

3.5.1.4 West School

Existing Electrical line connections at West School are presented in Figure D7.1 and D7.2.

4 Proposed Utilities

4.1 Water System

4.1.1.1 Fire Protection Water

4.1.1.1.1 New Building Services

New buildings will require a fire hydrant within 400-feet of the building (150-foot radius for the fire hydrant plus 250-foot radius for the fire engine). All new buildings will require fire sprinklers, and new connections for the sprinkler systems. Sprinklers will connect to existing or proposed fire main lines. Figures E1, E2, and E3 present fire coverage diagrams for each campus; they also show existing and proposed hydrant layouts. The Central County Fire Department fire flow requirement for HCSD campus improvements is a flow of 1,500 gallons per minute (GPM) with a residual pressure of 20 pounds per square inch (psi) from the service hydrant.

4.1.1.1.1.1 Crocker School

Four buildings and one trash enclosure are proposed for the Crocker Campus. Two future buildings are also identified on the Campus Master Plan. The proposed buildings will require installation of two new fire hydrants, one to the north of the existing gymnasium, and one to the west of the proposed CPAE. The gymnasium hydrant will allow coverage of two buildings on the Crocker campus. The hydrant west of the CPAE will provide protection for the CPAE, Art extension of the Multi-purpose building, and coverage for future buildings in the area. The proposed buildings will need to be provided with fire sprinkler connections from the main fire lines through the campus. The proposed fire service line locations are presented in Figure A3.1.

The proposed fire main line is approximately 100 feet from existing mains and places a hydrant to the west of the CPAE building. The proposed hydrant north of the gymnasium will require approximately 220 feet of new main line. The lengths, ages and types of existing fire lines shown in Figure A3.1 are presented in Table 6.1.1.

The first hydrant proposed near the CPAE building should provide a fire flow of 2400 GPM at a residual pressure of 20 psi based on fire flow analysis of the existing hydrant at the flag pole on Crocker Campus. The hydrants on the residential roadway behind the Crocker campus should be flow tested. If this system provides sufficient flow, then the proposed

hydrant for the CPAE building will be connected to this main line. To keep the two systems separate, the closed zone valve will require relocation on the downstream side of the proposed connection point.

The second hydrant proposed between North School and Crocker School buildings (north of the gymnasium) is proposed for fire protection of North School improvements, but will also serve as fire protection for the proposed CPAE building. This fire hydrant and main line connection cannot be sized at this time. Hydrant testing along New Place Road and the residential roadway behind the campus are necessary for sizing of this connection.

The Master Plan building improvements and associated modifications to the Crocker on-site fire water system do not require off-site water system improvements.

4.1.1.1.2 North School

The proposed buildings on North campus will be protected by the improvement of the proposed mainline and hydrant (north of Crocker Gymnasium) at the southwest corner of the campus. This hydrant is proposed as part of the CPAE fire protection plan on Crocker campus.

4.1.1.1.3 South School

A new hydrant is planned for protection of the proposed multipurpose building. The new hydrant and mainline will be located to the north of the existing kindergarten building.

4.1.1.1.4 West School

There are no fire protection water system improvements planned for West School.

4.1.1.2 Domestic Water Service

4.1.1.2.1 New Building Services and Known Relocations

As stated by HCSD staff, the domestic flow for each campus is adequate at this time. Since the district expects a minimal increase in student enrollment, no demand shortfalls are anticipated for any campus at this time. Proposed buildings will be connected to existing main lines as per the recommendation of the Mechanical Engineer. Where new building footprints conflict with known existing domestic service lines, rerouting is presented in the Figures.

Figures A3, B3, C3 and D3 present the proposed rerouting of domestic water lines. Replacement schedules are presented in Tables 6.1.1 and 6.1.2.

4.1.1.2.1.1 Crocker School

The proposed buildings will require water connections to the existing domestic water lines. Headlosses from water meters to existing and proposed buildings were checked indirectly via pressure gauge readings throughout each campus site. The water line relocations and sizes for the Crocker campus are presented on Figures A3.1 and A3.2. Some water and irrigation pipes will be removed for construction of proposed buildings. Approximately 2,400 feet of water and irrigation pipes are to be removed.

Pressures and flows beyond the pressure reducing valves for the domestic water supply were checked indirectly via pressure gauge readings throughout each campus site. Water lines in the area of the CPAE are expected to provide the required flows and pressures for the domestic needs of proposed buildings.

On-site improvements of the Crocker domestic water system do not generate off-site impacts.

4.1.1.2.1.2 North School

The proposed buildings will require water connections. The proposed water connections are to be connected to the existing domestic water lines. Headloss from the five (5) 2-inch meters to existing and proposed buildings were checked indirectly via pressure gauge readings throughout each campus site. The water line relocations and sizes for North campus are presented on Figures B3.1 and B3.2. Some water and irrigation pipes will be removed for the building of proposed buildings. Approximately 100 feet of water and irrigation pipes are to be removed.

