, replacement of the window systems would be considered a low priority.

Interiors / Finishes/ Fittings in the gymnasium are worn but adequate. The locker rooms are aged and in poor repair. The lockers are old, the layout is constrained. The showers are now used for storage.

Mechanical Systems / Plumbing Systems: The existing boiler (800 gallons) in the building is oversized as it was originally intended to heat both domestic and heating hot water. It is also old and difficult to maintain and operate properly. The gym does not get proper cooling and ventilation.

Fans in the locker room must be replaced.

Lighting & Electrical Systems / Fire Alarm: The District is working with consultants to define Prop 39 energy improvements. The high-bay lighting in the gym should be replaced with instant-on LEDs.

Binks Gym Building: Recommendations

Mandatory Improvements: Accessibility

- Replace bleachers
- Modernize locker rooms.

Mandatory Improvements: Fire Life Safety

- None at this time.

Necessary Improvements:

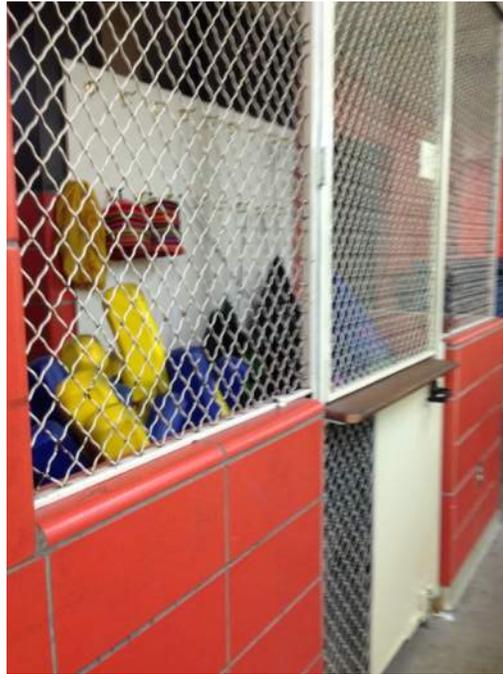
- Mechanical: Separate heating hot water and domestic hot water systems. Remove the 800 gallon tank, replace with an appropriate size for domestic hot water (or investigate the feasibility of flash hot water heaters for limited use.)
- Replace lighting throughout the building.
- Fix wall drainage issues identified on the Civil Engineer's assessment.

Desired Improvements:

- Acoustical softening of the space to reduce reverberation is suggested, in conjunction with a sound reinforcement system for presentations.

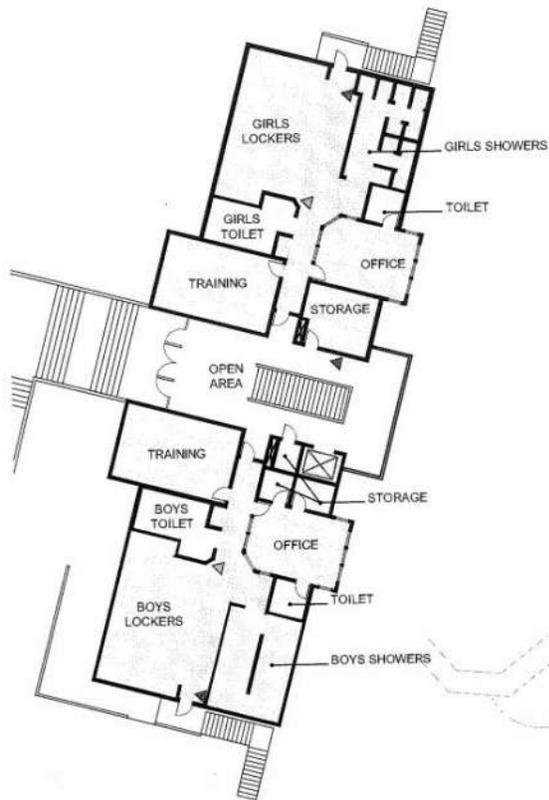
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Locker Rooms

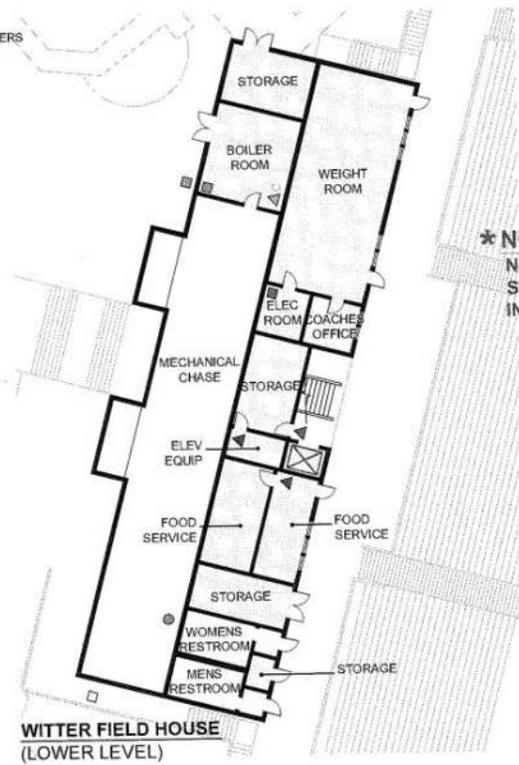


Dance Room

Witter Field House



**WITTER FIELD HOUSE
 (UPPER LEVEL)**



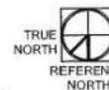
**WITTER FIELD HOUSE
 (LOWER LEVEL)**

LEGEND	
(31)	Posted room name or number
■	Fire alarm pull station locations
▲	Fire extinguishers
●	Fire hose
■	Storage areas for emergency supplies and equipment
▲	Attic access
▲	Roof access
▲	Basement access
▲	Crawl space access
□	Gas valves
○	Gas shutoff (main)
■	Water valves
●	Fire sprinkler shutoff
⊕	Fire Hydrant
■	Electrical panels and shutoff
●	Transformer
■	Hazardous materials
▲	AED
⊗	Knox Box
□	Restroom
⊞	Elevator

***NOTE:**
 NOT ALL FEATURES SHOWN IN LEGEND ARE INDICATED ON PLANS.

BLDG N

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



Witter Field House

Original Construction: 1998

Reconstruction: None

Other work:

The Witter Field house was built in 1998 and serves as the locker rooms and support areas for the track, soccer, football, baseball, and softball. This two story building is located above the bleachers of the track/football/soccer field. Included in this building are coach’s offices, boys and girls showers, public restrooms, concessions, weight room, and storage. The building is accessed from two points. The lower floor is accessed from a walkway that is at the top of the concrete bleachers. The upper floor is accessed from a set of stairs on the north side of the building that lead towards one of the upper parking lots. There are two egress exits on the second floor, one coming out of each locker room. There is a set of stairs and elevator that provide egress between the floors within the building.

Code Compliance: The Field House building is a single A-3- occupancy.

General Allowable Floor Area	Construction Type V-A: (Table 503)	11,500 sf
Separation increase: Yards Not Used		
Fire Protection (Sprinklers) None		
Multi-Story Factor:		2
Total allowable floor area:		23,000 sf
Total actual floor area:		8,700 sf

Allowable Height	Allowed: 50 feet, 2 stories (Type V-A) (Table 503)
Existing Height	30 feet, 2 story

Accessibility: Being built in 1997-98 the Witter Field House incorporated the requirements of the ADA into its design. However, there are a few minor accessibility issues within the building which would have to be brought up to the current code accessibility requirements. These include clearances at doors and signage throughout the building. Additionally the toilet rooms have minor dimensional clearance issues. The showers at the boys and girl locker rooms are not up to current accessibility codes. It is QKA’s understanding that these showers are no longer used and these spaces could be repurposed. The locker room needs to have accessible lockers. There is no accessible path of travel from the egress doors on the second floor. Current codes do not require that these exits be upgraded on an existing building, but is desired by DSA if feasible.

Fire Life Safety:

The current Fire alarm system is not up to the current code. The code now mandates that the fire alarm be voice addressable. Any portion of the building that is worked on will be required to upgrade the fire alarm.

All emergency lighting needs to be verified to ensure that it meets current codes. Battery back-up lighting is required within the corridors. Additional fire extinguishers should be provided within the corridors or classrooms.

Structural: The Witter Field is a wood framed building that was constructed in 1997-98. This building was not part of the 2008 structural investigation and reports done by Murakami/Nelson. A structural review of this building is not part of this report as well. The extent of future review will be dependent on the extent of future work.

Technology Infrastructure: No updates at this time.

Envelope Windows/ Roofing/ Finishes: No updates at this time.

Interiors / Finishes/ Fittings are worn and require replacement at the public areas.

Mechanical Systems / Plumbing Systems: No Updates at this time, except as required to meet accessibility improvements.

Lighting & Electrical Systems / Fire Alarm: No updates at this time.

Site Improvements: See Witter Field comments below.

Witter Field House Recommendations:

Mandatory Improvements: Accessibility

- Complete signage program.
- Provide an accessible changing bench and lockers.
- Modernize locker rooms to remove showers.

Mandatory Improvements: Fire Life Safety

- New emergency lighting
- Additional fire extinguishers.

Necessary Improvements:

- Replace interior finishes at public restrooms.

Desired Improvements:

- None at this time.

Witter Field

Witter Field is an artificial turf field for football, soccer and track. Witter Field is an integral part of the educational programs for the schools at the Magnolia campus in addition to accommodating competitive sports.

Accessibility: The accessible parking space that is identified for Witter Field is non-compliant in slopes, signage, and does not link to an accessible path of travel to the stadium. Stadium bleachers are concrete tiers with metal seats. The only accessible seating locations are placed at the upper row. The area of concrete between the bleachers and field house building has a cross slope in excess of what is allowed. There is no readily available path from the top of the bleachers to the field. Due to the concrete construction of the bleachers and the constrained site availability, it is recommended that a review with the Division of the State Architect precede any proposed improvements.

The turf field is aged and has been damaged by flooding. Any repair should involve both a full sub drain and aggregate base replacement as well as turf. As noted in the Civil Engineer's report, a full investigation of the down-stream drainage system is recommended to identify potential impacts on the field should there be a substantial rain storm.

The existing lights at the field are tennis lights, and do not meet the requirements for night time sports field play such as football and soccer. A full light replacement program will require CEQA (California Environmental Quality Act) review, which has an associated cost and time line which should be taken into account in any replacement planning.

Comments received during Master Planning meetings indicated a shortage of shade and water stations at the field.

Witter Field Recommendations:

Mandatory Improvements Accessibility:

- Provide an accessible parking space and path of travel to the bleachers.
- Identify an acceptable alternative means of access to the field area for wheel chair users.
- Repair ramps and walkways identified in the Civil Engineer's report. These can be sequenced in conjunction with adjacent construction.

Mandatory Improvements Fire Life Safety: None at this time.

Necessary Improvements:

- Replace artificial turf and sub-drainage system at field in conjunction with site-wide examination of the storm drainage system both on and off the school site.

Desired Improvements:

- Install new lighting.
- Provide additional storage for all users.

PIEDMONT MIDDLE SCHOOL



Campus Observations

Immediately adjacent to the Piedmont / Millennium High School Campus Piedmont Middle school has its own identity. The architectural vocabulary of concrete structural frame with brick infill differs from that of the high school buildings as does its focus on exterior covered walkways rather than internal corridors.

With its hillside location, the site is topographically complex. At the Middle school this verticality is accentuated by the three story construction and the center quad which literally steps down the hill. While the stepped quad is the formal entry to the school, more obvious entry point is a bridged walkway leading from the sidewalk to the third floor of a classroom wing. The accessible entry point is a sloped walkway to the right of the bridge, leading down to the second floor level.

There is no easily identified "Front Entry" to the Piedmont Middle School Campus. A small wall plaque announces the name of the school without being readily seen. The location of the administration offices at

the interior of the building serves the campus well, but relies on signage to be found. The location would allow oversight of the main entry points into the campus if the office was configured with more windows and offices looking directly into the center of the school.

The Middle School shares the same parking and drop off issues previously noted for the PHS / MHS Campus on Magnolia Avenue.

Site Improvements:

In addition to the physical improvements noted, the Electrical Engineer has indicated that future additions to the campus may require an upgrading to the PG&E service.

Previous work on the site by the Civil Engineer has noted that while the fire flow pressure from the City fire lines is quite high, there may be some upsizing of building fire lines required depending on the extent of modernization that occurs.

Elevators: There are 3 elevators on campus. One in the H building that accesses building h, J & I. Additionally there are elevators in the K and L buildings

Safety and Security: The campus is open on all edges, similar to the high school. Any security improvements to the high school will improve the security at the middle school due to their common site pathways. While it might be possible to control access from Magnolia, the way in which the three story buildings interface with the central courtyard would make it difficult to provide a completely fenced compound. Reconfiguration of the administrative area to provide immediate overlook of the courtyard is suggested as a way to improve site security. At the lower edge of the campus, the walkways provide a limited access leading to the courts, and gates could be installed as a part of future construction. However, the students must be able to move freely to Building G and to Witter Field.

PMS Site Recommendations:

Mandatory Improvements: Accessibility

- Complete signage program at buildings.

Mandatory Improvements: Fire Life Safety

- New emergency lighting
- Additional fire extinguishers.

Necessary Improvements:

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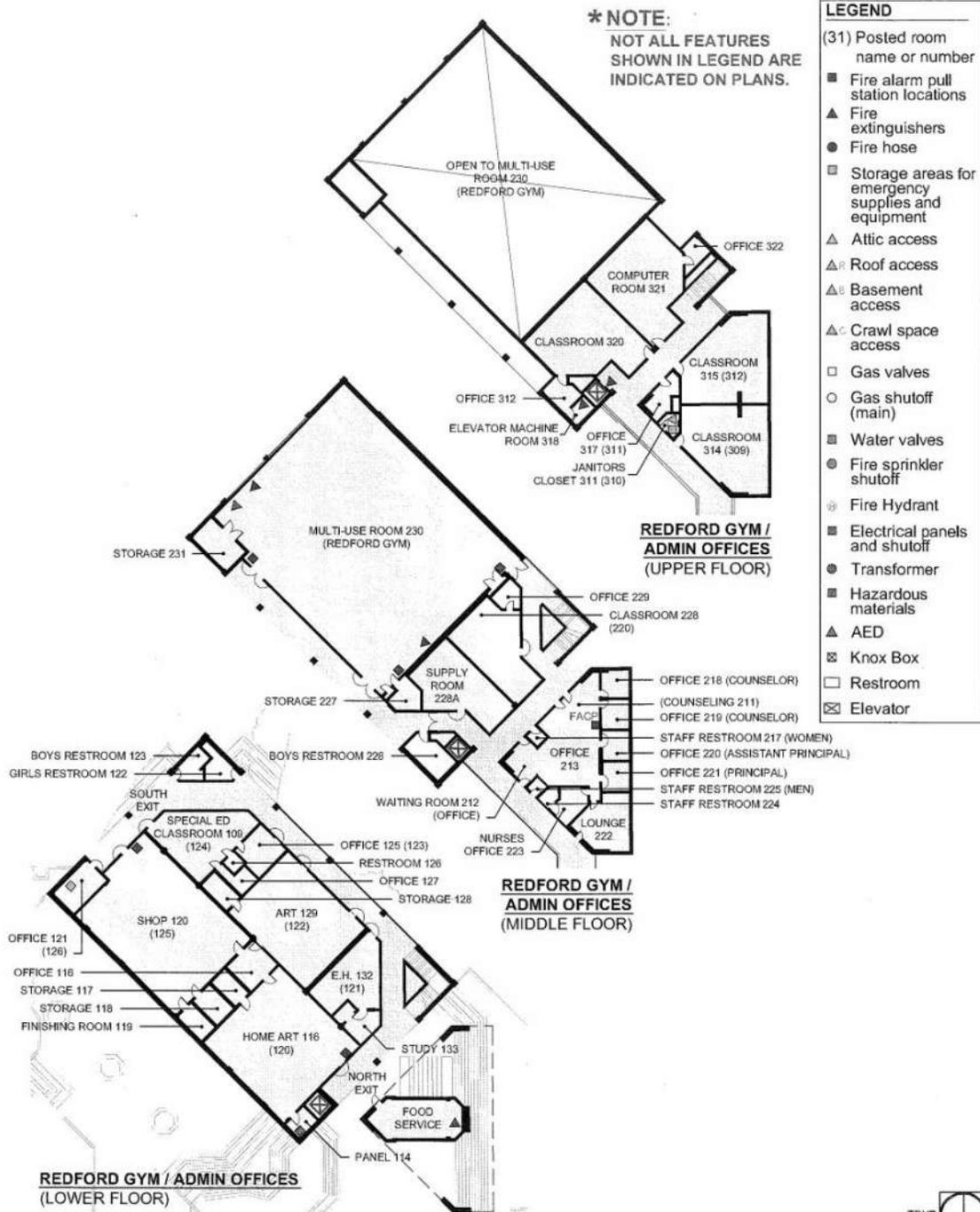
- Drainage improvements as noted in the Civil Engineers assessment.

Desired Improvements:

- None at this time.

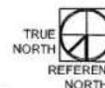
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Piedmont Middle School / Buildings HI & J

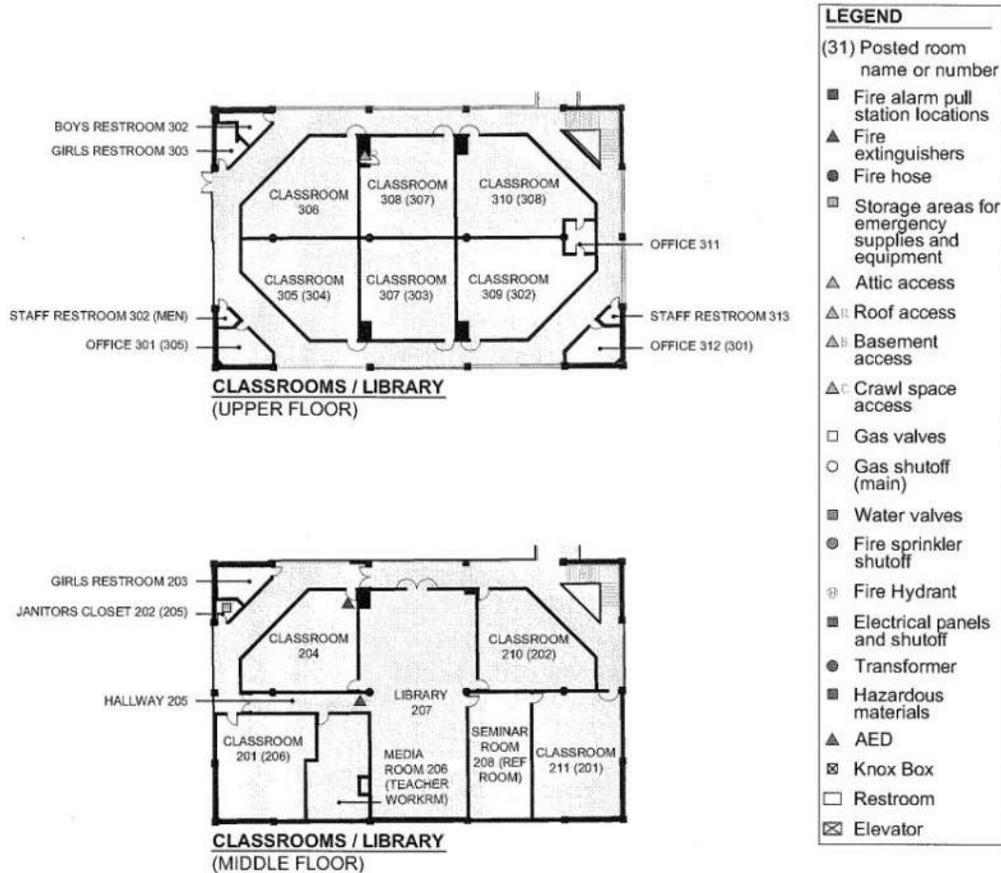


BLDG HJ

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



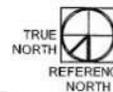
Piedmont Middle School / Building I



*** NOTE:**
 NOT ALL FEATURES
 SHOWN IN LEGEND ARE
 INDICATED ON PLANS.

BLDG I

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



Piedmont Middle School

Original Construction: 1973

Reconstruction: None

Other work: None

Buildings H (Multi-Purpose and Classrooms) , I (Library and Classrooms) and J (Food Service, Administration and Classrooms) are the core of the Middle School campus, designed by Richard C. Marshall and Chester Bowles Jr. in the early 1970's.

This three story wing in Building H houses a shop and arts classrooms on the lower floor. The original gymnasium forms the majority of the remaining area. There have been a few minor changes of which no drawings were found since the original DSA approved drawing. Building H contains the elevator from which the multiple levels of each of the buildings in this complex may be accessed. However, the path to the elevator poses several accessibility issues as the route from the street to this primary entrance is accessed by a long, non-compliant ramp.

Building J. is the Administration Wing housing the Food Service on the lower floor, Administrative offices on the second floor and classrooms on the third floor. No DSA record approved drawings were found for the food prep kitchen. . This Administration wing bridges the Multi-Use and Classroom wings.

Building I, the Classroom Wing, was designed with an exterior hallway surrounding a central core of classrooms. This core was designed to accommodate different classroom size needs by having movable partitions as interior walls. These walls divide the overall space into six classrooms on the upper and lower floors. The middle floor contains the library along with some classrooms that have permanent walls.

Code Compliance: Buildings H, I and J are considered a single building. Concrete exterior walls and columns define the structural frame, with reinforced concrete slabs at floors and roof deck. The thickness of each element is sufficient to meet the requirements of a Type 1 building. Therefore, the allowable area is unlimited. Using the more restrictive Type 1-B, the allowable height is 130 feet or 5 stories for an E occupancy.

Existing floor area	50,027 sf
Existing building height	40 ft, 3 stories.

Nonbearing partitions are allowed to be of non-rated construction, which is true of both the typical exterior window wall and interior demising partitions.

At the time of construction, fire sprinklers were installed at the lower floor of the H wing and in some exterior walkways. This is not a comprehensive automatic fire suppression system, but the building code does not require new fire sprinkler systems in existing construction, except in specific situations such as science labs or vocational shops.

Accessibility: There are many accessibility issues within the H, J and I buildings.

Accessibility Building H: The exterior hallway level is constructed lower than the classroom level probably to mitigate water intrusion, but this caused each door threshold to be significantly greater than the ¼" rise allowed by the accessibility code. Some fire sprinklers were added to the exterior hallways, but they do not comply.

Building H has the one elevator that serves all the floors of building H as well and buildings J and I. This elevator does not meet current accessible codes. The District has discussed this with an elevator consultant who has provided guidance for upgrading the elevator to current standards. The local fire marshal is not requiring a gurney sized car, which is within their jurisdiction.

There are door threshold/ level landings/hardware/closing pressures on all the exterior doors and some of the interior doors. There are numerous doors that have door clearance issues. Inside the classrooms the counters, cabinets and sinks are not accessible. Toilet rooms are not accessible. Room signage is not compliant.

In the multi-use room the bleachers do not have accessible seating nor do they have accessible aisles with handrails. The row spacing of the existing bleachers is too narrow. Existing bleachers cannot be upgraded or modified to make them compliant and will need to be replaced. An assisted listening device needs to be provided to the multi-purpose room with signage noting that it's available.

The stairs that access all three floors have worn or missing contrasting striping at the top and bottom treads. The site stairs that lead to the multi-purpose room (from Magnolia Ave) and away from the multi-use room (to the lower level), have lacking or missing lower and upper contrasting stripes. The guardrails at the interior stair wells are missing handrails and have openings that exceed 4". The guardrails along the upper levels have openings over 4" at the top, bottom and corners which makes

them non-compliant with current guard rail requirements and could be considered a potential safety issue. Drinking fountains are not accessible high/low with guard rails.

Accessibility Building J: All of the issues listed previously in regard to doors, thresholds, and stairs apply to building J since they were built simultaneously. Additionally, the kitchen, the transaction counter, and cueing lines are not accessible.

In the office there door clearance issues. The cabinet, counters, sinks and transaction desk are all not accessible. The guard rails along the upper levels have openings over 4" at the top, bottom and corners which makes them non-compliant in respect to wheelchair guides. Drinking fountains are not accessible high/low with guard rails.

Accessibility Building I: All of the issues listed previously in regard to doors, thresholds, and stairs apply to building J since they were built simultaneously. The majority of restrooms are located in this building, none of them are accessible.

Fire Life Safety:

Buildings H, J and I are not a fully sprinkled building. Portions of the building exterior corridor have sprinklers but the building is not protected by a sprinkler system. Tactile exit signs are required in the building. Within the building the home Art Room (116) is over 1,000 square feet and requires a second exit. An occupancy signage and panic hardware are also required in this room. Handrails for the staircases don't conform to chapter 11B of the CBC.

All emergency lighting needs to be verified to ensure that it meets current codes. Battery back-up lighting is required within the corridors. Additional fire extinguishers should be provided within the corridors or classrooms.

There are book shelves in the exit hallway of the library. Smoke detectors needed are required. A classroom has been converted to a teacher's lunch room but no DSA approved drawings can found for this construction. As a teacher's workroom the occupant load exceeds 50 people and requires a second exit and panic hardware. However there is one exit and no panic hardware on the door.

The current Fire alarm system is not up to the current code. The code now mandates that the fire alarm be voice addressable. Any portion of the building that is worked on will be required to upgrade the fire alarm.

Structural: The building is a concrete structure with a brick infill. A non-structural seismic hazard Evaluation was done in 2007 by Murakami/Nelson and R. P. Gallagher Associates, Inc. which noted that when the building was surveyed for nonstructural hazards it was found to be in “relatively compliant throughout” and the deficiencies could be mitigated while preserving the “basic function and architectural character” of the building. A full seismic investigation was done in 2007 and found the building to meet the structural requirements of ASCE 31. A structural engineer will be review the building prior to any future work to ensure that they meet the current structural requirements. There are numerous cabinets and shelving that need to be anchored to the walls to prevent over turning during a seismic event. The report also noted that there are pieces of equipment within the shop which are not attached to the floor and pose an over turning risk.

In the 2007 report it was noted that the ceilings were built in 1973 and do not have compression struts and diagonal wire brace systems used today. The suspended lighting is braced with wires diagonal from each other. The report notes that despite the missing compression struts and diagonal wires that it complies with ASCE 31 Tier 1 as the ceiling weighs less than 2 psf. per ASCE 31 requirements. These tiles could fall out during a seismic event. The fire sprinkler piping appears not to comply with the requirements of ASCE 31.

Technology Infrastructure: As noted previously, the District has a fully implemented technology plan which provides wireless access and classroom projectors, screens and teacher connections.

Educational Appropriateness: Due to the geometry of the building plan, the classroom sizes vary from 770 square feet to a little over 900 square feet. These are under the CDE (California Department of Education) recommendation of 960 square feet. CDE will allow the use of classrooms of less than the recommended size. Should the District pursue CDE approval for future state funding, it is probable that CDE will require a written explanation of how the District achieves the educational goals within the space available.

Should future designs attempt to revise the plans to provide 960 square foot classrooms, the average classroom size will still vary. At the same time, the number of classrooms will be affected.

Building Elements: The exterior walkway railing design is unique to the middle school. The concrete and pipe guard rail has gaps that exceed the maximum guardrail requirement of 4 inch openings. As this is a safety issue, it is recommended that a design solution be found to close off or reduce the size of the openings.

Envelope Windows/ Roofing/ Finishes: Existing exterior storefront systems are aged, single glazed systems. There are a few operable windows, installed over the years. The system has several leaks. Storefront doors at the library have had the original glazing panels replaced with polycarbonate glazing. Existing classroom doors are being replaced with FRP (fiber reinforced plastic) doors in an on-going maintenance upgrade.

The last roofing replacement for the building was in 2000. When the mechanical units were replaced in 2012, the roofing was not redone.

The exterior brick and concrete building finishes have aged well, although staining and minor damage is apparent.

Interiors / Finishes/ Fittings: The buildings were originally designed with movable partitions to allow flexibility in creating classroom sizes. However, these partitions failed to meet that goal and over the years the operability has been compromised or eliminated, mostly to provide bulletin board space in the classroom. At the same time, they are of poor acoustic quality and allow sound to travel easily between classrooms.

A previously noted the existing ceilings are aged. In the event of future modernizations, it is assumed that full replacement will be required due to the extensive mechanical and electrical upgrades that will be required.

Mechanical Systems / Plumbing Systems: Roof mounted units are ducted through the multiple floors to the classrooms below. The middle school has had air conditioning from its initial construction. The Mechanical system for this building is in fairly new condition but the gas lines look like they were not replaced when all new equipment was installed. When the system was installed the VAV boxes were not hooked up properly rendering them ineffective at controlling proper air temp.

The F.S. Supply room that is located near the classrooms is not achieving proper ventilation. The heat gain from the refrigerators in room is too much for the one vent inside of the storage room.

The classrooms located in building I are not getting enough Outside Air ventilation.

The kitchen has no primary fire protection system. Also, the kitchen hood is undersized and is located in the wrong location.

Lighting & Electrical Systems / Fire Alarm:

PMS Building H, I and J Recommendations:

Mandatory Improvements: Accessibility

- Upgrade elevator to meet ADA requirements.
- Provide accessible staff and student restrooms in accordance with both the plumbing code and to ensure adequate dispersion.
- Redefine or reconfigure accessible pathways, reconstruct existing ramps as required to address shortcomings.
- Place a topping slab at the exterior walkways to mitigate the exterior threshold height. Optionally, DSA may allow a transition threshold to be installed if a case for hardship can be established; e.g. providing a topping slab would add too much weight to the building.

Mandatory Improvements: Fire Life Safety

- Upgrade emergency lighting.

Necessary Improvements:

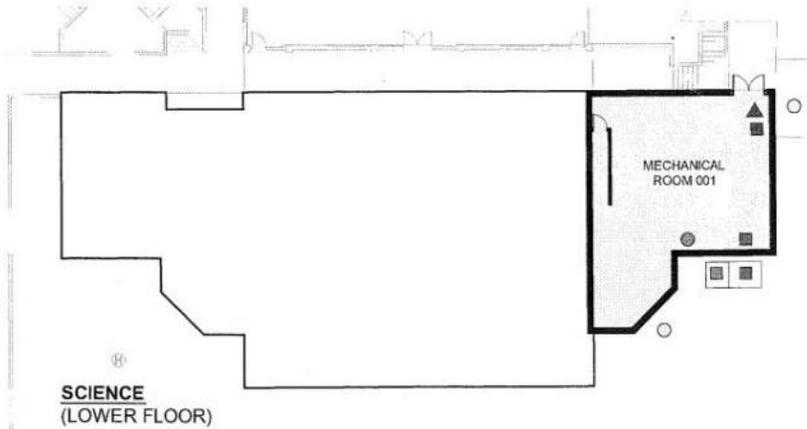
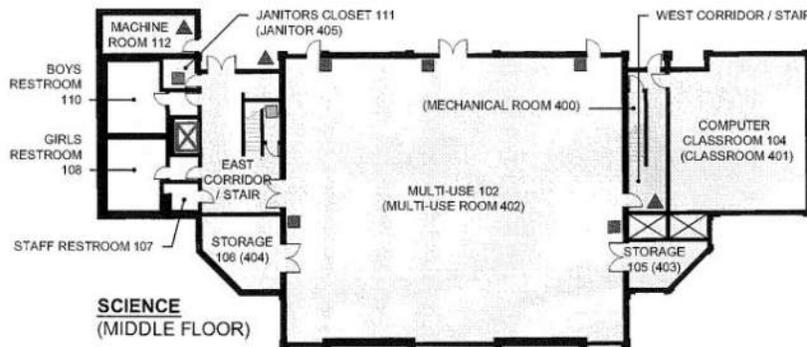
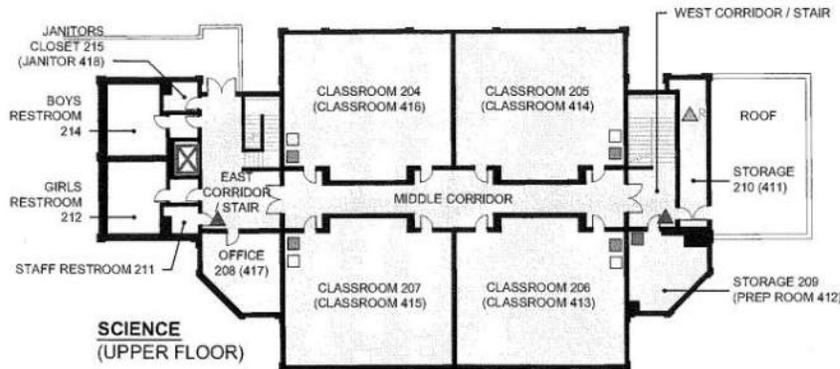
- Replace existing storefront systems with new systems utilizing spandrel glass or a half wall to reduce glazing area and increase thermal efficiency. Provide operable windows at each classroom.
- Provide new exterior doors and hardware.
- Replace existing interior partitions with appropriate new STC (sound transmission class) partitions, preferably to the structure above to prevent sound traveling over the top of the partition. As a part of this work, include new tack-able walls wherever possible.
- Recommendation: Replace roofing and associated flashings and water proofing as part of a comprehensive roofing upgrade.
- Provide an Energy Management system throughout.
- Continue light replacement program.

Desired Improvements:

- Master Planning should evaluate the potential for increasing classroom size, with the understanding that this will require additional compensating classrooms elsewhere.

FACILITIES ASSESSMENT
 Piedmont Unified School District

Piedmont Middle School / Building K (400)

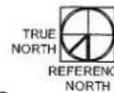


LEGEND	
(31)	Posted room name or number
■	Fire alarm pull station locations
▲	Fire extinguishers
●	Fire hose
■	Storage areas for emergency supplies and equipment
▲	Attic access
▲	Roof access
▲	Basement access
▲	Crawl space access
□	Gas valves
○	Gas shutoff (main)
■	Water valves
●	Fire sprinkler shutoff
⊕	Fire Hydrant
■	Electrical panels and shutoff
●	Transformer
■	Hazardous materials
▲	AED
⊗	Knox Box
□	Restroom
⊠	Elevator

*** NOTE:**
 NOT ALL FEATURES SHOWN IN LEGEND ARE INDICATED ON PLANS.

BLDG K

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



Piedmont Middle School / Building K

The Science Building was designed by David Wade Byrens and built in the early 1990's. This building supplements the main classroom wing of Building B and now contains all the science rooms on the second level and a Multi-Use room at the first floor. This is a two story structure although it also has a third basement level which is a mechanical room. This building is generally in compliance with current code although some deficiencies were found.

Code Compliance: The science classroom building has two occupancies, Assembly (A-3) and Education (E- occupancy).

General Allowable Floor Area	Construction Type II-B: (Table 503)	9,500 sf (A-3 occupancy) 14,500 sf (E occupancy)
------------------------------	-------------------------------------	---

Separation increase: Yards*	Not Used
Fire Protection (Sprinklers)	200%
Multi-Story Factor:	2

Total allowable floor area, E occupancy:	29,000 sf
Total allowable floor area, A-3 occupancy:	19,000 sf
Total actual floor area, E occupancy:	12,033 sf
Total actual floor area, A-3 occupancy:	4,449 sf

Allowable Height	55 feet, 2 & 3 stories (Type V-B) (Table 503)
Existing Height	37 feet, 3 story (2 stories above ground plane; ok)
Mixed use ratio: (A-3 occ) Actual sf/ Allowable sf + (E occ) Actual sf/ Allowable sf	≤ 1
Lower Floor:	All E occupancy and no mixed use ratio required
Middle Floor:	$4,449/19000 = .23$ $3,142/29,000 = .15$: $.38 \leq 1.0$; ok
Lower Floor:	All E occupancy and no mixed use ratio required

*Additional square footage can added with an area increase using the formula $I_f = [F / P - 0.25]W / 30$

**The existing building is fully fire protected.

Accessibility: There are minor accessibility issues within building K. When the building was constructed in 1994/95 it conformed to ADA requirements at that time, and the only non-compliance issues are fairly minor because of changes in required clearances. In the student restrooms the accessible toilet compartment does not have the clear floor space for it to conform to the current accessibility code. The staff restrooms are the only accessible staff restrooms at the middle school.

The handrails at the corridor stairs do not conform to current accessibility requirements. Most doors have minor issues with door hardware/closing forces/thresholds. The telephones in the corridor are not accessible. An assistive listen device and related signage is missing from the multi-use room. Signage in many locations is non-compliant.

Access to building is of most concern. Due to the topographical challenges, the elevator at the interior of the building is the only vertical path from the lower play courts and MPR to the remainder of the school site. This is an issue when the building is locked but there are after hour activities occurring at the school.

The adjacent site has several issue including the ramps from Magnolia Ave as noted in Buildings H, J, & I analysis. Additional the path from building I to Building K require a wheel guide.

Fire Life Safety: Building K has a complete automatic fire suppression system. Regular testing and inspection of the system is provided.

Tactile exit signs are required in the building. The door from the computer classroom blocks the exit egress of the corridor. The computer classroom improvements appear to have been made after the initial construction and should be evaluated for anchorage. The multi-use room does not have a maximum occupancy sign. Floor level exit lighting needs to be provided.

All emergency lighting needs to be verified to ensure that it meets current codes. Battery back-up lighting is required within the corridors. Additional fire extinguishers should be provided within the corridors or classrooms.

Structural: The building is a concrete structure with a brick infill. A non-structural seismic hazard Evaluation was done in 2007 by Murakami/Nelson and R. P. Gallagher Associates, Inc. which noted that the building was in general conformance but there were several cabinet/shelves that were not attached to the walls. A full seismic investigation was done in 2007 and found the building to meet the structural requirements of ASCE 31. A structural engineer will be review the building prior to any future work to ensure that they meet the current structural requirements.

In the 2007 report it was noted that there was a lack of lay-in ceiling tile clips in the corridor and the exits as required by ASCE 31 requirements. These tiles could fall out during a seismic event. The fire sprinkler piping appears to comply with the requirements of ASCE 31.

Educational Appropriateness: No changes are suggested.

Envelope Windows/ Roofing/ Finishes: Roofing inspections have revealed damage to the roof drains and rain water leaders. Repair of the roof drainage system should be a priority item.

Interiors / Finishes/ Fittings are acceptable.

Mechanical Systems / Plumbing Systems: A furnace is provided for the multi-purpose room while roof top mounted heat pumps service ceiling mounted fan coils at the second floor. There is a roof mounted

condenser serving all units. An uncovered fan in the Multi-Purpose room creates distracting and disruptive noise.

The existing fan coil units in the building are 15 years old, which means that it is likely that they will need to be replaced in the planning window of ten years. The preferred refrigerant for the units is no longer manufactured due to the high ozone depletion potential. Additionally, the duct work is inaccessible for maintenance service.

Lighting & Electrical Systems / Fire Alarm: No issues have been identified.

PMS Building K Recommendations:

Mandatory Improvements: Accessibility

- Complete signage program.

Mandatory Improvements: Fire Life Safety

- Upgrade emergency lighting
- Additional fire extinguishers.

Necessary Improvements:

- Replace fan in Multi-purpose room.
- Replacement of the fan coils within five years shall use high efficiency equipment with an allowable refrigerant.
- Upgrade suspended ceiling at corridors to current CBC standards.
- Repair roof drainage systems.
- Reroof.

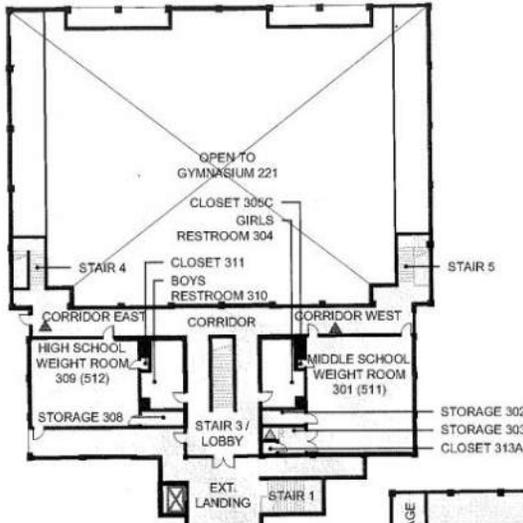
Desired Improvements:

- Relocate systems and duct work in the classroom to allow maintenance without disrupting classes.