Water lines in the area of the multipurpose building are expected to provide the required flows and pressures for the domestic needs of this building. The other proposed building are not expected to require domestic water service.

On-site improvements of the Crocker domestic water system do not generate off-site impacts.

4.1.1.2.1.3 South School

The proposed multipurpose building will require a water connection. The proposed water connection is to be connected to the existing domestic water lines. Headloss from the two (2) 2-inch meters to existing and proposed buildings were checked indirectly via pressure gauge readings throughout each campus site. The water line improvements for South campus are presented on Figure C3.1.

Water lines in the area of the proposed multipurpose building are expected to provide the required flows and pressures for the domestic needs of this building.

On-site improvements of the South School domestic water system do not generate off-site impacts.

4.1.1.2.1.4 West School

The proposed buildings will require water connections. The proposed water connections are to be connected to the existing domestic water lines. Headloss from the 3-inch meter to existing and proposed buildings are yet to be determined. The water line improvements for South campus are presented on Figure D3.1.

Water lines in the vicinity of the proposed classrooms and Office/Exploratorium buildings are expected to provide the required flows and pressures for the domestic needs of these building.

On-site improvements of the Crocker domestic water system do not generate off-site impacts.

4.1.1.2.2 Off-Site System Capacity Impacts

Metered domestic water service is currently provided at all school sites. Since only a small increase in the student population is expected over the course of the proposed improvements, no additional domestic water service demand is anticipated.

4.2 Sanitary Sewer System

4.2.1 Off-Site System Capacity Impacts

Table 4 in the Crocker Appendix presents on-site sanitary sewer flow calculations for the campus system. Since only a small increase in the student population is expected over the course of the proposed improvements, no additional sanitary sewer demand is anticipated. An inventory and replacement schedule is presented in Table 6.2.

4.2.2 New Building Services and Known Relocations

4.2.2.1 Crocker School

The proposed CPAE and Office buildings will require sanitary sewer connections. Based on the Master Plan program, the other proposed buildings are not anticipated to require Sanitary Sewer connections. Relocation of sewer lines are not proposed for the Crocker Middle School Campus.

The existing and proposed sanitary sewer lines in the area of the Office and CPAE buildings are expected to provide the required flow capacity needed for these proposed buildings.

Sizes and locations of proposed connections are presented in Figure A4.1.

4.2.2.2 North School

The proposed multipurpose building will require a sanitary sewer connection. The proposed Lab for the Library is not anticipated to require a new sewer connection. If a new connection is proposed, the Mechanical Engineer will size and locate the proposed connection. Existing sanitary sewer lines will need to be relocated in the vicinity of the proposed buildings. A new sewer line of approximately 170 feet is proposed for North Campus.

4.2.2.3 South School

The proposed multipurpose building will require a sanitary sewer connection. Existing sanitary sewer lines do not require relocation.

4.2.2.4 West School

The proposed Office and Exploratorium will require sanitary sewer connection. The proposed classrooms are anticipated to require sewer connection to conform with existing classrooms. Approximately 460 feet of existing sanitary sewer lines require relocation.

4.3 Storm Drain System

4.3.1 New Building Services and Known Relocations

Figure 5 for each campus shows the existing and proposed campus improvements. The land types and areas are also presented in each Figure.

An inventory of storm drains and a replacement schedule is presented in Table 6.3.

4.3.1.1 Crocker School

The Storm Drain system at Crocker has no pipes that will overtop during a 100-year event. The only changes recommended to the existing storm drain system are due to proposed building locations. A detention volume of about 1800 cubic feet is proposed for the purpose of detaining any peak storm event increases. Best Management Practices (BMPs) to mitigate increases in impervious surface are listed in Section 4.3.2.

Four existing pipe systems will need to be relocated due to proposed building placement. The new storm system pipes are recommended for the proposed corridors between buildings and the new parking and entry ways for the campus. Pipe sizes for the proposed CPAE were determined using expected flows for the 100-year event. Proposed pipes are HDPE smooth interior pipes.

The results for the StormCAD analysis for the Crocker Campus are presented in Tables 5.1.1-5.1.2 existing system and 5.2.1-5.2.2 for the proposed system.

The proposed improvements to the Crocker Campus will generate an increase in runoff from the site. The calculated runoff for the site is presented in Table 5.2.2. There is expected to be a 1 cfs increase of total peak runoff from the Crocker Campus. This volume of runoff that will require detention is calculated to be approximately 1,800 cubic feet (.04 acre-feet). This runoff volume will be detained either onsite or on North School fields immediately adjacent to Crocker School. With detention of 1,800 cubic feet of runoff, no net increase to the offsite system is expected.