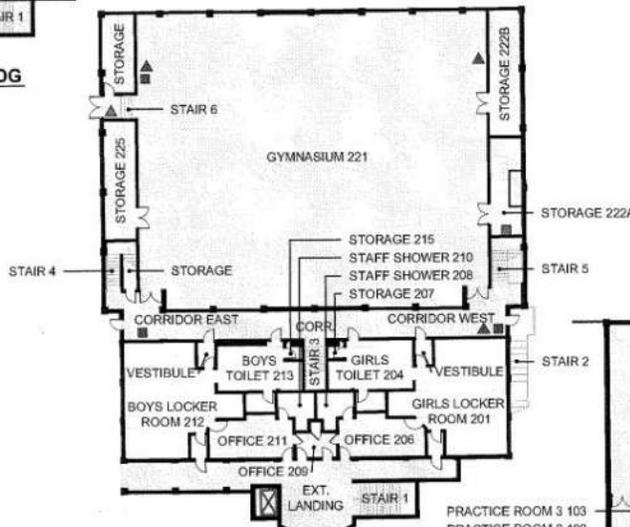
Piedmont Middle School / Building L (500)

*** NOTE:**
 NOT ALL FEATURES
 SHOWN IN LEGEND ARE
 INDICATED ON PLANS.

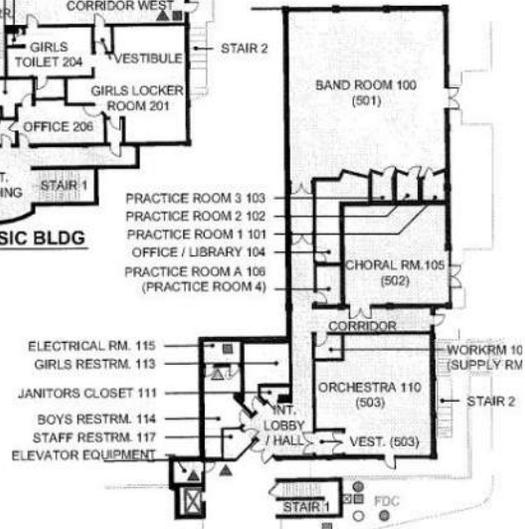
LEGEND	
(31)	Posted room name or number
■	Fire alarm pull station locations
▲	Fire extinguishers
●	Fire hose
■	Storage areas for emergency supplies and equipment
▲	Attic access
▲R	Roof access
▲B	Basement access
▲C	Crawl space access
□	Gas valves
○	Gas shutoff (main)
■	Water valves
●	Fire sprinkler shutoff
⊕	Fire Hydrant
■	Electrical panels and shutoff
●	Transformer
■	Hazardous materials
▲	AED
⊗	Knox Box
□	Restroom
⊠	Elevator



**MORRISON GYM / MUSIC BLDG
 (UPPER FLOOR)**



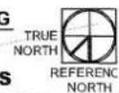
**MORRISON GYM / MUSIC BLDG
 (MIDDLE FLOOR)**



**MORRISON GYM / MUSIC BLDG
 (LOWER FLOOR)**

BLDG L

PIEDMONT HIGH SCHOOL, MILLENNIUM HIGH, AND PIEDMONT MIDDLE SCHOOL EMERGENCY PLANS



workrooms are not accessible. The hand rails for the interior ramps are non-conforming. There are various locations throughout the building that don't have code conforming signage. The accessible parking spaces outside of the building do not conform to current DSA requirements and require striping and signage upgrade. The showers in the locker room are not accessible. There are no accessible lockers for students. The toilet rooms in the staff locker room are not accessible nor are the lockers. The larger student toilet rooms in the locker room do not have semi ambulatory toilet compartments (required when there are 6 or more fixtures). There are no assisted listen devices in the gym nor is there the required signage provided. The bleachers do not have spaces for accessible & companion seating. Bleachers are missing aisle and handrails. Bleacher replacement will be required as a retrofitting of existing bleachers is not possible.

Fire Life Safety: Building L is a fully sprinkled building. This sprinkler system will need to be verified that it conforms to CBC section 903. Tactile exit signs are required in the building. The maximum occupancy is missing in the gym. The gym requires that there are three exits, however when the folding partition is closed one half of the gym only has one exit and not the required 2 exits. An additional exit will need to be added or DSA will have to approve access through the folding partition. The doors that are in the rated wall of the Orchestra vestibule and the upper floor girls' restroom are not rated.

The current Fire alarm system is not up to the current code. The code now mandates that the fire alarm be voice addressable. Any portion of the building that is worked on will be required to upgrade the fire alarm.

All emergency lighting needs to be verified to ensure that it meets current codes. Battery back-up lighting is required within the corridors. Additional fire extinguishers should be provided within the corridors or classrooms.

Structural: The building is a concrete structure with a brick infill. A non-structural seismic hazard Evaluation was done in 2007 by Murakami/Nelson and R. P. Gallagher Associates, Inc. which noted overturning of television carts as the only non-structural hazard. A full seismic investigation was done in 2007 and found the building to meet the structural requirements of ASCE 31. A structural engineer will be review the building prior to any future work to ensure that they meet the current structural requirements.

In the 2007 report it was noted that there was a lack of lay-in ceiling tile clips in the corridor and the exits as required by ASCE 31 requirements. These tiles could fall out during a seismic event. The fire sprinkler piping appears to comply with the requirements of ASCE 31.

Technology Infrastructure : No updates at this time.

Educational Appropriateness: While the spaces within the building appear to meet their educational goals, there appears to be storage issues, with a large amount of equipment stored in hallways, which is unsafe.

Envelope Windows/ Roofing/ Finishes: Leaks have been report in the southern wall.

Interiors / Finishes/ Fittings are worn although in good repair considering their age.

Mechanical Systems / Plumbing Systems: The existing mechanical system consists of a split system. The existing gas electric AC Units are providing heating and cooling to the gym. There are 3 existing heat pumps that are providing heating and cooling to the classrooms, hallway, and office area between the classrooms. There are fan coils in each room. There are 2 existing gas heaters servicing the locker rooms. There is also 1 large heat pump servicing the music room. Fan coils are located in each room. Although the equipment is in fair condition, both the AC units and Heat pumps are approaching its life cycle.

Lighting & Electrical Systems / Fire Alarm:

PMS Building L Recommendations:

Mandatory Improvements: Accessibility

- Complete signage program.
- Provide an accessible changing bench and lockers.

Mandatory Improvements: Fire Life Safety

- New emergency lighting
- Additional fire extinguishers.
- Work with the staff to reduce clutter and inappropriate use of spaces.

Necessary Improvements:

- Replace boiler with high efficiency condensing boiler.
- Follow up on leaks in building.

Desired Improvements:

- Create a way to allow students to store instruments during the day, without providing full access to the music or choir rooms.

BEACH ELEMENTARY SCHOOL



BEACH ELEMENTARY SCHOOL
 PIEDMONT UNIFIED SCHOOL DISTRICT MASTER PLAN



Campus Observations

Originally built in 1936 and 1940 under the auspices of the Works Progress Administration, Beach Elementary School is a simple, harmonious school in which subsequent additions and renovations have respected the original design. A 1994 addition added numerous classrooms and a library to the original wing. The campus underwent a comprehensive construction program in 2011. Work included a full modernization of the existing building as well as an addition for two more classrooms. Mechanical, electrical and fire alarm systems were upgraded. Site design included new ramps and walks for a fully accessible circulation path and playground.

The school campus is a relatively uniform, gently sloped site. Lake Street at the north and Howard Avenue at the east sit well above the school with a series of slopes and retaining walls that step down to the school site. On the Howard street side, an underground spring required remediation and drainage, but the retaining wall should regularly be examined for integrity. On the east side, Linda Avenue

FACILITIES ASSESSMENT
 Piedmont Unified School District

provides a long transitional slope, allowing access directly into the playground area. The south edge of the school site sits well above the adjacent city park.

A traditional front entry on Lake Street is easily recognized as such. Stairs and a ramp lead new visitors down to the front doors. The Administration Office is at the interior of the school, at the main hallway intersection just inside the doors, but has no direct oversight of the entry and must rely on a security camera.

The site is securely fenced with access gates at the front entry, playground, and a single gate leading to the adjacent park. At the Lake street playground access, there is a controlled gate with a buzzer from that is intended for the Schoolmates program. Visitors tend to use this to avoid having to walk up to the main entry, which is distracting for schoolmates.

There is no on-site parking. All staff and visitor parking is on the adjacent streets. Student drop-off is along Lake Street.

Code Compliance: The most recent DSA approved construction code review is still applicable.

PUSD BEACH ELEMENTARY SCHOOL 2007 CBC ANALYSIS								
NOTE: AUTOMATIC FIRE SPRINKLER AND ADDRESSABLE FIRE ALARM SYSTEM BEING PROVIDED THROUGHOUT.								
BUILDING	OCC. TYPE	CONSTRUCTION TYPE	BASIC ALLOWABLE AREA	ALLOWABLE AREA INCREASE (At + (Abdf) + (Atcls) = Aa	ACTUAL AREA	ALLOWABLE BUILDING HEIGHT	ACTUAL BUILDING HEIGHT	NOTES
(E) CLASSROOMS	E	V-B	9,500 SF	-	29,644	1 STORY (40')	1 STORY (32'-6" MAX.)	
(E) AUDITORIUM	A-3	V-B	9,500 SF	-	2,822	1 STORY (40')	1 STORY (32'-6" MAX.)	A
(N) CLASSROOM ADDITION	E	V-B	9,500 SF	-	2,500	1 STORY (40')	1 STORY (26'-0")	
TOTALS				9,500 + (9,500 x .75) + (9,500 x 3) = 45,125	34,966			B, C
A. AUDITORIUM IS CLASSIFIED AS AN ACCESSORY OCCUPANCY PER 508.3.1								
B. FRONTAGE INCREASE, OPEN ON ALL SIDES PER 506.2 = 75%								
C. AUTOMATIC SPRINKLER SYSTEM INCREASE PER 506.3 = 300%								

Accessibility: Due to its recent construction, the building meets almost current code requirements. The main entry to the campus is off of Lake Street, where there is an accessible ramp. There are two minor code items that would need to be addressed on any modernization project that affected these areas. Since the 2010 DSA has required different floor clearances around toilets. The distances of the toilet off the adjacent walls aren't up to current codes. There are some door clearances at the toilet partition that don't have the required clearances. The change in the code has the sink and the toilet to close to each other. There is no accessible path of travel from the egress doors on the stage and as well as the second exit to the classrooms and one of the corridors exits. Current codes do not require that these exits be upgraded on an existing building, but is desired by DSA if feasible.

Fire Life Safety: Fire Life Safety: As previously noted, in future work the existing fire alarm system may need to be upgraded to accommodate current code requirements for automatic voice alarm at the new construction.

Structural: The recent construction provided a comprehensive upgrade to structural systems. No work is required at this time.

Technology Infrastructure: No updates at this time.

Educational Appropriateness: Having been modernized and expanded in 2011 the existing classrooms and facilities meets the current educational needs of the campus. However, if the district is to adopt full day kindergarten an additional kindergarten classroom is required.

Mechanical Systems / Plumbing Systems: Due to their southwest orientation, a number of the classrooms on the site have uncomfortably high temperatures during a few weeks of the year. The District has a night-flushing protocol. The ceiling fans can provide some relief, but they will blow the papers off the desks on high. While it is not the District's intent to provide full air conditioning, due to costs of electrical service, equipment and operation, some means of lowering the temperature is necessary.

Lighting & Electrical Systems / Fire Alarm: Existing system is 800 Amps, 120/208V, 3-Phase and is fed by a pad mounted transformer at adjacent Lake Ave.. Due to the recent renovation, the electrical and fire alarm systems are functional and in good shape. The meter is not a Smart Meter, as there is at other campuses within the District.

Interior lighting systems were upgraded at the time of renovation. Future projects may require additional controls and sensors in accordance with newer standards. Exterior lighting is adequate.

Audio visual, data and communication systems are up to date per the District's technology program. .

Fire Alarm systems were in compliance at the time of construction. Any subsequent renovations will require newer speaker/strobe devices with audio capability, to allow voice evacuation messages, per 2013 CBC. No changes will be triggered unless renovation done in a certain area. If renovation occurs, only the renovated areas will be required to be upgraded to speaker/strobes.

Despite the recent renovations, as with the other Schools, there were lots of electrical clearance code violations noted, where the code required 3 feet of frontal clearance was obstructed by boxes, cleaning equipment, or other Storage items. Proper electrical space should be provided throughout, to provide adequate and safe working space as required by code.

Site Improvements: The existing ramps, playground, and walkways are in good condition, not requiring any additional changes at this time. Although there is no shade on the playground, the complete and full use of the playground is preferred over the potential loss of area. The District is looking at providing shade structures for the lunch area. An accessible pathway to the park should be provided. The existing retaining wall adjacent to Howard Avenue is failing and should be replaced.

Safety and Security: The campus is thoroughly fenced at the perimeter. Due to the lunch tables being located at the front of the school it has been asked if there can be a gate at the steps leading from Lake Avenue to the front entry. Owing to the lack of upper landing, the most straightforward solution would require removal of the existing stairs and revision to the ramps.

The office is at the interior of the school, without a direct line of sight although there is a camera and buzzer for entry. It is possible for someone to enter the building and continue through to classrooms. None of the exterior doors adjacent to the playground are secured to control entry.

Beach Elementary School Recommendations:

Mandatory Improvements Accessibility: None at this time.

Mandatory Improvements Fire Life Safety: None at this time.

Necessary Improvements:

- Explore how to reduce classroom heat loads. Exterior sunshades could reduce the amount of heat gain.
- Retrofit existing mechanical systems to provide additional ventilation and / or supplementary cooling.

- Remove and replace failing portions of retaining wall.

Desired Improvements:

- Provide a second gate to the playground, near the fire access gate, open before and after school hours. Revise hardware at the Schoolmates gate to allow a card swipe or push button for program parents only and eliminate the buzzer.
- Continue to explore other options for electronic access and control at exterior doors.
- Explore an interior hallway doorway to allow after-hours access for the MPR and restrooms, while limiting access to the classroom wings. This would help with day time security as well.
- Identify a location for a future kindergarten classroom building.

HAVENS ELEMENTARY SCHOOL



HAVENS ELEMENTARY SCHOOL
 PIEDMONT UNIFIED SCHOOL DISTRICT MASTER PLAN



Campus Observations

Havens Elementary School is primarily a new campus, built in 2010 under the PUSD Seismic Safety Bond to replace an aged and compromised facility. It is a traditional design honoring the traditional California Spanish style with arcades, arches, cream colored walls and mission tile roofs as reflected in the WPA Ellen Driscoll Playhouse, is the only remaining original build and serves as a school auditorium. Site design included new ramps and walks for a fully accessible circulation path and playgrounds.

The school buildings are located on a level building pad which then steps down to the playgrounds. The school site immediately abuts Oakland, Bonita and Vista Avenues with large landscape buffers to address the topographic differences. Some of these landscape areas show erosion and drainage issues. On the north the campus connects to Highland Avenue with a wide walkway. A series of stairs and ramps links the main level of the school to the walkway and Administration / Library wing.

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While the central spine and arcade tower indicate an entry point to the new visitor, the Administration Office is in a wing parallel to the entry promenade which provides excellent oversight of the Highland entry, but none at all of the other three entry points.

The site is securely fenced with access gates at all street frontages which are secured during school hours.

There is no on-site parking. All staff and visitor parking is on the adjacent streets. A very short student drop-off is on Highland Avenue, which is busy. The school's Traffic Patrol assists in directing parents forward and ensures that no one lingers.

Code Compliance: The building is code compliant. There is an automatic fire suppression system throughout. It should be noted that this is considered a new campus and subject to SB575; future additions to the campus will require an AFSS as well.

2007 CODE ANALYSIS												
BUILDING	DESCRIPTION	OCCUPANCY	CONSTRUCTION	SPRINKLER	ALLOWABLE AREA	ALLOWABLE AREA INCREASE A=(AMF+AMN) +Ma	ACTUAL AREA	MINIMUM SET BACK	BUILDING HEIGHT ALLOW / ACTUAL	NUMBER OF STORY	DISPERSAL AREA OCC LOAD x 9 SF x	REMARKS
COMMONS BUILDINGS	ONE STORY KINDERGARTEN/ CLASSROOMS	A-3 / E	V-B	YES	6,000 SF	6,000+18,000+ 24,000 SF	25,000 SF	12'-0"	45 FT / 28 FT	1	296 x 9 SF = 1,480 SF	THE ADMINISTRATION AND ONE STORY BUILDING ARE ANALYZED AS PORTION OF ONE BUILDING. SEE NOTES NO 2 AND 3 BELOW.
	ADMINISTRATION OFFICE CLASSROOMS / NPIS										548 x 9 SF = 2,730 SF	
TWO STORY	CLASSROOMS	E	V-B	YES	9,800 SF	19,000+18,000.35P+ 26,220 SF	25,830 SF	10'-0"	60 FT / 40 FT	2	840 x 9 SF = 4,200 SF	ALLOWABLE HEIGHT INCREASE. SEE NOTE 4. AREA DETERMINATION AND AREA INCREASE. SEE NOTE 6 AND 7.
PLAYHOUSE	EXISTING THEATER	A-3	V-B	YES	6,000 SF	---	6,300 SF	7'-4"	40 FT / 30 FT	1	503 x 9 SF = 2,815 SF	EXISTING PLAYHOUSE REMODEL NOT PART OF THIS APPLICATION.
TOTAL = 11,225 SF												
NOTES: 1. ALL BUILDINGS WILL BE EQUIPPED THROUGHOUT WITH AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM PER CBC SECTION 903.3.1.1 2. CBC CHAPTER 9 SECTION 903.1.2 - TWO OR MORE BUILDINGS ON THE SAME LOT SHALL BE REGULATED AS SEPARATE BUILDINGS OR SHALL BE CONSIDERED AS PORTION OF ONE BUILDING IF THE HEIGHT OF EACH BUILDING AND AGGREGATE AREA OF BUILDING ARE WITHIN THE LIMITATIONS OF TABLE 903.1 AS MODIFIED BY SECTION 904 AND 906. 3. SPRINKLER ALLOWABLE AREA INCREASE PER CBC SECTION 906.3 AND TABLE 902 4. ALLOWABLE HEIGHT INCREASE DUE TO AUTOMATIC SPRINKLER SYSTEM, CBC SECTION 904.2 5. ALLOWABLE AREA INCREASE DUE TO BUILDING FRONTAGE, CBC SECTION 906.2 $W = 30.0(11.25)(2) + 18 = 711.00 + 18 = 729.00$ $360 \quad 1201 \quad 30$ 6. AREA DETERMINATION FOR TWO STORY BUILDING PER CBC SECTION 906.4 7. THE TOTAL DISPERSALS AREA CALCULATIONS ARE BASED ON THE THREE NEW BUILDINGS ONLY.												

Accessibility: Due to its recent construction, the building meets almost all current code requirements. There have been minor revisions to accessibility standards at the required floor clearances around toilets and toilet partitions; since they appear to be in compliance with 2010 standards, they should be accepted under the 2013 code. There is no accessible path of travel from the egress doors on the stage. Current codes do not require that these exits be upgraded on an existing building, but is desired by DSA if feasible.

Fire Life Safety: As previously noted, in future work the existing fire alarm system may need to be upgraded to accommodate current code requirements for automatic voice alarm at the new construction.

At the interior corridors, the teachers are using props to hold the door open. The corridor wall is a fire barrier and the doors are rated. If they are to be propped open, there must be magnetic hold opens installed that are tied into the fire alarm system for automatic closure.

Structural: With the exception of the Ellen Driscoll Playhouse, Haven Elementary is a new elementary school built in 2010. The Ellen Driscoll Playhouse was structurally upgraded at the same time as the construction of Haven Elementary.

Technology Infrastructure: No updates at this time.

Educational Appropriateness: Having been built in 2010 the classrooms meet the educational needs of the campus. Additional needs identified in the Education Specification portion of the Master planning process included additional kindergarten classrooms, small breakout spaces, and a covered lunch area.

Envelope Windows/ Roofing/ Finishes: No work has been identified at this time.

Interiors / Finishes/ Fittings: The Multi-Purpose Room flooring does not appear to be durable enough to meet the needs of the school for food services and other uses.

Mechanical Systems / Plumbing Systems: Due to their southerly orientation, some of the classrooms on the site have uncomfortably high temperatures during a few weeks of the year. The District has a night-flushing protocol. The ceiling fans can provide some relief, but they will blow the papers off the desks on high. While it not the District's intent to provide full air conditioning due to costs of electrical service, equipment and operation, some means of lowering the temperature spikes is necessary.

Lighting & Electrical Systems / Fire Alarm: The existing main electric service at the School is located in an outdoor enclosure at the West side of the site, near the play yard. It is rated 1,600 Amps, 120/208V, 3Phase (manufactured by Siemens), and is fed by an underground PG&E transformer vault from adjacent Bonita Ave. This switchboard was installed within the last 5 years and is in good shape. There is a Smart Meter.

Interior lighting systems were upgraded at the time of renovation. Future projects may require additional controls and sensors in accordance with newer standards. Exterior lighting is adequate.

Audio visual, data and communication systems are up to date per the District's technology program. .

Fire Alarm systems were in compliance at the time of construction. Any subsequent renovations will require newer speaker/strobe devices with audio capability, to allow voice evacuation messages, per 2013 CBC. No changes will be triggered unless renovation done in a certain area. If renovation occurs, only the renovated areas will be required to be upgraded to speaker/strobes.

Site Improvements: The site improvements are also new, although there are a few areas that could be improved. There is minimal shade and no “soft” outdoor spaces adjacent to the open ball and playground areas. The school worked with Learnscapes to develop a planting and site improvement program that softened the edges of the playground. Future implementation of this plan must allow for the substantial geotechnical concerns of the site such as lime treated soil and retaining walls. Future design may also address the eroded landscapes at the edges of the playground and along Bonita.

An active spring caused paving damage to the newly constructed play area. District maintenance appears to have solved the issue by constructing an inlet structure at the spring location and providing a connection to the storm drain system. Nuisance water seepage at the public street was reported by District Representative. This also appears to be groundwater caused and generally directed to the gutter at the street.

Safety and Security: As noted, the site is securely fenced with access gates at all street frontages which are secured during school hours. Parents enter the before and after school program “Schoolmates” to enter the campus, instead of checking in at the school office.

Havens Elementary School Recommendations:

Mandatory Improvements Accessibility: None at this time.

Mandatory Improvements Fire Life Safety: None at this time.

Necessary Improvements:

- Explore how to reduce classroom heat loads. Exterior sunshades could reduce the amount of heat gain.
- Retrofit existing mechanical systems to provide additional ventilation and / or supplementary cooling.
- At seeping retaining walls, provide direct connection to a storm drain system.
- The District should continue to work with the City of Piedmont to implement pedestrian safety planning as outlined in the Piedmont Bicycle and Pedestrian Safety Plan.³

Desired Improvements:

³ http://www.ci.piedmont.ca.us/publicworks/docs/planning/bike-ped/2014-08-08-draft_pbmp.pdf

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- Replace MPR flooring with an appropriate thin resilient athletic flooring.
- Replace MPR blinds with either rolling mesh shades or a white translucent film to control daylight and glare.
- Install magnetic hold opens at the corridor classroom doors.
- Provide a new fence at the Highland entry to capture more of the site for student use and to help control site access to the administration offices.
- PG&E historic electric demand readings will be required to establish if there is adequate spare capacity on this service to add new loads such as air-conditioning.

WILDWOOD ELEMENTARY SCHOOL



WILDWOOD ELEMENTARY SCHOOL
 PIEDMONT UNIFIED SCHOOL DISTRICT MASTER PLAN



Campus Observations

The original wing of Wildwood Elementary School was built in 1935 under the auspices of the Works Progress Administration. A substantial addition in 1994 added more classrooms and facilities. The older portion of the campus underwent a comprehensive construction program in 2010. Mechanical, electrical and fire alarm systems were upgraded. Site design included new ramps and walks for a fully accessible circulation path and playground.

The school campus is located along Wildwood Avenue. Topographic challenges include a steep drop off from the school campus down to what is the playground for the school, which is adjacent to the high school playing fields. The school has multiple levels, accessed through ramps and an elevator.

Accessibility: Due to its recent modernization, the building meets almost all current code requirements. However, as is common with the newest 2013 code update, there appear to be minor dimensional clearances that may need to be revised. There is no accessible girl's toilet stall on either floor. The main girl's toilet room has a semi ambulatory stall but not a fully accessible toilet stall. At the Boy's toilet room clearances at the toilet and the toilet location to the adjacent wall appear to be less than required. The boy's room has 10 total plumbing fixtures. Any toilet room with more than 6 plumbing fixtures requires in addition to a fully accessible toilet stall, a semi ambulatory stall. The lower floor toilets rooms and kindergarten in building C, D & E were not upgraded during the 2010 modernization, but were constructed in 1995 and mostly comply with current ADA codes.

Site improvements for an accessible path of travel are discussed below.

Fire Life Safety: Fire Life Safety: As previously noted, in future work the existing fire alarm system may need to be upgraded to accommodate current code requirements for automatic voice alarm at future new construction.

Structural: Buildings A and B were constructed in 1940 and were structurally upgraded in 2010. Buildings C, D & E were built in 1995 and were not part of the structural upgrades in 2010.

Technology Infrastructure: No updates at this time.

Educational Appropriateness: The classrooms in buildings A & B vary in size and while all are under the CDE recommendation of 960 square feet they seem to function well. However, if the district is to adopt full day kindergarten an additional kindergarten classroom is required.

Support spaces for counseling are accessed through the Library, which creates some confidentiality issues for students, and distracts groups studying in the Library. It is felt that the Library and computer rooms are too far away from each other.

The auditorium is used for a variety of activities; it is used for PE as well on rainy days. Acoustical improvements to reduce reverberation should be added. The Multi-Use Room is fully booked all day, including music and art.

Envelope Windows/ Roofing/ Finishes: Minor repairs and upgrades to the storm drainage systems, especially at grade, are suggested to reduce potential rainwater flooding.

Interiors / Finishes/ Fittings: No updates at this time.

Mechanical Systems / Plumbing Systems: There is no ventilation in the server room located next to the gym. The classrooms along the west wing of the building gets a lot of heat gain from outside and currently do not have any cooling. The boys and girls bathrooms located in the west wing part of the building are being exhausted by ageing fans which appears to have approached its life cycle. The fans are not providing proper ventilation to the bathroom spaces located in that wing.

Lighting & Electrical Systems / Fire Alarm: The existing main electric service at the School is located in an outdoor enclosure at the South side of the site, next to the building. It is rated 800 Amps, 120/208V, 3Phase (manufactured by Cuttler Hammer), and is fed by a pad mounted transformer located on Wildwood Ave (just adjacent to the board, below the retaining wall). A single 800A main circuit breaker feeds into a Distribution panel inside the building. The PG&E meter is not a Smart Meter, as on the other Campuses, but does show peak demand data.

Interior lighting systems were upgraded at the time of renovation. Future projects may require additional controls and sensors in accordance with newer standards. Exterior lighting is adequate, except for the pathway to the lower playground.

Audio visual, data and communication systems are up to date per the District's technology program. The system at this school, suffers from some grounding issues that seem to cause a buzzing noise through the AV system speakers in some of the rooms.

Fire Alarm systems were in compliance at the time of construction. Any subsequent renovations will require newer speaker/strobe devices with audio capability, to allow voice evacuation messages, per 2013 CBC. No changes will be triggered unless renovation done in a certain area. If renovation occurs, only the renovated areas will be required to be upgraded to speaker/strobes.

Site Improvements: The most challenging issue for the site is the hillside location. As noted in the Civil Engineer's report there are several non-compliant site areas, such as ramps and parking.

Safety and Security: The campus is securely fenced along Wildwood, but there is open access from the lower playground, immediately adjacent to Witter Field and a City park.

Wildwood Elementary School Recommendations:

Mandatory Improvements Accessibility:

- New ramp at loading zone on street.
- Improve ramp at playground

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- Replace rubberized play surface.
- Reconstruct accessible parking space.

Mandatory Improvements Fire Life Safety:

- None at this time.

Necessary Improvements:

- The District should continue to work with the City of Piedmont to implement pedestrian safety planning.
- Storm drainage system repairs at site retaining walls.
- Storm drainage repairs at buildings.
- Establish if there is adequate spare capacity on this service to add new loads such as air-conditioning.

Desired Improvements:

- Perform a full investigation to identify the improper electrical bonding responsible for the buzz in the AV system, using proper methods, starting at the main service and looking inward to the school, with the neutral test link removed at the main service.
- Identify potential locations for a second kindergarten classroom.

Piedmont Unified School District

ASSESSMENT APPENDICES

Civil/Site Assessment & Recommendations

Piedmont Unified School District

Brelje & Race Consulting Engineers

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Tel 707.576.1322 Fax 707.576.1322

Principal in Charge: Thomas R. Jones

Campus Assessments

The Civil/Site assessment task included a review and evaluation of existing site conditions at the Piedmont Middle School/High School campus and three elementary school sites, related primarily to accessibility issues/ADA compliance, pavement condition, fire suppression, drainage, sewer, and water systems on each campus. Observations of existing longitudinal and cross slope conditions at various locations were documented by the use of a “smart level” tool, which produces reasonably accurate results, but is not intended to take the place of actual surveyed elevations from which true slope can be determined. Because there is theoretically no tolerance allowed above ADA maximum slope conditions, any existing improvement that registered a smart level reading in excess of the maximum standard was noted as non-compliant. District personnel assisted in touring each site and were consulted regarding any known wet utility problems. Any issues raised have been noted for each campus below.

Accessibility/ADA Compliance

The primary area of concern for each campus is accessibility, as there are widespread instances of walkways throughout the sites that are arguably on what appear to be logical paths of travel to accessible destinations that have either excessive cross slope (>2%) or excessive longitudinal slope (>5% without railings, or >8.3% with railings). A second area of ADA compliance concern is accessible parking stalls. Problem areas include excessive cross/longitudinal slope (limited to 2% max. in any direction), insufficient length or width, missing or non-compliant signage or striping, and non-compliant ramps (>5% without railings, or >8.3% with railings) connecting the stalls to a path of travel to the campus

On several campuses there are significant areas that do not comply with mandatory federal and state accessibility requirements. These deficiencies are, for the most part, of a nature that they will be difficult, disruptive to the campus, and expensive to correct. Unfortunately, there is virtually no flexibility regarding compliance with these requirements. Generally, DSA requires upgrades to accessibility features in the general vicinity of new construction or modernization, with emphasis on POT to the location in question. However, there are increasing instances of private citizens or groups bring lawsuits

against building owners/sites where existing improvements do not meet accessibility requirements. In recent years, the San Francisco USD and Tamalpias USD, among others, were the subject of citizen suits over accessibility, resulting in those districts undertaking extensive and costly accessibility improvements at their various campuses.

Each campus has been individually reviewed as noted below. Specific locations, keyed to individual site plan exhibits, have been identified and grouped by type indicating specific problem areas along with recommendation for resolution. Photographs are also attached which illustrate representative examples of major problem areas.

Piedmont Middle/High School Campus

ADA Accessibility

1. Keynote D. Accessible street parking stall is non-compliant due to excessive slopes, non-compliant ramp and missing ADA signage.
 - Recommendation: Due to the inability to significantly alter the slope of the street relocation of this accessible parking stall to a more suitable location is necessary.
2. Keynote E. Slope at doorway landings greater than 2%.
 - Recommendation: Remove and replace landing and adjacent walkway to provide code compliant slopes.
3. Keynote F. Non-compliant ramp due to excessive longitudinal slope on intermediate ramp landing and excessive cross slope at the bottom of ramp landing. Non-compliant hand rail.
 - Recommendation: Remove and replace ramp with code compliant accessible ramp.
4. Keynote G. Cross slopes across this apparent path of travel exceed 2%.
 - Recommendation: Remove and replace a section of concrete to provide a code compliant path of travel from the public right of way to the campus.
5. Keynote H. The slope on the southerly section of the accessible ramp exceeds 8.3%.
 - Recommendation: Remove and replace approximately 30 feet of ramp to maintain slopes less than 8.3%
6. Keynote I. Accessible ramps with longitudinal slopes greater than 8.3%.
 - Recommendation: Remove and replace 2 - four foot wide x 30 foot long ramps to maintain slopes less than 8.3%.
7. Keynote J. Accessible ramp with longitudinal slope greater than 8.3%.
 - Recommendation: Remove and replace approximately 16' x 20' section of ramp to maintain slope less than 8.3%.

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8. Keynote K. Accessible ramp with longitudinal slope greater than 8.3%.
 - Recommendation: Remove and replace approximately 5 foot wide x 30 foot long section of ramp to maintain slopes less than 8.3%.
9. Keynote L. Accessible ramp with longitudinal slope greater than 8.3%.
 - Recommendation: Remove and replace approximately 6 foot wide x 30 foot long section of ramp to maintain slopes less than 8.3%.
10. Keynote M. Accessible path with cross slope greater than 2.0%.
 - Recommendation: Remove and replace approximately 6 foot wide x 30 foot long section of concrete walkway to maintain cross slopes less than 2.0%.
11. Keynote N. Accessible path at front of District Office door with cross slope greater than 2.0%.
 - Recommendation: Remove and replace approximately 6 foot wide x 20 foot long section of concrete walkway to maintain cross slopes less than 2.0%.
12. Keynote O. Accessible ramp with longitudinal slope greater than 8.3%.
 - Recommendation: Remove and replace approximately existing ramp with new ramp and handrails to maintain slopes less than 8.3% or construct an accessible walkway with slopes less than 5.0%.
13. Keynote P. Greater than ½" vertical rise in concrete between patio and gym.
 - Recommendation: Remove concrete as required and reconstruct to provide for an accessible path of travel from the patio area into the gymnasium.
14. Keynote R. Ramps in excess of 30 feet in length and greater than 8.3% longitudinal slope from public sidewalk to lower classroom level.
 - Recommendation: Due to limited area to expand the ramp length in this area reconstruction of the ramps to meet ADA compliance would be difficult. Suggest defining alternate accessible path of travel to the lower level.
15. Keynote S. Numerous locations at Middle School classrooms with slopes at doorway landings greater than 2% and thresholds with greater than ¼" vertical rise and/or ½" maximum threshold height
 - Recommendation: Remove and replace landings and/or door thresholds along with adjacent walkway as necessary to provide code compliant landings and thresholds.
16. Keynote T. Doorways at both the boys and girls lower level restrooms with thresholds with greater than ¼" vertical rise and/or ½" maximum threshold height
 - Recommendation: Remove and replace landings and/or door thresholds along with adjacent walkway as necessary to provide code compliant landings and thresholds.

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17. Keynote U. Doorways at rooms 106, 107, 108, 102, and Staff Restroom with thresholds with greater than ¼" vertical rise and/or ½" maximum threshold height
 - Recommendation: Remove and replace landings and/or door thresholds along with adjacent walkway as necessary to provide code compliant landings and thresholds.
18. Keynote V. Accessible ramp with longitudinal slope greater than 8.3%.
 - Recommendation: Remove and replace approximately 5 foot wide x 30 foot long section of ramp to maintain slopes less than 8.3%.
19. Keynote W. Greater than ½" vertical rise between concrete and asphalt court.
 - Recommendation: Remove concrete as required to provide for an accessible path of travel onto the court.
20. Keynote X. Non-compliant ramp due to lack of handrails, excessive longitudinal slope and excessive cross slope.
 - Recommendation: Remove and replace approximately 6 foot wide x 40 foot long ramp with code compliant accessible ramp with intermediate landing and handrails.
21. Keynote Y. Accessible ramp with longitudinal slope greater than 8.3%.
 - Recommendation: Remove and replace approximately 16' x 30' section of ramp to maintain slope less than 8.3%.
22. Keynote Z. Cross slope along length of stadium at the snack bar level exceeds 2%.
 - Recommendation: removal and replacement of the concrete walkway as necessary to provide a path of travel from the accessible parking to the accessible seating area of the stadium, including access to the snack bar facility.
23. Keynote AA. Landings at stadium restroom doors exceed 2% cross slope.
 - Recommendation: As part of the concrete and access work noted for Keynote Z above, remove and replace concrete at restrooms to provide compliant access and landings.
24. Keynote BB. Non-compliant ADA parking due to excessive slopes, non-compliant ADA signage, no accessible path of travel to the stadium due to excessive cross slopes.
 - Recommendation: Saw cut and repave to reduce the slope at the parking stall, restripe and provide current signage. Grind existing ac paving along path of travel and place ac overlay to provide compliant path of travel to the stadium. In addition, the overall parking availability for the stadium should be reviewed with regard to total number of accessible stall able to access the main bleacher area.
25. Keynote CC. Non-compliant ramp due to excessive longitudinal slope and excessive cross slope.

FACILITIES ASSESSMENT
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- Recommendation: Remove and replace approximately 4 foot wide ramp with code compliant accessible ramp with intermediate landing and handrails.
26. Keynote DD. Non-compliant ADA parking due to excessive slopes, non-compliant ADA signage and striping, and non-compliant ramp from parking to walk.
- Recommendation: Saw cut and repave to reduce the slope at the parking stall, restripe and provide current signage. Saw cut approximately 10 foot x 20 foot section of existing curb, gutter and sidewalk and construct new accessible ramp with detectable warning surface.
27. Keynote EE. Doorway with threshold with greater than ¼" vertical rise and/or ½" maximum threshold height
- Recommendation: Remove and replace landings and/or door thresholds along with adjacent walkway as necessary to provide code compliant landing and threshold.
28. Keynote FF. Detectable warning surface missing at hazardous vehicular area.
- Recommendation: Provide glue down type truncated domes at walkout.
29. Keynote GG. Non-compliant ADA parking due to excessive slopes.
- Recommendation: Saw cut and repave to reduce the slope at the parking stall, restripe.
30. Keynote HH. Landing at base of stairs with cross slopes greater than 2%.
- Recommendation: Remove and replace approximately 10 foot x 10 foot area of concrete and construct landing at stairs with less than 2% cross slope in any direction.
31. Keynote II. Doorway with threshold with greater than ¼" vertical rise and/or ½" maximum threshold height
- Recommendation: Remove and replace landings and/or door thresholds along with adjacent walkway as necessary to provide code compliant landing and threshold.
32. Keynote JJ. Accessible street parking stall is non-compliant due to excessive slopes, non-compliant ramp and missing ADA signage.
- Recommendation: Due to the inability to significantly alter the slope of the street relocation of this accessible parking stall will be necessary.

Fire/Life Safety

33. Keynote NN. Poor access to what is intended to be an Emergency Vehicle access point for fire department. Existing fire hydrant and fire department connection not easily accessible or useable for fire department personnel due to slopes, lack of roadway and vegetation.

- Recommendation: Provide signage to prevent access between existing residences from being blocked. Construct all weather surface to the satisfaction of the local fire Marshal to access the existing fire hydrant and FDC.

Wet Utilities (Sewer, Water, Storm Drain)

34. Keynote A. Ponding at existing inlets during large rain events.
- Recommendation: Clean and video storm drain line to verify no restrictions to flow. Consider replacing inlet with a structure with larger grate area to increase inlet capacity.
35. Keynote B. Stormwater flows over curb and into building during large rain events.
- Recommendations: Recent improvements by the District which include the addition of a drainage structure and curbing to divert flows appear to have resolved this issue to a large extent. This area should be monitored to verify acceptable level of protection from flooding for the building.
36. Keynote C. Damage to synthetic turf football field during large rain events.
- Recommendation: The drainage system for the football field connects to a large storm drain culvert located south of the field. Large flows in this culvert appear to cause back pressure in the field drainage system with enough force to cause lifting of the rock and synthetic turf in several locations. Prior to installation of new turf further investigation is warranted to determine the exact cause and potential corrections to the storm drain system to prevent this from occurring in the future.
37. Keynote Q. Non-compliant storm drain grate. Storm drain grates with openings larger than ½" in primary direction of travel.
- Recommendation: Replace existing grates with code compliant model.
38. District personnel expressed concern with the integrity of the storm drain system as a whole at the High/Middle School campus. They are concerned with potential instances of broken pipes, offset joints, and tree root intrusion.
- Recommendation: The underground storm and sewer system should be located and mapped by an underground utility locating service for an accurate record of the system. Sewer and storm drain lines of concern should be video inspected to document the conditions of the existing pipes and any necessary repairs to the lines completed.

General Pavement Condition

On campus paved areas not specifically mentioned below were found to be in acceptable condition, with no immediate needs. Implementation of a pavement management program is encouraged to prolong pavement life.