4.3.1.2 North School

The increase in impervious area from proposed Master Plan improvements will increase stormwater runoff. Mitigation for this increase in runoff due is proposed in the form of a Bioswale. The exact configuration of the Bioswale will be determined as the site improvements are designed.

4.3.1.3 The South School

There is no anticipated gain of impervious surface at the South School campus. Therefore, no on-site mitigation is required.

4.3.1.4 West School

The increase in impervious area from proposed Master Plan improvements will increase stormwater runoff. Mitigation for this increase in runoff due is proposed in the form of a Bioswale. The exact configuration of the Bioswale will be determined as the site improvements are designed.

4.3.2 Best Management Practices

Exact BMP locations and sizing should be part of the final improvement plans for each school site. Any Bioswales noted below are designed to meet the C.3 stormwater runoff treatment requirement required by the governing National Pollutant Discharge Elimination System (NPDES) permit. Such Bioswales are designed to treat the treatment rainfall event of 0.2 inches/hour.

4.3.2.1 Crocker School

For the Crocker Campus, mitigation for runoff due to impervious surface increases is proposed in the form of a Bioswale approximately 183 long and 5 feet wide.

4.3.2.2 North School

The exact configuration of the Bioswale will be determined as the site improvements are designed.

4.3.2.3 The South School

There is no anticipated gain of impervious surface at the South School campus. Therefore, no on-site mitigation is required.

4.3.2.4 West School

The exact configuration of the Bioswale will be determined as the site improvements are designed.

4.3.3 Off-Site System Capacity Impacts

No off-site storm drain impacts are proposed as part of the campus improvements. Mitigation for increase in storm water runoff due to an increase in impervious surface area is proposed in the form of a Bioswale 183 feet long and 5.1 feet wide for the Crocker campus. As mentioned above, a detention area of 1,800 cubic feet of volume is proposed for the purpose of detaining the peak storm event to mitigate off-site peak flows. With these two on-site mitigations, the proposed on-site Master Plan improvements do not require modifications to off-site utility systems.

The off-site widening of Ralston Avenue will require connection to the local public storm drain system. Because there is an increase in impervious surface area, a portion of runoff from the street will be diverted through a storm water BMP.

4.4 Gas Line System

4.4.1 New Building Services and Known Relocations

Figures A6.1, B6.1, C6.1 and D6.1 present the new building locations for each campus and the new gas lines proposed for each campus. New buildings will require connections to the existing gas system.

The relocated lines around the proposed buildings are presented for each campus in Figure 6 of each campus. The probable remaining service life and replacement schedule is presented in Table 6.4.

4.4.1.1 Crocker School

Proposed gas line connections to the new buildings are presented in Figure A6.1. Removed lines are located near the proposed CPAE and class extension in the existing classroom building.

4.4.1.2 North School

There are no gas line improvements anticipated for the proposed buildings at North school. The gas meter for North School is currently adjacent to Ralston Avenue. It will be relocated closer to the tennis courts when Ralston Avenue is widened.

4.4.1.3 South School

There are no gas line improvements anticipated for the proposed buildings at South school.

4.4.1.4 West School

There are no gas line improvements anticipated for the proposed buildings at West school.

4.4.2 Off-Site System Capacity Impacts

There are no known off-site impacts associated with this utility.

4.5 Power and Communications

4.5.1 New Building Services and Known Relocations

The project mechanical/electrical engineer will be required to confirm the suitability of new services as appropriate.

Figure 7 in the Appendix for each school site presents proposed rerouting of power and communications around the proposed buildings.

4.5.1.1 Crocker School

Proposed buildings require removal of 960 feet of power and communication trenches. Relocated joint trenches around the CPAE building require 520 feet of new lines and relocation of the transformer serving the entire campus. The proposed transformer location is a new concrete masonry enclosure north of the gymnasium. New conduit and wiring will be required from the new enclosure to serve existing and proposed buildings on campus.

4.5.1.2 North School

The proposed buildings will require the removal of 670 feet of electrical joint trench line. The existing North School transformer is in a relatively inaccessible mechanical/electrical room. A new transformer is planned to handle loads from proposed Master Plan improvements. It will be located in a new concrete masonry enclosure between the tennis courts and widened Ralston Avenue. New conduit and wiring will be required from the new enclosure to the existing transformer location.

4.5.1.3 South School

The proposed building will require the removal of 290 feet of electrical joint trench line.

4.5.1.4 West School

The proposed buildings will require the removal of 122 feet of electrical joint trench line.

4.5.2 Off-Site System Capacity Impacts

In cooperation with the Town of Hillsborough, PG&E is currently designing underground facilities to replace overhead lines which front Crocker School and North School along Ralston Avenue and Eucalyptus Avenue. Such improvements must be coordinated with HCSD's plans to widen Ralston Avenue at Crocker School.