39. Keynote PP. Pavement in fair condition with significant cracking.
 - Recommendation: Seal cracks, slurry seal asphalt surface and restripe parking as necessary.
40. Keynote QQ. Pavement in fair to poor condition with significant cracking.
 - Recommendation: Seal cracks, slurry seal asphalt surface and restripe parking as necessary.
41. Keynote RR. Pavement in fair to poor condition with significant cracking.
 - Recommendation: Seal cracks, slurry seal asphalt surface and restripe parking as necessary.

Necessary Improvements – Site Work

42. Keynote KK. District representative stated that moisture leaks from amphitheater into room below.
 - Recommendation: Seal concrete surface and/or provide other method of protection to building area below.
43. Keynote LL. Areas of inadequate drainage and events of flooding.
 - Recommendation: Extend storm drain system and provide trench drains and/or other drainage structures adequate to provide proper drainage for these areas.
44. Keynote MM. Slopes directing drainage toward wall and building.
 - Recommendation: Regrade area and construct rock lined swale adequate to accept upslope drainage and direct flows around building.
45. Keynote OO. District representative noted that past drainage issues with the neighboring property seemed to have been corrected by the recent reconstruction of the neighbor's garage and improved drainage system.
 - Recommendation: The District should avoid the release of any concentrated flow of storm water over property boundaries, including swales and roof leaders. Any work associated with Keynote MM above should provide a drainage system that directs storm water to an approved downstream system.
46. Keynote SS. Cracked and raised concrete at first floor walkway.

- Recommendation: Consult with Geotechnical and Structural Engineer to determine cause of apparent subsidence of this section of walkway. Repair damaged walkway as directed by Structural Engineer.

Beach Elementary School Campus

ADA Accessibility

None

Fire/Life Safety

None

Wet Utilities (Sewer, Water, Storm Drain)

1. Keynote C. District installed subdrain and storm drain system appears to have resolved previous drainage issues in this area.
 - Recommendations: Provide ongoing maintenance and cleaning of storm drain inlets and pipes.

General Pavement Condition

On campus paved areas not specifically mentioned below were found to be in acceptable condition, with no immediate needs. Implementation of a pavement management program is encouraged to prolong pavement life.

2. Keynote B. Access pathway from school site to park with large cracks and vertical offsets greater than $\frac{1}{4}$ ".
 - Recommendation: Though not school property, it would provide benefit to the school to have an accessible path to the park. Repairs needed would include crack filling and grinding of vertical offsets.

Necessary Improvements - Site Work

3. Keynote A. Failing retaining wall adjacent to Howard Avenue.
 - Recommendation: Remove and replace failing portions of retaining wall.

Havens Elementary School Campus

ADA Accessibility

None

Fire/Life Safety

None

Wet Utilities (Sewer, Water, Storm Drain)

1. Keynote A. An active spring caused paving damage to the newly constructed play area. District forces appear to have solved the issue by constructing an inlet structure at the spring location and providing a connection to the storm drain system.
 - Recommendations: None.
2. Keynote B. Nuisance water seepage at the public street was reported by District Representative. This also appears to be groundwater caused and generally directed to the gutter at the street.
 - Recommendation: Direct connection to a storm drain system would be necessary to solve this problem.

General Pavement Condition

On campus paved areas were found to be in acceptable condition, with no immediate needs. Implementation of a pavement management program is encouraged to prolong pavement life.

Necessary Improvements - Site Work

None

Wildwood Elementary School Campus

ADA Accessibility

1. Keynote A. Non-compliant accessible ramp - no detectable warning surface and cross slope at top of landing exceeds 2.0%.
 - Recommendation: Remove existing ramp and construct new code compliant ramp and adjacent walkways.
2. Keynote B. Non-standard ramp from asphalt surface to play surface.
 - Recommendation: remove existing ramp and smooth entry for improved accessibility.
3. Keynote C. Slopes greater than 2.0% on rubberized play surface.
 - Recommendation: Remove and replace rubberized play surface.
4. Keynote D. Accessible parking stall is non-compliant due to excessive slopes, non-compliant ramp and missing ADA signage.

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- Recommendation: Remove and reconstruct to provide code compliant slopes on parking and loading area. Provide ADA signage and striping of parking, loading and accessible path to the ramp.
5. Keynote E. Ramp from School to play area with slopes greater than 8.3%
 - Recommendation: Due to the significant grade change from the school to the play area, construction of a code compliant ramp in this area is not a feasible proposition.
 6. Keynote F. Accessible ramp not provided at easterly side of street crossing.
 - Recommendation: Saw cut and remove existing curb and sidewalk and construct code compliant accessible ramp and landing.

Fire/Life Safety

None

Wet Utilities (Sewer, Water, Storm Drain)

7. Keynote H. Water seepage onto asphalt path causing a slippery and dangerous condition.
 - Recommendation: Excavate behind the existing wall and place a perforated subdrain and drain rock at an elevation below the path level. Connect subdrain to storm drain system.
8. Keynote G. Storm drain roof drains reported to have caused flooding in lower levels of adjacent classrooms.
 - Recommendation: Connect all roof leaders with a new storm drain line and drain to an existing storm drain system with capacity to accept the drainage flows. As an alternative the storm drain could direct the roof leader drainage from the building and discharge and dissipate the drainage downhill from the school in a manner that will not adversely impact the lower properties. Regrade around building to drain away at 5% minimum slope for a minimum distance of 10'.

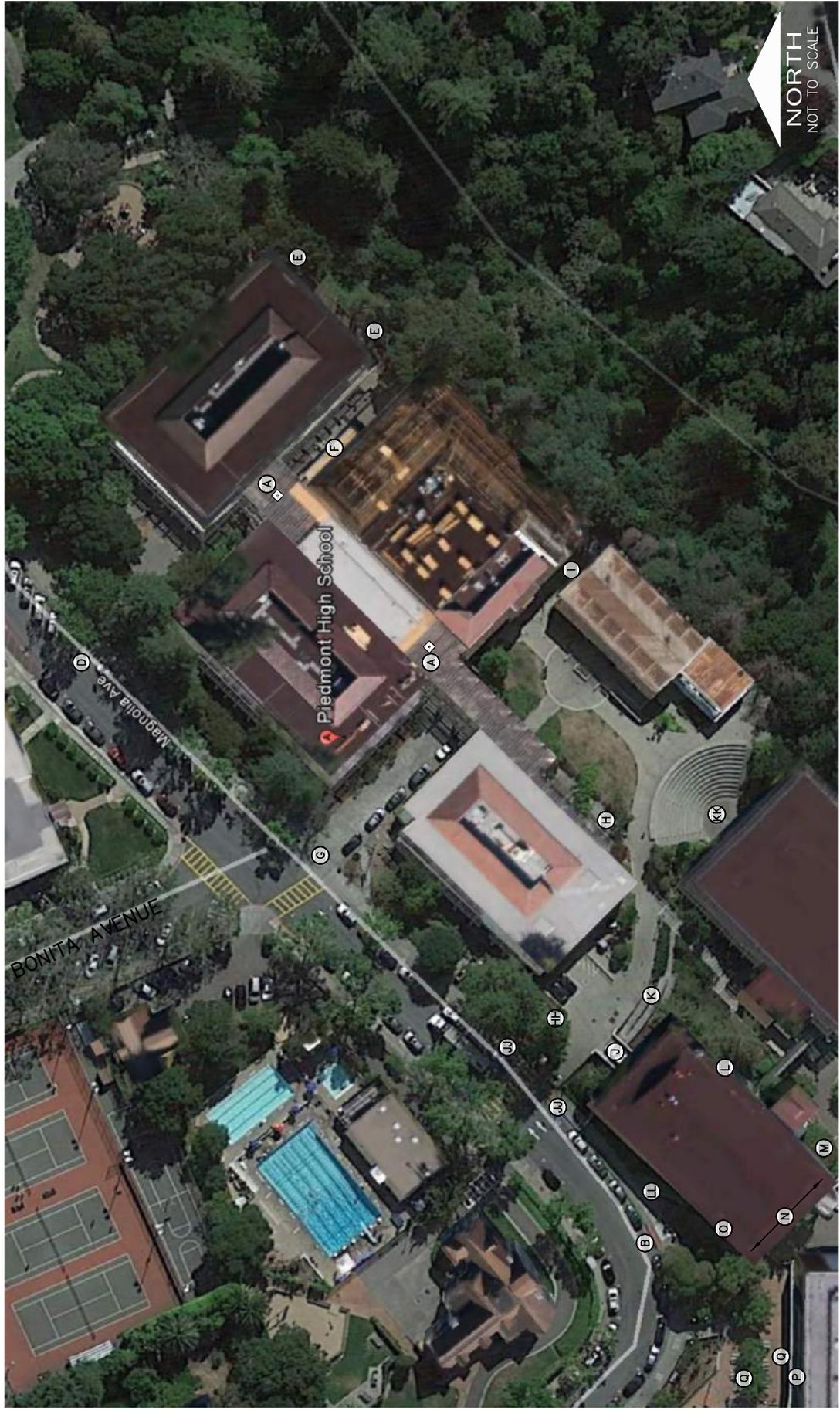
General Pavement Condition

On campus paved areas were found to be in acceptable condition, with no immediate needs. Implementation of a pavement management program is encouraged to prolong pavement life.

Necessary Improvements – Site Work

None

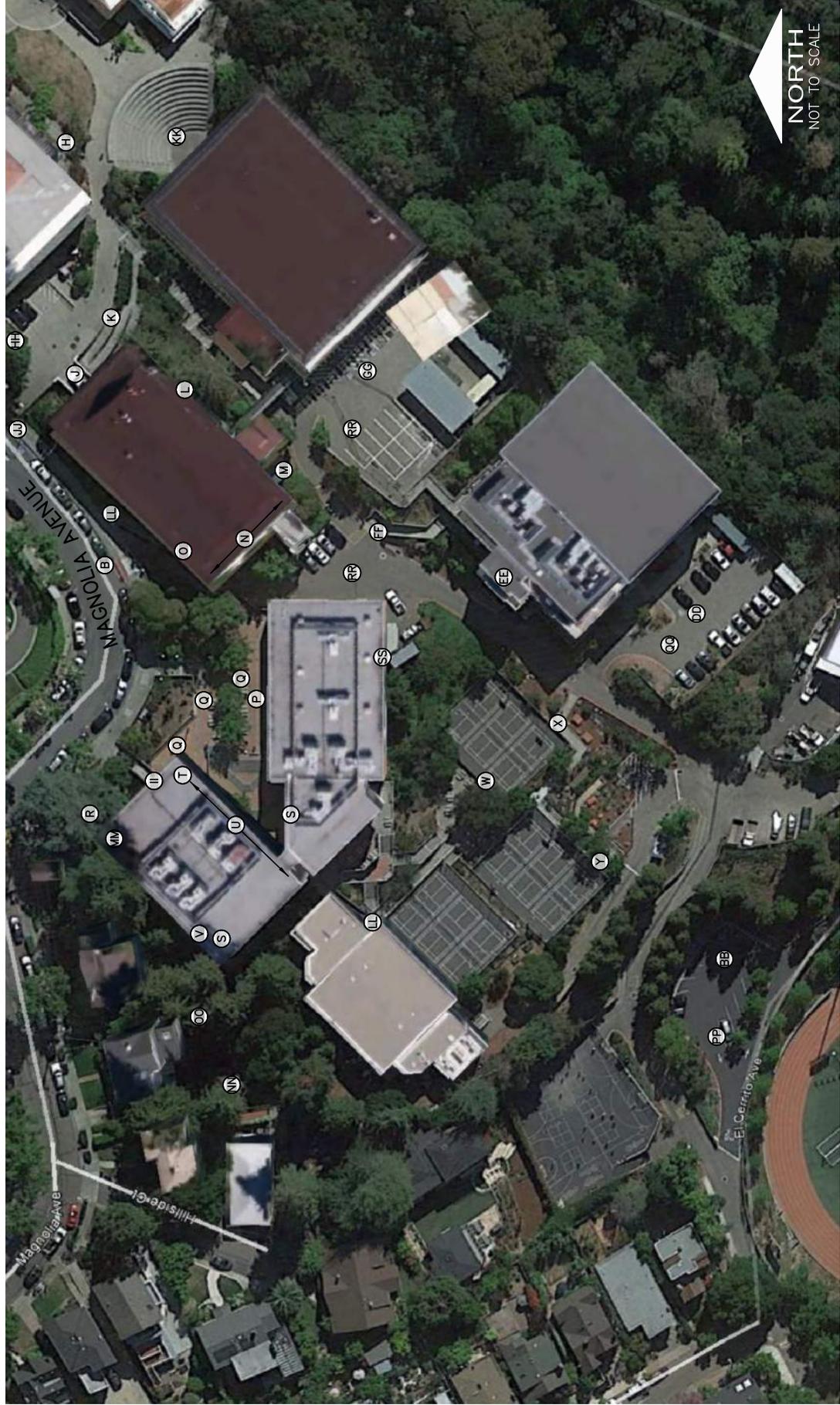
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**PIEDMONT MIDDLE & HIGH SCHOOL
PIEDMONT SCHOOL DISTRICT**

KEYNOTE MAP
OCTOBER 2015

FIGURE 1

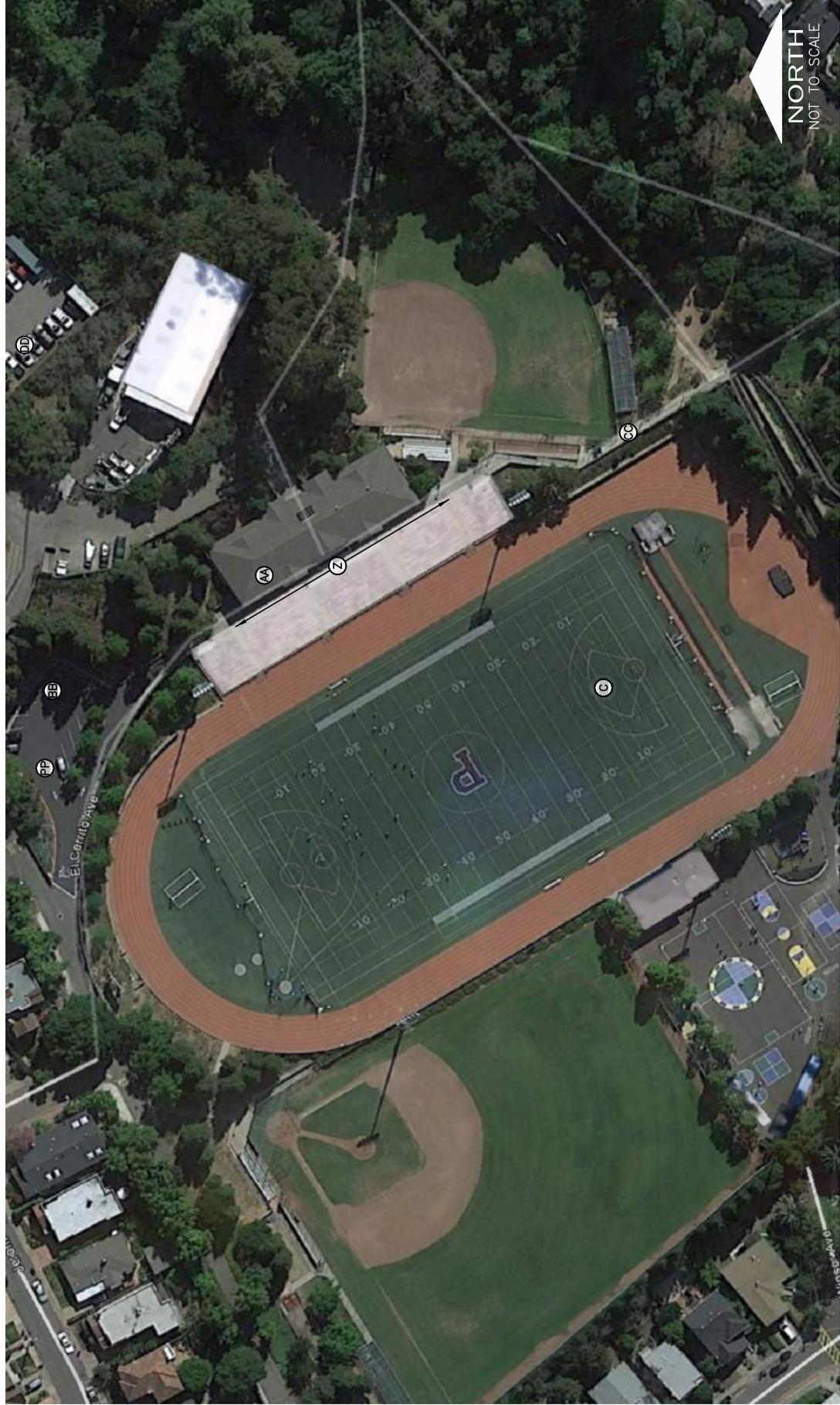


NORTH
NOT TO SCALE

**PIEDMONT MIDDLE & HIGH SCHOOL
PIEDMONT SCHOOL DISTRICT**

KEYNOTE MAP
OCTOBER 2015

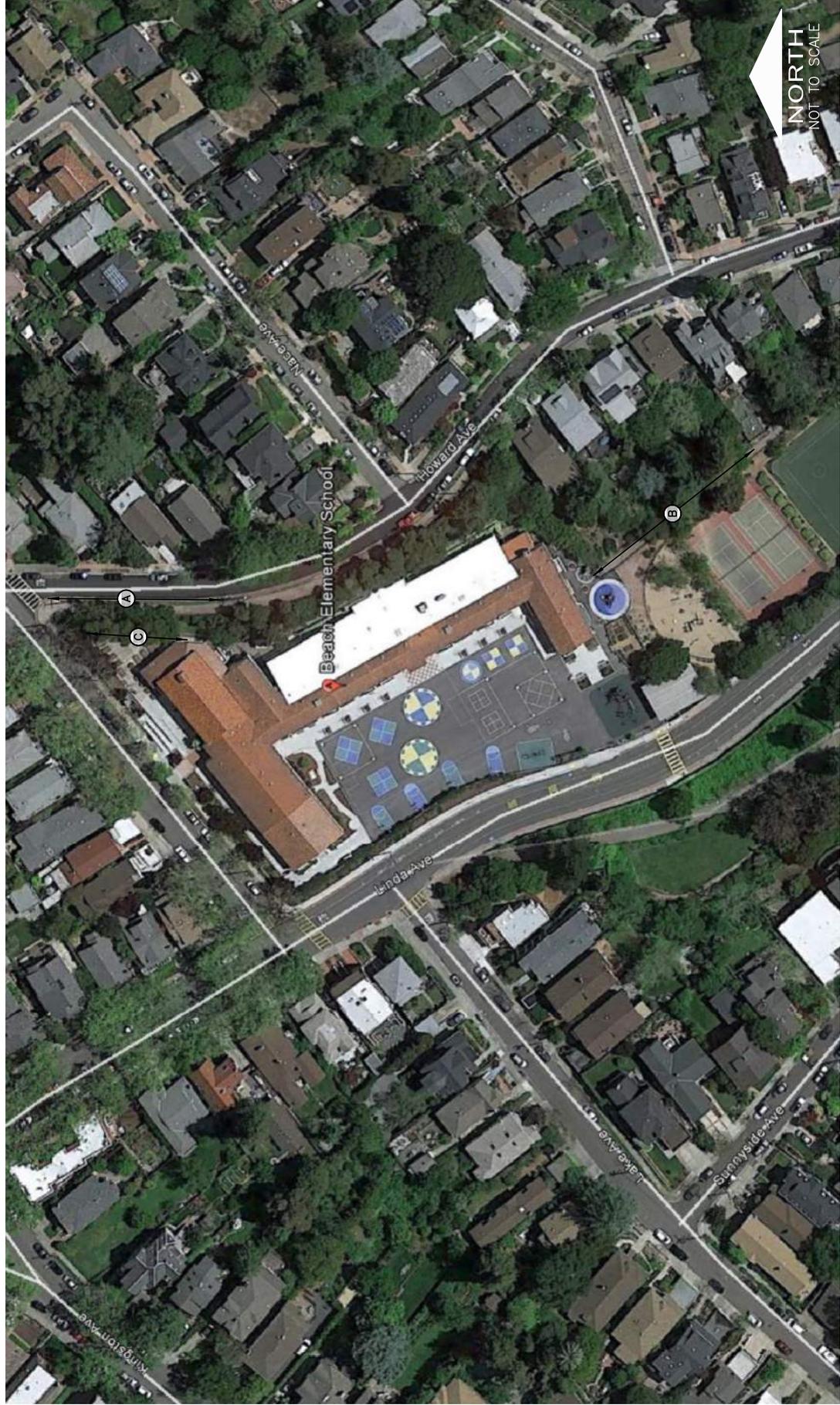
FIGURE 2



**PIEDMONT MIDDLE & HIGH SCHOOL
PIEDMONT SCHOOL DISTRICT**

KEYNOTE MAP
OCTOBER 2015

FIGURE 3

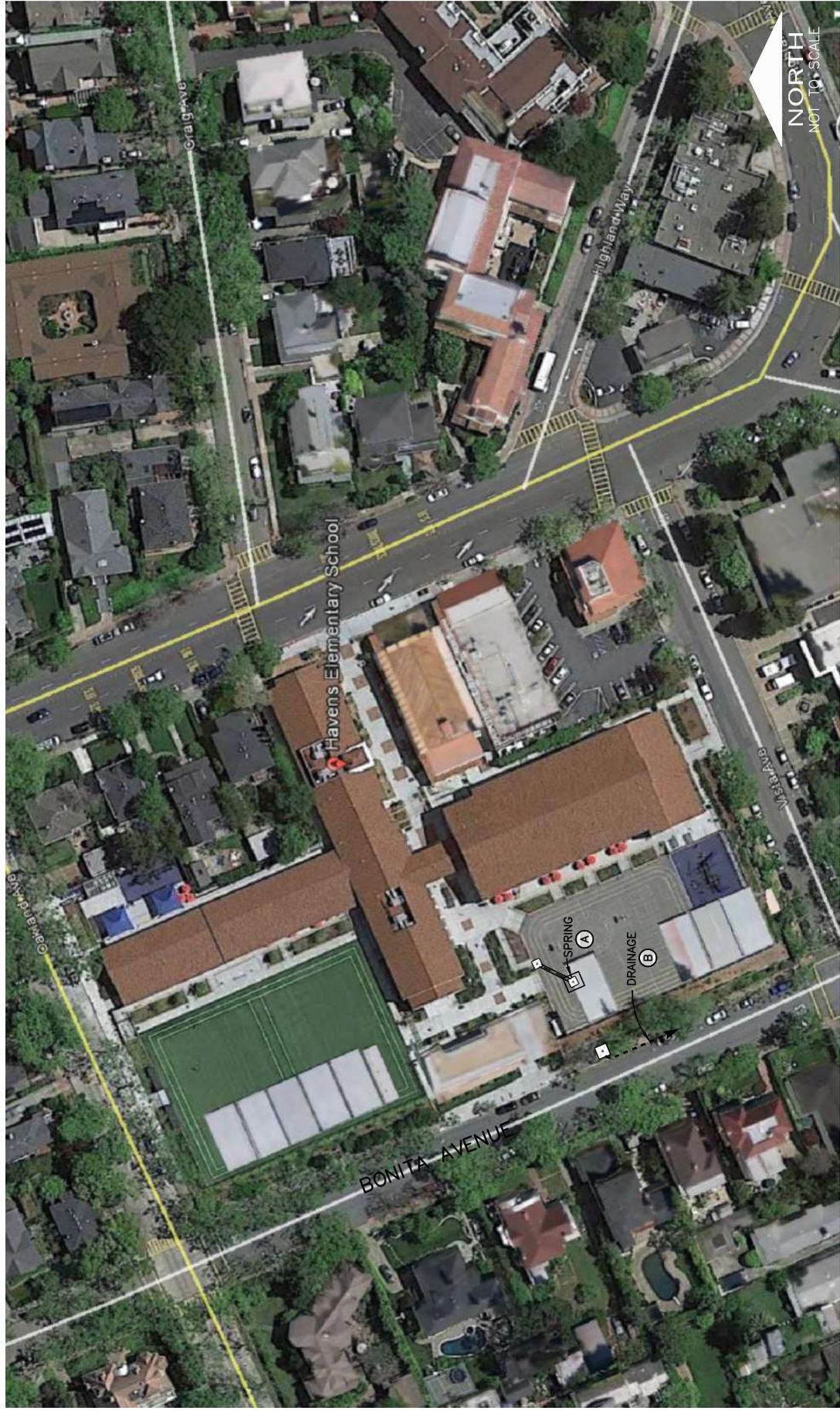


NORTH
NOT TO SCALE

**BEACH ELEMENTARY SCHOOL
PIEDMONT SCHOOL DISTRICT**

KEYNOTE MAP

OCTOBER 2015

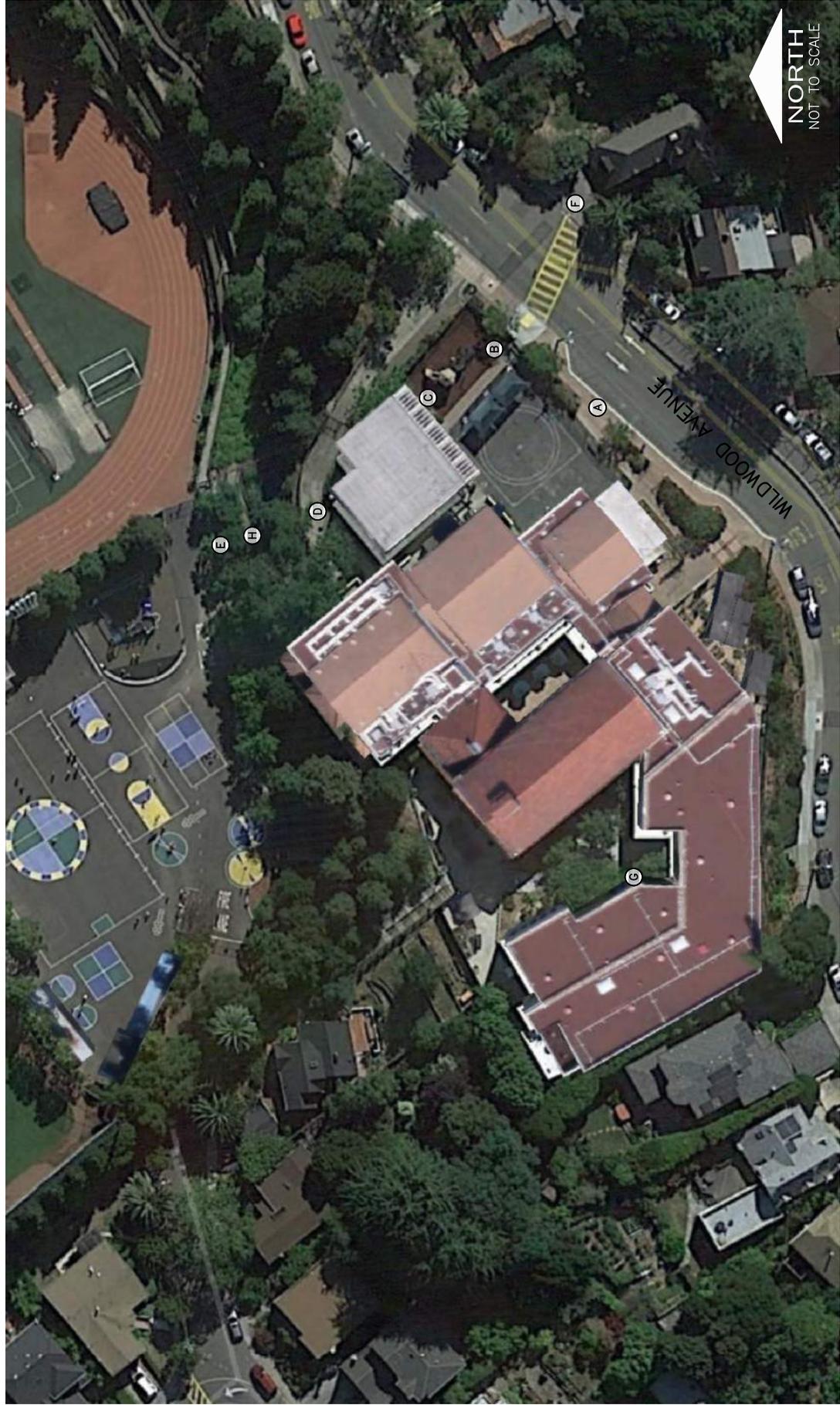


NORTH
NOT TO SCALE

HAVENS ELEMENTARY SCHOOL PIEDMONT SCHOOL DISTRICT

KEYNOTE MAP

OCTOBER 2015



NORTH
NOT TO SCALE

**WILDWOOD ELEMENTARY SCHOOL
PIEDMONT SCHOOL DISTRICT**

KEYNOTE MAP
OCTOBER 2015



O'MAHONY & MYER
ELECTRICAL ENGINEERING & LIGHTING DESIGN

San Rafael, California
Pacific Harbour, Fiji

Brian O'Mahony
Jan P. Myer
Paul Carey
Pieter Colenbrander
David Orgish



November 11, 2015

Quattrocchi Kwok Architects

636 Fifth Street
Santa Rosa, CA 95404

Attn.: Kevin Chapin

Re: Piedmont High School
Electrical / Lighting / Signal Systems Conditions Assessment

Dear Kevin,

O'Mahony & Myer visited the Piedmont High School and Middle School sites on August 13, 2015. The purpose of our visit was to visually review the existing electrical, lighting, and signal systems, to establish their condition and their ability to support future use and expansion.

In summary, the existing electrical and lighting systems at the School are all functional and have been reasonably well maintained over the years. Portions of the electrical systems, however, were installed long ago and are nearing their expected useful life span. Lighting systems are being upgraded by the District with Prop 39 funds, but controls and emergency lighting have not yet been upgraded to modern standards. The telecom system, fire alarm, and AV / PA speaker systems have all been upgraded in the recent past and can generally remain. The clock systems are old and outdated and should be replaced with a new wireless system.

The following report summarizes our findings at the High School Campus:

Electrical Service:

The existing main electric service at the High School is located in an outdoor enclosure at the N/E corner of the site. It is rated 1,200 Amps, 277/480V, 3-Phase (manufactured by Siemens), and is fed by an underground PG&E transformer vault in the adjacent driveway. This switchboard was installed within the last 5 or 6 years, but may not be adequate for additional loads, based on its amperage size and the lack of physical spare space in the board.

The switchboard currently serves High School Buildings A through G (East end of the HS + MS Site), as well a number of smaller buildings, O, P, and Q. The other buildings to the West of building G are part of the Middle School (see Middle School Assessment).

The switchboard has very little physical space to add new loads, making future renovations or new buildings hard to add. Depending on the required loads (with air-conditioning and/or elevators), the 1,200 amp capacity may also not be suitable for future load additions.

There is no emergency power system at the School, but staff noted that a generator for the main servers at the District Office in Building G would be of benefit.

Staff also indicated that there is some interest in providing solar photovoltaic systems for the School. Since the Federal Tax incentives and Net Metering regulations currently expire at the end of 2016, there would be some urgency to this decision, if it is deemed possible. In order to benefit from the current legislation, the systems would need to be operational by the end of 2016.

Distribution / Branch Power System:

There are (9) building feeders served by the main switchboard, with one space for an additional future feeder. The conditions of the feeders were not reviewed (outside the scope of this visual review), but they are assumed to be suitable and may remain. The feeders should be megger tested for insulation integrity if and when renovation or new electrical work is done at any of the buildings.

The branch panels at each building are primarily older Zinsco panels. Zinsco panels were discontinued many years ago and have a reputation of being problematic and hard to maintain, with limited parts availability. If and when work is done at the buildings, it is recommended that the panels be replaced (in place), at the same time the related feeders are tested.

Existing branch circuits are assumed to be suitable and can be reconnected to the new panel boards, providing a safer overall installation.

There were lots of electrical clearance code violations noted, where the code required 3 feet of frontal clearance was obstructed by boxes, cleaning equipment, or other Storage items. Proper electrical space should be provided throughout, to provide adequate and safe working space as required by code.

Interior Lighting:

About one third of the interior lighting systems have been retrofitted in the recent past (by the District Staff), from fluorescent 4' x4' fixtures to new LED linear replacement lamps and drivers. The replacements are ongoing and part of Proposition 39 funding opportunities. About one third of the campus has been retrofitted as of this review, which includes the 10 and 20 buildings.

The remaining un-retrofitted lighting is primarily fluorescent T8 sources that will be replaced.

Lighting controls, however, are still only local wall switches, without occupancy sensors or daylighting controls. Current code would require substantially better controls, to include dimmers, photo-sensors for daylight sensing, occupancy sensors, and digital room controllers to provide the local control brain for each room. Any spaces that will have their lighting upgraded through the DSA process in the future, will require these controls, as well as LED light sources, in order to meet current Title 24 requirements. Spaces that are left as-is, will not trigger controls or lighting upgrades.

Exterior Lighting:

Exterior lighting is barely adequate, according to staff. Improvements should be made to provide more uniform and safe/secure lighting for night time events. The exterior controls currently consist of a mix of time clock and photocell controls. These should be consolidated into one central system, with one astro-dial time clock, if possible.

Emergency Lighting:

Overall emergency lighting systems are old and no longer operational. The systems in the Hallways were once connected to central emergency battery units, but these are no longer operational. Only some fluorescent fixtures in Hallways have been provided with integral emergency ballasts, leaving spotty coverage and some areas without coverage.

Exit signs are mostly adequate (as far as locations), but many are old. New LED Exit signs should be provided to replace each existing sign.

Future upgrades will require emergency lighting additions to provide 1 foot candle average in the designated paths of egress, including exterior areas that provide passage to the public right of way or safe dispersal area.

Telephone / Data / CATV Systems:

Telephone:

The telephone service to the Campus is located at an MPOE at the District Office in Building G, with a telephone PBX at the MDF Closet on the 3rd floor of Building G. The High School service is still conventional analog phone service, compared to the Elementary Schools that have Voice over IP (VoIP). The intent is to transition to VoIP service at the High School.

Data:

The data system head-end is currently located at the MDF Closet at the 3rd Floor of Building G. The MDF room is currently rather small and could benefit from expansion, to allow easier access, more space for IT staff, and more space and clearance for server equipment.

Despite the cramped MDF room, the data system is currently in reasonable shape, according to Staff, and includes adequate fiber (to each building) and horizontal station cabling (in each building), to serve the current IT needs.

Horizontal cabling was upgraded to Category 6 cabling within the last year and half. Site-wide fiber was also upgraded to 10GB compatible single mode fiber, which can provide adequate bandwidth for some time to come.

There are many Wi-Fi routers deployed throughout the School and all are Power-Over-Ethernet (POE), to avoid additional power outlet requirements at the Wi-Fi locations.

Cable TV:

The cable TV system is no longer in use and much of the cabling has been removed. While there are TV's in many of the Classrooms, they are only used for local media content, displayed locally

in the room. Since video and related media content can now be transmitted over the data network, co-axial cabling is no longer required.

Classroom AV Systems:

The Campus standard for AV and Speaker / Bell / PA system is Front Row (formerly Calypso). This incorporates a head-end software platform that networks each Classroom system together, to allow PA paging, as well as central control and monitoring of the AV and speaker systems in each room. The network connection is accomplished over the data network, with one drop per Classroom dedicated to the AV system. There is a central microphone and PC for the software system located at the Reception area in the Admin Office.

This system allows emergency all-call paging and messaging to all locations on Campus, however, it should be noted that the new CBC voice evacuation requirements for School occupancies requires a CSFM listed system to deliver the code required voice notifications (see Fire Alarm below). The Front Row system is not listed for this use (to meet CBC 907.5), but can certainly be used for any announcements at any time.

Most of the Classrooms have been provided with the Calypso / Front Row AV system, to allow media input at the Classroom, to be displayed on the local projector systems. Projectors are primarily ceiling mounted, but some short-throw projectors also exist at the Admin area.

It was reported by Staff that the older round traditional Classroom speakers are no longer in service. These could be removed during any renovation work.

There are newer Bogen speakers in the Hallways, which have been retained and integrated into the Front Row system with an amplifier module, allowing these units to process the Front Row PA and bell signals.

Central Clock Systems:

The school currently has multiple central clock systems with master clocks. One is a Simplex 120V synchronous clock system. The other is an American Time & Signal 24V system. There are also a number of Taradon wireless clocks.

Future renovations should transition to a wireless clock standard, by American Time & Signal, similar to what is installed at the Elementary Schools.

Security Systems:

Some of the spaces in selected buildings include some intrusion detection with local motion sensors and door contacts. There is currently no main security system or access control system.

Future renovations may choose to add a central intrusion detection system, as well as access controls, with card access readers and related electric door locks and/or strikes.

Fire Alarm System:

The campus fire alarm system was upgraded about 5 years ago to a Notifier system. The main FACP is located at the Admin Office and also monitors / controls the Middle School and DO systems as nodes on the system.

The Middle School includes a separate annunciator for that School, tied to the main FACP at the High School Admin Office.

The existing systems are all horn/strobe systems with full smoke detector coverage, per recent code (prior to the 2013 CBC). Newer renovations will require speaker/strobe devices with audio capability, to allow voice evacuation messages, per 2013 CBC 907.5. This will require the addition of an audio amplifier panel at each building, with additional speaker wiring at each building and audio trunk wiring across the site.

Staff reported that the fire alarm upgrade project of 5 years ago included wiring the code required elevator interface modules for shunt-trip and recall functions, however, the modules were not connected to each elevator system, since one of the systems lacked the proper capability. When future renovations are undertaken, the elevator requirements should be completed and connected, to include recall and shunt trip functions, where they do not currently exist.

According to staff, the existing elevators functions are as follows:

30 Building	Has recall and shunt trip.
40 Building	No recall or shunt trip.

If you have any questions or comments on the information presented above, please feel free to call.

Sincerely,



Pieter Colenbrander, P.E.
O'Mahony & Myer



O'MAHONY & MYER
ELECTRICAL ENGINEERING & LIGHTING DESIGN

San Rafael, California
Pacific Harbour, Fiji

Brian O'Mahony
Jan P. Myer
Paul Carey
Pieter Colenbrander
David Orgish



November 11, 2015

Quattrocchi Kwok Architects

636 Fifth Street
Santa Rosa, CA 95404

Attn.: Kevin Chapin

Re: Piedmont Middle School
Electrical / Lighting / Signal Systems Conditions Assessment

Dear Kevin,

O'Mahony & Myer visited the Piedmont High School and Middle School sites on August 13, 2015. The purpose of our visit was to visually review the existing electrical, lighting, and signal systems, to establish their condition and their ability to support future use and expansion.

In summary, the existing electrical and lighting systems at the School are all functional and have been reasonably well maintained over the years. Portions of the electrical systems, however, were installed long ago and are nearing their expected useful life span. Lighting systems are being upgraded by the District with Prop 39 funds, but controls and emergency lighting have not yet been upgraded to modern standards. The telecom system, fire alarm, and AV / PA speaker systems have all been upgraded in the recent past and can generally remain. The clock systems are old and outdated and should be replaced with a new wireless system.

The following report summarizes our findings at the Middle School Campus:

Electrical Services:

There are (3) separate electric services at the Middle School. These include:

2,000 Amp, 120/208V, 3-Phase at Building HJ (also serves Bldg. I).

This service is an older Cutler-Hammer switchboard in a room at the lower level, with limited clearance and not much spare room space. The switchboard also has only one additional space for new loads. There is a water leakage problem in the room, which currently drips water into one of the Fire Alarm Panels in the same room (which is covered with plastic for protection). The switchboard also shows signs of water damage (rust) near the top of the gear.

This board should be replaced during any renovation project in Building HJ, including additional space to maintain proper code clearances.

800 Amp, 120/208V, 3-Phase at Building K.

This service is a newer vintage Cutler-Hammer switchboard located in the Basement. The switchboard was recently installed, and can remain, but there are storage and clearance issues with the location that should be remedied to maintain code required clearances. It has two available spaces for additional loads.

1,200 Amp, 120/208V, 3-Phase at Building L.

This service is a newer vintage Square D switchboard, located in a Closet that requires access through a Restroom. The switchboard was recently installed, and can remain. There is ample spare breaker space for additional loads, but this room also suffers from severe obstructions to proper code clearances. Additional space should be created to allow proper clearances.

There is no emergency power system at the Middle School. Other than the code required emergency lighting back-up batteries that would be required in renovated areas (described below), no central back-up generator would be required.

Staff also indicated that there is some interest in providing solar photovoltaic systems for the School. Since the Federal Tax incentives and Net Metering regulations currently expire at the end of 2016, there would be some urgency to this decision, if it is deemed possible. In order to benefit from the current legislation, the systems would need to be operational by the end of 2016.

Distribution / Branch Power System:

The conditions of the sub-feeders to branch panels were not reviewed (outside the scope of this visual review), but they are assumed to be suitable and may remain. The feeders should be megger tested for insulation integrity if and when renovation or new electrical work is done at any of the buildings.

The branch panels at each building are older panels of different manufacturers. If and when work is done at the buildings, it is recommended that the panels be replaced (in place), at the same time the related feeders are tested.

Existing branch circuits are assumed to be suitable and can be reconnected to the new panel boards, providing a safer overall installation.

As noted above (for the electric service switchboards), there were lots of electrical clearance code violations noted, where the code required 3 feet of frontal clearance was obstructed by boxes, cleaning equipment, or other Storage items. Proper electrical space should be provided throughout, to provide adequate and safe working space as required by code.

Interior Lighting:

The existing lighting systems are primarily fluorescent T8 sources with electronic ballasts.

Lighting controls consist of local wall switches only, without occupancy sensors or daylighting controls. Current code would require substantially better controls, to include dimmers, photo-sensors for daylight sensing, occupancy sensors, and digital room controllers to provide the local control brain for each room. Any spaces that will have their lighting upgraded through the DSA process in the future, will require these controls, as well as LED light sources, in order to meet current Title 24 requirements. Spaces that are left as-is, will not trigger controls or lighting upgrades.

Exterior Lighting:

Exterior lighting is barely adequate, according to staff. Improvements should be made to provide more uniform and safe/secure lighting for night time events. The exterior controls currently consist of a mix of time clock and photocell controls. These should be consolidated into one central system, with one astro-dial time clock, if possible.

Emergency Lighting:

Overall emergency lighting systems are old and no longer operational. The systems in the Hallways were once connected to central emergency battery units, but these are no longer operational. Only some fluorescent fixtures in Hallways have been provided with integral emergency ballasts, leaving spotty coverage and some areas without coverage.

Exit signs are mostly adequate (as far as locations), but many are old. New LED Exit signs should be provided to replace each existing sign.

Future upgrades will require emergency lighting additions to provide 1 foot candle average in the designated paths of egress, including exterior areas that provide passage to the public right of way or safe dispersal area.

Telephone / Data / CATV Systems:

Telephone:

The telephone service to the Campus is located at an MPOE at the District Office in Building G, with a telephone PBX at the MDF Closet on the 3rd floor of Building G. The Middle School service is still conventional analog phone service, compared to the Elementary Schools that have Voice over IP (VoIP). The intent is to transition to VoIP service at the Middle School.

Data:

The data system head-end is currently located at the MDF Closet at the 3rd Floor of Building G. The MDF room is currently rather small and could benefit from expansion, to allow easier access, more space for IT staff, and more space and clearance for server equipment.

Despite the cramped MDF room, the data system is currently in reasonable shape, according to Staff, and includes adequate fiber (to each building) and horizontal station cabling (in each building), to serve the current IT needs.

Most of the horizontal cabling was upgraded to Category 6 cabling within the last year and half, however, some older Cat 5 cabling still exists in various areas. Site-wide fiber was upgraded to

10GB compatible single mode fiber, which can provide adequate bandwidth for some time to come.

There are many Wi-Fi routers deployed throughout the School and all are Power-Over-Ethernet (POE), to avoid additional power outlet requirements at the Wi-Fi locations.

Cable TV:

The cable TV system is no longer in use and much of the cabling has been removed. While there are TV's in many of the Classrooms, they are only used for local media content, displayed locally in the room. Since video and related media content can now be transmitted over the data network, co-axial cabling is no longer required.

Classroom AV Systems:

The Campus standard for AV and Speaker / Bell / PA system is Front Row (formerly Calypso). This incorporates a head-end software platform that networks each Classroom system together, to allow PA paging, as well as central control and monitoring of the AV and speaker systems in each room. The network connection is accomplished over the data network, with one drop per Classroom dedicated to the AV system. There is a central microphone and PC for the software system located at the Reception area in the High School Admin Office.

This system allows emergency all-call paging and messaging to all locations on Campus, however, it should be noted that the new CBC voice evacuation requirements for School occupancies requires a CSFM listed system to deliver the code required voice notifications (see Fire Alarm below). The Front Row system is not listed for this use (to meet CBC 907.5), but can certainly be used for any announcements at any time.

Most of the Classrooms have been provided with the Calypso / Front Row AV system, to allow media input at the Classroom, to be displayed on the local projector systems.

It was reported by Staff that the older round traditional Classroom speakers are no longer in service. These could be removed during any renovation work.

There are newer Bogen speakers in the Hallways, which have been retained and integrated into the Front Row system with an amplifier module, allowing these units to process the Front Row PA and bell signals.

Central Clock Systems:

The Middle School currently has a Simplex 120V synchronous clock system.

Future renovations should transition to a wireless clock standard, by American Time & Signal, similar to what is installed at the Elementary Schools.

Security Systems:

Some of the spaces in selected buildings include some intrusion detection with local motion sensors and door contacts. There is currently no main security system or access control system.

Future renovations may choose to add a central intrusion detection system, as well as access controls, with card access readers and related electric door locks and/or strikes.

Fire Alarm System:

The campus fire alarm system was upgraded about 5 years ago to a Notifier system, which is networked with the FACP at the High School Admin Office. The FACP for the Middle School is located at the Middle School Admin Office.

There is a water leakage problem in the Basement Electric Room, by the main switchboard, which currently drips water into one of the Fire Alarm Panels, which is covered with plastic for protection. This condition should be remedied.

The existing system at the Middle School are all horn/strobe devices with full smoke detector coverage, per recent code (prior to the 2013 CBC). Newer renovations will require speaker/strobe devices with audio capability, to allow voice evacuation messages, per 2013 CBC 907.5. This will require the addition of an audio amplifier panel at each building, with additional speaker wiring at each building and audio trunk wiring across the site.

Staff reported that the fire alarm upgrade project of 5 years ago included wiring the code required elevator interface modules for shunt-trip and recall functions, however, the modules were not connected at Bldg. 500, since the system lacked the proper capability. When future renovations are undertaken, the elevator requirements should be completed and connected, to include recall and shunt trip functions, where they do not currently exist.

According to staff, the existing elevators functions are as follows:

500 Building Has recall, but no shunt trip.

If you have any questions or comments on the information presented above, please feel free to call.

Sincerely,



Pieter Colenbrander, P.E.
O'Mahony & Myer



O'MAHONY & MYER
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San Rafael, California
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David Orgish



December 9, 2015

Quattrocchi Kwok Architects

636 Fifth Street
Santa Rosa, CA 95404

Attn.: Kevin Chapin

Re: Beach Elementary School
Electrical / Lighting / Signal Systems Conditions Assessment

Dear Kevin,

O'Mahony & Myer visited the Beach Elementary School site on December 4th, 2015. The purpose of our visit was to visually review the existing electrical, lighting, and signal systems, to establish their condition and their ability to support future use and expansion.

In summary, the existing electrical and lighting systems at the School are all functional. The power, lighting, telecom, fire alarm, and AV / PA / Clock / Speaker systems have all been upgraded in the recent past and all are functioning well.

The following report summarizes our findings at the Beach ES Campus:

Electrical Service:

The existing main electric service at the School is located indoors at the North corner of the site. It is rated 800 Amps, 120/208V, 3-Phase (manufactured by Challenger), and is fed by a pad mounted transformer at adjacent Lake Ave.

This switchboard appears relatively new and is in good shape.

As noted below (as it applies to other locations at the campus as well), there are some clearance issues with music equipment and chairs that are stored directly in front of this switchboard. This should be addressed for safety.

The PG&E meter is not a Smart Meter, as on the other Campuses. If available, PG&E historic electric demand readings will be required to establish if there is adequate spare capacity on this service to add new loads such as air-conditioning.

The switchboard has some physical space to add new loads. If additional AC loads were to be added, new sub-feeders could be extended from the service board to selected locations for AC system distribution panels.

Staff indicated that there is some interest in providing solar photovoltaic systems for the School. Since the Federal Tax incentives and Net Metering regulations currently expire at the end of 2016, there would be some urgency to this decision, if it is deemed possible. In order to benefit from the current legislation, the systems would need to be operational by the end of 2016.

Distribution / Branch Power System:

The distribution equipment has been recently upgraded with newer panels that appear to be in good shape. The conditions of the feeders were not reviewed (outside the scope of this visual review), but they are assumed to be suitable and may remain. The feeders should be megger tested for insulation integrity if and when renovation or new electrical work is done at any of the buildings.

The branch panel boards have generally been upgraded to newer panels and these are also suitable for future and ongoing use.

Existing branch circuits are assumed to be suitable, based on the more recent renovations.

Despite the recent renovations, as with the other Schools, there were lots of electrical clearance code violations noted, where the code required 3 feet of frontal clearance was obstructed by boxes, cleaning equipment, or other Storage items. Proper electrical space should be provided throughout, to provide adequate and safe working space as required by code.

Future Portable Classroom Building:

There are plans to add a new portable Classroom building at the West side of the site on the black-top. Depending on the location chosen, there appears to be adequate electrical capacity for a new 960 square foot building, that could be served from existing Panel L7 at the South Wing Janitor / Roof Access Closet.

Alternately, if the unit was located further to the North on the black-top, an extension could be fed from the existing main switchboard.

Interior Lighting:

Lighting fixtures were upgraded in the recent modernizations, and consist of T8 lamps with electronic ballasts.

Lighting Controls:

Lighting controls have been upgraded in the recent renovations to what was current Title 24 requirements at the time, with occupancy sensors, multi-level switching, and time clock relay controls for common and exterior areas.

Current code would require more controls, to include dimmers, photo-sensors for daylight sensing, digital occupancy sensors, and digital room controllers to provide the local control brain for each room.

Staff indicated that they would like to be able to control both the Mechanical Energy Management System (EMS) and Lighting Controls from one source. If and when more current lighting controls are added, this integration will be easier, since the new digital controls can be networked over the data system.

Exterior Lighting:

Exterior lighting appears adequate, including relay controls on a Leviton time clock system. No significant areas of lacking lighting were noted.

Emergency Lighting:

Emergency lighting has been provided with integral battery ballasts in selected fixtures, as well as some remote lamp head units with battery packs and a central inverter system. The coverage is assumed to be adequate based on the codes during the last renovation, circa 2013.

Exit signs were also replaced in the last renovation, and consist of LED style units with integral batteries or inverter connections. Coverage appears to be adequate.

Telephone / Data / CATV Systems:

Telephone:

Telephone systems were upgraded in the last renovations and appear to be Voice over IP (VoIP) based, with adequate and modern wiring systems that can be used for some time to come.

Data:

The data system is currently in reasonable shape, and includes adequate fiber (to each building) and horizontal station cabling (in each building), to serve the current IT needs.

The School would like to add a self-owned fiber line from the School to the nearby District Office, in order to save the ongoing leased-line costs for the utility company fiber that currently connects the site. A raceway currently exists at the exterior utility pole on the North/West side of the site, which can be used to transition into the building for new fiber. Additional off-site fiber lines will need to be worked out with the utility companies.

There are many Wi-Fi routers deployed throughout the School and all are Power-Over-Ethernet (POE), to avoid additional power outlet requirements at the Wi-Fi locations.

Cable TV:

The cable TV system is no longer in use and much of the cabling has been removed. Since video and related media content can now be transmitted over the data network, co-axial cabling is no longer required.

Classroom AV Systems:

The Campus standard for AV and Speaker / Bell / PA system is Front Row (formerly Calypso). This incorporates a head-end software platform that networks each Classroom system together, to allow PA paging, as well as central control and monitoring of the AV and speaker systems in each room. The network connection is accomplished over the data network, with one drop per Classroom dedicated to the AV system. There is a central microphone and PC for the software system located at the Reception area in the Admin Office.

This system allows emergency all-call paging and messaging to all locations on Campus, however, it should be noted that the new CBC voice evacuation requirements for School occupancies requires a CSFM listed system to deliver the code required voice notifications (see Fire Alarm below). The Front Row system is not listed for this use (to meet CBC 907.5), but can certainly be used for any announcements at any time.

Each Classroom has been provided with the Calypso / Front Row AV system, to allow media input at the Classroom, to be displayed on the local projector systems. Projectors are primarily ceiling mounted.

It was reported by Staff that the older round traditional Classroom speakers are no longer in service. These could be removed during any renovation work.

There are speakers in the Hallways, which have been retained and integrated into the Front Row system with an amplifier module, allowing these units to process the Front Row PA and bell signals as well.

Central Clock Systems:

The school currently has wireless American Time & Signal clocks, with batteries. No clock wiring is required at the campus. All clocks are synchronized through a wireless system from a time signal that originates from the Front Row / Calypso system head-end.

No changes to the clock system are required.

Security Systems:

There is a local security intrusion detection system with local motion sensors and door contacts in selected areas. The system includes a keypad at the front Admin Entry and it is monitored by First Alarm Monitoring.

Future renovations may choose to add a central access control system, with card access readers and related electric door locks and/or strikes.

Fire Alarm System:

The campus fire alarm system was upgraded in the recent past to a Notifier system. The main FACP is located at the Admin Office and is monitored by First Alarm Monitoring Company.

The system is functioning normally.

The existing system uses horn/strobe notification with manual pull stations and smoke detection throughout all areas.

The system also includes magnetic door holders at the Classroom doors, in the rated Corridors.

Any subsequent renovations will require newer speaker/strobe devices with audio capability, to allow voice evacuation messages, per 2013 CBC 907.5. This will require the addition of an audio amplifier panel at each building, with additional speaker wiring at each building and audio trunk wiring across the site. No changes will be triggered unless renovation done in a certain area. If renovation occurs, only the renovated areas will be required to be upgraded to speaker/strobes.

If you have any questions or comments on the information presented above, please feel free to call.

Sincerely,



Pieter Colenbrander, P.E.
O'Mahony & Myer



O'MAHONY & MYER
ELECTRICAL ENGINEERING & LIGHTING DESIGN

San Rafael, California
Pacific Harbour, Fiji

Brian O'Mahony
Jan P. Myer
Paul Carey
Pieter Colenbrander
David Orgish



December 8, 2015

Quattrocchi Kwok Architects

636 Fifth Street
Santa Rosa, CA 95404

Attn.: Kevin Chapin

Re: Havens Elementary School
Electrical / Lighting / Signal Systems Conditions Assessment

Dear Kevin,

O'Mahony & Myer visited the Havens Elementary School site on December 4th, 2015. The purpose of our visit was to visually review the existing electrical, lighting, and signal systems, to establish their condition and their ability to support future use and expansion.

In summary, the existing electrical and lighting systems at the School are all functional. The power, lighting, telecom, fire alarm, and AV / PA / Clock / Speaker systems have all been upgraded in the recent past and all are functioning well.

The following report summarizes our findings at the Havens ES Campus:

Electrical Service:

The existing main electric service at the School is located in an outdoor enclosure at the West side of the site, near the play yard. It is rated 1,600 Amps, 120/208V, 3-Phase (manufactured by Siemens), and is fed by an underground PG&E transformer vault from adjacent Bonita Ave.

This switchboard was installed within the last 5 years and is in good shape. PG&E historic electric demand readings will be required to establish if there is adequate spare capacity on this service to add new loads such as air-conditioning. The meter number is PG&E Smart Meter #5000118716. Based on the current demand, as listed on the meter on the day of our visit, there appears to be ample capacity. This will need to be verified with historical readings.

The switchboard has plenty of physical space to add new loads. If additional AC loads were to be added, new sub-feeders could be extended from the service board to selected locations for AC system distribution panels.

Staff indicated that there is some interest in providing solar photovoltaic systems for the School. Since the Federal Tax incentives and Net Metering regulations currently expire at the end of 2016, there would be some urgency to this decision, if it is deemed possible. In order to benefit from the current legislation, the systems would need to be operational by the end of 2016.

Distribution / Branch Power System:

There are only (4) building feeders served by the main switchboard, with plenty of space for additional future feeders. The conditions of the feeders were not reviewed (outside the scope of this visual review), but they are assumed to be suitable and may remain, based on their recent installed age. The feeders should be megger tested for insulation integrity if and when renovation or new electrical work is done at any of the buildings.

The branch panels at each building have generally been upgraded to newer panels and these are suitable for future and ongoing use. There are a few older panels still remaining (at Mechanical and/or Janitor Rooms) and these should be replaced when any future renovations are performed.

Existing branch circuits are assumed to be suitable, based on the more recent renovations.

Despite the recent renovations, there were lots of electrical clearance code violations noted, where the code required 3 feet of frontal clearance was obstructed by boxes, cleaning equipment, or other Storage items. Proper electrical space should be provided throughout, to provide adequate and safe working space as required by code.

Interior Lighting:

Lighting fixtures were upgraded in the recent modernizations, and consist of T8 lamps with electronic ballasts.

Lighting Controls:

Lighting controls have been upgraded in the recent renovations to what was current Title 24 requirements at the time, with occupancy sensors, multi-level switching, and time clock relay controls for common and exterior areas.

Current code would require more controls, to include dimmers, photo-sensors for daylight sensing, digital occupancy sensors, and digital room controllers to provide the local control brain for each room.

Staff indicated that they would like to be able to control both the Mechanical Energy Management System (EMS) and Lighting Controls from one source. If and when more current lighting controls are added, this integration will be easier, since the new digital controls can be networked over the data system.

Exterior Lighting:

Exterior lighting was upgraded recently, including relay controls on a Leviton time clock system. No significant areas of lacking lighting were noted.

Emergency Lighting:

Emergency lighting has been provided with integral battery ballasts in selected fixtures, as well as some remote lamp head units with battery packs. The coverage is assumed to be adequate based on the codes during the last renovation, circa 2010.

Exit signs were also replaced in the last renovation, and consist of LED style units with integral batteries. Coverage appears to be adequate.

Telephone / Data / CATV Systems:

Telephone:

Telephone systems were upgraded in the last renovations and appear to be Voice over IP (VoIP) based, with adequate and modern wiring systems that can be used for some time to come.

Data:

The data system is currently in reasonable shape, and includes adequate fiber (to each building) and horizontal station cabling (in each building), to serve the current IT needs.

The School would like to add a self-owned fiber line from the School to the nearby District Office, in order to save the ongoing leased-line costs for the utility company fiber that currently connects the site.

There are many Wi-Fi routers deployed throughout the School and all are Power-Over-Ethernet (POE), to avoid additional power outlet requirements at the Wi-Fi locations.

Cable TV:

The cable TV system is no longer in use and much of the cabling has been removed. Since video and related media content can now be transmitted over the data network, co-axial cabling is no longer required.

Classroom AV Systems:

The Campus standard for AV and Speaker / Bell / PA system is Front Row (formerly Calypso). This incorporates a head-end software platform that networks each Classroom system together, to allow PA paging, as well as central control and monitoring of the AV and speaker systems in each room. The network connection is accomplished over the data network, with one drop per Classroom dedicated to the AV system. There is a central microphone and PC for the software system located at the Reception area in the Admin Office.

This system allows emergency all-call paging and messaging to all locations on Campus, however, it should be noted that the new CBC voice evacuation requirements for School occupancies requires a CSFM listed system to deliver the code required voice notifications (see Fire Alarm below). The Front Row system is not listed for this use (to meet CBC 907.5), but can certainly be used for any announcements at any time.

Each Classroom has been provided with the Calypso / Front Row AV system, to allow media input at the Classroom, to be displayed on the local projector systems. Projectors are primarily ceiling mounted.

It was reported by Staff that the older round traditional Classroom speakers are no longer in service. These could be removed during any renovation work.

There are speakers in the Hallways, which have been retained and integrated into the Front Row system with an amplifier module, allowing these units to process the Front Row PA and bell signals as well.

Central Clock Systems:

The school currently has wireless American Time & Signal clocks, with batteries. No clock wiring is required at the campus. All clocks are synchronized through a wireless system from a time signal that originates from the Front Row / Calypso system head-end.

No changes to the clock system are required.

Security Systems:

There is a local security intrusion detection system with local motion sensors and door contacts in selected areas. The system includes a keypad at the front Admin Entry and it is monitored by First Alarm Monitoring.

Future renovations may choose to add a central access control system, with card access readers and related electric door locks and/or strikes.

Fire Alarm System:

The campus fire alarm system was upgraded in the recent past to a Notifier system. The main FACP is located at the Admin Office.

The system is functioning normally, but Staff noted that many exterior FA devices and connections at this School suffer from ground fault problems that are then reported on the main FACP. This is most likely due to poor wiring splice connections or intrusion of water into the jacketed cable near the splices.

The existing system uses horn/strobe notification with manual pull stations and smoke detection throughout all areas.

While magnetic door holders at the Classroom doors are not required by code for this occupancy, the Staff has indicated that the local Fire Marshal has suggested that these be added in the future, due to the rated Corridor walls, similar to what exists at the other Elementary Schools.

Any subsequent renovations will require newer speaker/strobe devices with audio capability, to allow voice evacuation messages, per 2013 CBC 907.5. This will require the addition of an audio amplifier panel at each building, with additional speaker wiring at each building and audio trunk wiring across the site. No changes will be triggered unless renovation done in a certain area. If renovation occurs, only the renovated areas will be required to be upgraded to speaker/strobes.

The School has a 2-stop elevator and it has been provided with the required fire alarm interface features for recall and shunt trip functions.

If you have any questions or comments on the information presented above, please feel free to call.

Sincerely,



Pieter Colenbrander, P.E.
O'Mahony & Myer



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December 8, 2015

Quattrocchi Kwok Architects

636 Fifth Street
Santa Rosa, CA 95404

Attn.: Kevin Chapin

Re: Wildwood Elementary School
Electrical / Lighting / Signal Systems Conditions Assessment

Dear Kevin,

O'Mahony & Myer visited the Wildwood Elementary School site on December 4th, 2015. The purpose of our visit was to visually review the existing electrical, lighting, and signal systems, to establish their condition and their ability to support future use and expansion.

In summary, the existing electrical and lighting systems at the School are all functional. The power, lighting, telecom, fire alarm, and AV / PA / Clock / Speaker systems have all been upgraded in the recent past and all are functioning well.

The following report summarizes our findings at the Wildwood ES Campus:

Electrical Service:

The existing main electric service at the School is located in an outdoor enclosure at the South side of the site, next to the building. It is rated 800 Amps, 120/208V, 3-Phase (manufactured by Cuttler Hammer), and is fed by a pad mounted transformer located on Wildwood Ave (just adjacent to the board, below the retaining wall).

This switchboard is not of a very new vintage, and shows some signs of rusting on the enclosure, but otherwise appears to be in reasonable shape. It only includes a single 800A main circuit breaker that then feeds into a Distribution panel inside the building.

The PG&E meter is not a Smart Meter, as on the other Campuses, but does show peak demand data. If available, PG&E historic electric demand readings will be required to establish if there is adequate spare capacity on this service to add new loads such as air-conditioning.

Since the switchboard does not have space for additional sub-feeders, if additional AC loads were to be added, new sub-feeders could be extended from the interior distribution panel to selected locations for AC system equipment.

Staff indicated that there is some interest in providing solar photovoltaic systems for the School. Since the Federal Tax incentives and Net Metering regulations currently expire at the end of 2016, there would be some urgency to this decision, if it is deemed possible. In order to benefit from the current legislation, the systems would need to be operational by the end of 2016.

Distribution / Branch Power System:

The distribution equipment has been recently upgraded with newer panels that appear to be in good shape. The conditions of the feeders were not reviewed (outside the scope of this visual review), but they are assumed to be suitable and may remain. The feeders should be megger tested for insulation integrity if and when renovation or new electrical work is done at any of the buildings.

The branch panel boards have generally been upgraded to newer panels and these are also suitable for future and ongoing use.

Existing branch circuits are assumed to be suitable, based on the more recent renovations.

Despite the recent renovations, as with the other Schools, there were lots of electrical clearance code violations noted, where the code required 3 feet of frontal clearance was obstructed by boxes, cleaning equipment, or other Storage items. Proper electrical space should be provided throughout, to provide adequate and safe working space as required by code.

There is a buzzing electrical contactor coil at the stage of the Theater space. This unit should be replaced with a new unit, which should make the noise disappear.

Future Classroom Use at Field House Building:

There are plans to utilize some of the space at the existing Field House building at the lower play yard area for Classroom use. There is currently only a small electrical feeder routed to the Field House, which would most likely need to be upgraded if this building were to be utilized for Classroom use, including the existing Bathrooms and Garden Storage.

The existing electrical feeder to the Field House would need to be upgraded to provide the additional capacity.

The building does include Fire Alarm coverage, so the existing Fire Alarm wiring could be utilized to serve the new use.

Interior Lighting:

Lighting fixtures were upgraded in the recent modernizations, and consist of T8 lamps with electronic ballasts.

Lighting Controls:

Lighting controls have been upgraded in the recent renovations to what was current Title 24 requirements at the time, with occupancy sensors, multi-level switching, and time clock relay controls for common and exterior areas.

Current code would require more controls, to include dimmers, photo-sensors for daylight sensing, digital occupancy sensors, and digital room controllers to provide the local control brain for each room.

Staff indicated that they would like to be able to control both the Mechanical Energy Management System (EMS) and Lighting Controls from one source. If and when more current lighting controls are added, this integration will be easier, since the new digital controls can be networked over the data system.

Exterior Lighting:

Exterior lighting was upgraded recently, including relay controls on a Leviton time clock system and some motions sensors. The only area that was noted as currently lacking sufficient lighting was the pathway from the main level of the School, down to the play area and Sports Field area. Addition lighting should be added at this location to provide a safer environment after dark.

Emergency Lighting:

Emergency lighting has been provided with integral battery ballasts in selected fixtures, as well as some remote lamp head units with battery packs and a central inverter system. The coverage is assumed to be adequate based on the codes during the last renovation, circa 2012.

Exit signs were also replaced in the last renovation, and consist of LED style units with integral batteries or inverter connections. Coverage appears to be adequate.

Telephone / Data / CATV Systems:

Telephone:

Telephone systems were upgraded in the last renovations and appear to be Voice over IP (VoIP) based, with adequate and modern wiring systems that can be used for some time to come.

Data:

The data system is currently in reasonable shape, and includes adequate fiber (to each building) and horizontal station cabling (in each building), to serve the current IT needs.

This campus currently has its own dedicated District-owned fiber line from the campus to the nearby District Office.

There are many Wi-Fi routers deployed throughout the School and all are Power-Over-Ethernet (POE), to avoid additional power outlet requirements at the Wi-Fi locations.

Staff noted that air conditioning is required in the IT / Theater AV Room, which gets hot during periods of hot weather.

Cable TV:

The cable TV system is no longer in use and much of the cabling has been removed. Since video and related media content can now be transmitted over the data network, co-axial cabling is no longer required.

Classroom AV Systems:

The Campus standard for AV and Speaker / Bell / PA system is Front Row (formerly Calypso). This incorporates a head-end software platform that networks each Classroom system together, to allow PA paging, as well as central control and monitoring of the AV and speaker systems in each room. The network connection is accomplished over the data network, with one drop per Classroom dedicated to the AV system. There is a central microphone and PC for the software system located at the Reception area in the Admin Office.

This system allows emergency all-call paging and messaging to all locations on Campus, however, it should be noted that the new CBC voice evacuation requirements for School occupancies requires a CSFM listed system to deliver the code required voice notifications (see Fire Alarm below). The Front Row system is not listed for this use (to meet CBC 907.5), but can certainly be used for any announcements at any time.

Each Classroom has been provided with the Calypso / Front Row AV system, to allow media input at the Classroom, to be displayed on the local projector systems. Projectors are primarily ceiling mounted.

There are speakers in the Hallways, which have been retained and integrated into the Front Row system with an amplifier module, allowing these units to process the Front Row PA and bell signals as well.

The system at this School, suffers from some grounding issues that seem to cause a buzzing noise through the AV system speakers in some of the rooms. This may be due to the improper neutral-ground bonding at some of the panelboards. The only location that the neutral and ground should be bonded on a 120/208V system is at the main service entrance panel (per code). No other neutral and ground wires should be landed on the same bus or tied together in any fashion, after the main service panel. Any inadvertent bond conditions are difficult to find, but can be located using proper methods, starting at the main service and looking inward to the school, with the neutral test link removed at the main service.

Central Clock Systems:

The school currently has wireless American Time & Signal clocks, with batteries. No clock wiring is required at the campus. All clocks are synchronized through a wireless system from a time signal that originates from the Front Row / Calypso system head-end.

No changes to the clock system are required.

Security Systems:

There is a local security intrusion detection system with local motion sensors and door contacts in selected areas. The system includes a keypad at the front Admin Entry and it is monitored by Guardian Alarm Monitoring Company.

Future renovations may choose to add a central access control system, with card access readers and related electric door locks and/or strikes.

Fire Alarm System:

The campus fire alarm system was upgraded in the recent past to a Notifier system. The main FACP is located at the Admin Office and is monitored by First Alarm Monitoring Company.

The system is functioning normally.

The existing system uses horn/strobe notification with manual pull stations and smoke detection throughout all areas.

The system also includes magnetic door holders at the Classroom doors, in the rated Corridors.

Any subsequent renovations will require newer speaker/strobe devices with audio capability, to allow voice evacuation messages, per 2013 CBC 907.5. This will require the addition of an audio amplifier panel at each building, with additional speaker wiring at each building and audio trunk wiring across the site. No changes will be triggered unless renovation done in a certain area. If renovation occurs, only the renovated areas will be required to be upgraded to speaker/strobes.

If you have any questions or comments on the information presented above, please feel free to call.

Sincerely,



Pieter Colenbrander, P.E.
O'Mahony & Myer

MECHANICAL ASSESSMENT
PIEDMONT SCHOOL DISTRICT

Costa Engineers, Inc.
3274 Villa Lane, Napa, CA 94558
(707) 252-9177

The project team met with the PUSD Director of Facilities, Pete Palmer, on site at Piedmont High School August 12, and on November 17th 2015. Costa Engineers' scope included examining the HVAC, plumbing, and fire protection for Piedmont High School, Millennium High, Piedmont Middle School, Havens Elementary School, Wildwood Elementary School, Beach Elementary School and the Piedmont Unified School District Office.

Building and System Rankings

5. Very Good: Building is in very good condition, having few building components in need of repair or replacement.
4. Good: Building is in good condition, having certain building components in need of repair or replacement. Work required ranges from typical maintenance to minimal minor renovations.
3. Average: Building is in acceptable condition, with limited and specific building systems in need of repair or replacement. In order to bring back to full operating condition, moderate renovation is required.
2. Fair: Building is in fair condition, with several building systems in need of repair or replacement. In order to bring back to full operating condition, comprehensive modernization of the building is required.
1. Poor: Building is in poor condition, with several major building systems requiring complete overhaul. Cost of renovations required to bring building back to full operating condition may justify complete replacement in lieu of major renovation.

Facilities Assessment

PIEDMONT HIGH SCHOOL

20's Building E (Math and Science) and 10's Building D (Administration Offices) RANK 1

Mechanical

The existing rooftop heat pump units are ineffective. The attic space above the corridor is a return air plenum, which is not allowed according to current standards. Supply air ducts are constructed of fiberglass duct board and are damaged. In each class room the side wall supply air and return air registers are at the same elevation and are fairly close together. There is one thermostat serving three to four classrooms. There are unacceptably loud exposed exhaust fans in several rooms.

These two building's mechanical systems are in poor condition.

Recommendations

Replace existing heat pumps with new. Install new sheet metal supply air and return air ducts to each zone, thus eliminating return air plenum over corridor. Add exposed supply air ductwork into each class room for more effective air distribution. Add variable air volume (VAV) boxes for each classroom for individual room control. Add controls and economizer to rooftop unit to control outside air and exhaust air where gas turrets are present. Add new exhaust fans with sound attenuator. Add central controls for entire facility. Add CO2 sensors for demand control ventilation.

20's Building E (Math and Science) RANK 1

Fire Protection

During the tour of building E (Math and Science) we found that the building does not have a fire protection system.

Recommendations

Install a new fire protection system and any modernization to this building will include fire protection.

30's Building A (Quad/Library) RANK 1

Mechanical

Building A is served by two types of HVAC systems; the heating system consist of a problematic ageing steam boiler and cast iron steam radiators for the original portion of the building. The controls are adjustable knobs on the inlet of the radiators and the ventilation system is achieved via natural ventilation through operable windows.

There are gas/electric units located on the roof of the building that condition the newer portion of the building. The Mechanical system is in average condition while the original portion of the building is in poor condition.

Recommendations

Replace the steam boiler and cast iron radiators with hydronic boiler and unit ventilators in each classroom. Given that this portion of the building is of concrete construction, modifications ultimately may be challenging.

Although the condition of the mechanical system in the newer portion of the building is average, the location of the plumbing and exhaust vents do not meet current code requirements. Relocation of the plumbing and exhaust vents are required per current standards.

Install district wide direct digital control system to be controlled by a centralized system.

Building C (ALAN HARVEY THEATER/ADULT ED) RANK 1

Mechanical Systems/plumbing systems

The building's existing mechanical systems have exceeded their useful life. This includes, roof mounted a/c units, ductwork, supports, registers, and grilles, controls, all associated appurtenances.

Recommendations

Provide new mechanical systems consisting of high efficiency single zone, roof mounted, gas fired, DX cooled, unitary packaged A/C units. All systems will be traditional overhead mixing systems.

Millennium High School

40's Building G (Millennium High/Dist. Offices) RANK 1

Mechanical

The heating systems, located in the ceiling, consists of air handlers with a hot water loop. Both the air handling units and the boiler serving building G are outdated, inefficient, and difficult to maintain. The Bottom Floor Server room has no cooling.

Recommendations

Install cooling to the Server room. Replace boiler with new high efficiency condensing boiler. Replace air handling units with more up to date models to meet today's standards.

Building F (William "Binks" Gym) RANK 1

Mechanical

The gym located in Building F is not getting proper cooling and ventilation. There is an 800 domestic hot water tank is no longer required. Existing fans located inside the men's and women's locker rooms are not exhausting enough air out of the space.

Recommendations

Replace existing boiler with more efficient boiler. Remove the 800 DHW tank. Replace existing fans in Men's and Women's locker room to increase ventilation. Separate heating hot water and domestic hot water systems. Size as needed domestic water heater.

PIEDMONT MIDDLE SCHOOL

PMS 500 Building L (Morrison Gym/Music Building) RANK 2

Mechanical

The existing mechanical system consists of a split system. The existing gas electric AC Units are providing heating and cooling to the gym. There are 3 existing heat pumps that are providing heating and cooling to the classrooms, hallway, and office area between the classrooms. There are fan coils in each room. There are 2 existing gas heaters servicing the locker rooms. There is also 1 large heat pump servicing the music room. Fan coils are located in each room. Although the equipment is in fair condition, both the AC units and Heat pumps are approaching its life cycle.

Recommendations

Replace existing AC units and heat pumps with newer more efficient equipment. This will allow for more efficient heating and cooling to the gym and class rooms.

PMS 100-300 Building HJ (Redford Gyms/Admin Offices) RANK 4

Mechanical

The Mechanical system for this building is in fairly new condition but the gas lines look like they were not replaced when all new equipment was installed. When the system was installed the VAV boxes were not hooked up properly rendering them ineffective at controlling proper air temp.

The kitchen has no primary fire protection system. Also, the kitchen hood is undersized and is located in the wrong location.

Recommendations

Rebalance air supply and add controls and pressure sensors to maintain static pressure in the spaces that will allow doors to meet ADA requirements for closing and/or opening doors. Add a centralized control so that teachers will not be able to tamper with the system causing it to be ineffective. Kitchen Hood should be located directly above the stove and sized accordingly. Replace hood with the appropriate size in order to achieve proper ventilation. Add an automatic fire extinguishing system as primary protection as well as a portable fire extinguisher as a backup in case of primary protection failure.

PMS 100-300 Building I Classrooms / Library RANK 3

Mechanical

The existing mechanical system good condition, this building has all new mechanical work from 2012. Although the system is in good/fair condition the system is not being utilized in its most efficient manner. The gas lines on the roof are extremely rusty and look they were not replaced.

The F.S. Supply room that is located near the classrooms is not achieving proper ventilation. The heat gain from the refrigerators in room is too much for the one vent inside of the storage room.

The classrooms located in building I are not getting enough Outside Air ventilation.

The existing air handling units on the roof are in fair condition and can be utilized to bring more ventilation into the system.

Recommendations

Install temperature sensors in each classroom which will allow teachers to monitor their classrooms separately. Install a centralized system will help monitor and maintain classroom temperatures and also help keep all spaces cool and ventilated properly. Also, the system needs to be rebalanced in order to make sure the building is achieving proper air handling and ventilation.

MASTER PLANNING FACILITIES ASSESSMENT
Piedmont School District

PMS 400 + MPR Building K (Science) RANK 1

Mechanical

The Mechanical system consists of a split system, 6 Heat pumps that service the class rooms, and 1 very large AC unit that services the multipurpose room. There are wet spots on the ceiling tiles from the fan coils freezing which are caused by teachers turning down the controls. There are 2 exhaust systems in the science prep room and another exhaust system that services the upstairs and downstairs bathrooms. The fan in the multipurpose room is not covered which ultimately makes the fan noise disturbingly noticeable to students and teachers which ultimately causes disruption within the room. The duct work in the classrooms within building K is inaccessible for maintenance to get to in order to service. Heat pumps for this system were manufactured in 95 and use R-22 for its fluid. R-22 is an HCFC (hydro chlorofluorocarbon) and is no longer manufactured due to its high ozone depletion potential.

Recommendations

In order to get proper cooling and heating to the classrooms a master control should be installed to replace the separate controls that the teachers have over their classrooms. This should stop the controls from being tampered with which will ultimately stop the coils from freezing, causing the ceiling tiles to get wet. Replace Fan In multipurpose room with quieter fan. Relocate systems and duct work in the classrooms in order for maintenance to be able to work on the system without interrupting classes.

The expected life cycle of the York heat pumps are 15 years, being manufactured in 95' means that the heat pumps are 5 years overdue and need to be replaced. It's recommended that the district replace this equipment with higher efficiency equipment that uses R-410a or a similar R-22 replacement refrigerant.

Fire Protection

The built in loft is covering more than 65% of the room and is obstructing the fire protection system.

Recommendations

Install another Sprinkler lower than the loft in order to achieve proper fire protection.

Haven Elementary School RANK 3

Mechanical

Each classroom has a closet furnace that provides heating, but there is no cooling associated with these classrooms. The South West portion of the two story classroom building receives a substantial amount of solar heat gain which creates an uncomfortable warm space for students and teachers. The adjacent hallway is getting too much heat gain during the day and does not have sufficient ventilation in order to pull the heat gain out of the space. At the end of the South West wing there is a kindergarten class room that has a newly installed ceiling fan, but no cooling is being provided so the room is not being ventilated properly which still makes for an uncomfortably warm room.

Recommendations

Install split system to provide cooling to the SW portion of the classrooms. Providing cooling coils for each classroom with a condenser mounted on grade will substantially cool the classrooms to a more desirable temperature. Install temperature sensors to monitor classrooms and install a centralized control for the system in order to easily maintain the temperatures in each classroom.

Install split system kindergarten room. Install fan coils in the kindergarten room and install a condensing unit outside the kindergarten room. This will provide proper cooling for the room.

Install Gabel Fans to exhaust the hallway in order to purge the excess Heat buildup.

Wildwood Elementary School RANK 2

Mechanical

There is no ventilation in the server room located next to the gym. The classrooms along the west wing of the building gets a lot of heat gain from outside and currently do not have any cooling. The boys and girls bathrooms located in the west wing part of the building are being exhausted by ageing fans which appears to have approached its life cycle. The fans are not providing proper ventilation to the bathroom spaces located in that wing.

Recommendations

Install AC to the Server Room that is next to the gym in order to cool the space. Install roof mounted AC units in order to cool the classrooms located in the west wing Wildwood. Replace existing fans in boys and girls bathrooms with more efficient fans that will allow proper air ventilation throughout the bathroom.

Beach Elementary School RANK 2

Mechanical

The Classrooms located in Beach are currently getting heating from the closet furnaces. The classrooms do not have any cooling system. Kindergarten classroom is also not getting proper cooling and ventilation due to a lack of AC.

Recommendations

Install Exhaust Fan to pull the heat gain from the server room in the kindergarten wing of the building.
Install Proper AC to the classrooms and the kindergarten classroom in order to cool the spaces.