

CHAPTER SIX: PUBLIC FACILITIES, SERVICES, & UTILITIES

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Chapter Six: Public Facilities, Services, & Utilities

6.1 INTRODUCTION

Chapter Six includes a discussion of the infrastructure components required to serve and support development within the Tidewater Crossing Master Development Plan Area. The infrastructure components discussed in this chapter include utilities (potable and non-potable water, sewer, storm drainage); flood control, solid waste collection and disposal, energy, and communication services and facilities. Notwithstanding the information presented in this chapter, all utility infrastructure shall be designed and constructed in accordance to the Stockton Municipal Code, City Standard Plans and Specifications, and local building codes.

6.1.1 Infrastructure Phasing

A phasing plan for each of the utility infrastructure (i.e. sewer, water, non-potable water, storm drainage, electricity, gas, telephone and cable television) has been incorporated into the master utility plans in this chapter and coincides with the development phasing plan (*Figure 11.1*). The phasing of infrastructure will assist in evaluating the implementation of the utilities for the purpose of developing a general schedule of utility milestone phasing.

6.2 POTABLE WATER

6.2.1 Demand

Potable water demands for the Tidewater Crossing development are calculated based on the preliminary land uses and land use areas provided by Randall Planning & Design, Inc., using the projected water demand values, peaking factors, and fire flow requirements presented in the South Stockton Water Master Plan Update, adopted November 30, 2004. The calculated potable water demand values for only the land uses requiring potable water supply are presented in Table 6.1 and include all potable water demands. The estimated total maximum day and peak hour demands for the Tidewater Crossing Project are 3.21 million gallons per day (MGD) and 5.79 MGD, respectively.

Please refer to the Tidewater Crossing Development Water Distribution System Hydraulic Network Analysis, dated February 6, 2007 completed by Stantec Engineers and attached as an appendix to the Master Development Plan (published under a separate cover). A water master plan for the site completed by Stantec Engineers estimates the following water demand:

TABLE 6.1 ESTIMATED POTABLE WATER DEMANDS						
Site Index	Land Use	Gross Acres	Water Duty ¹	Water Demand		
				Average Day	Maximum Day	Peak Hour
			AF/AC	MGD	MGD	MGD
A	Low-Density Residential	48.4	2.8	0.12	0.25	0.44
B	Low-Density Residential	34.2	2.8	0.09	0.19	0.33
C	Med-Density Residential	47.2	2.8	0.12	0.25	0.44
D	Low-Density Residential	35.5	2.8	0.09	0.19	0.33
E	Med-Density Residential	15.3	2.8	0.04	0.08	0.14
F	Low-Density Residential	21.9	2.8	0.05	0.11	0.19
G	Low-Density Residential	34.0	2.8	0.08	0.17	0.30
H	Low-Density Residential	29.7	2.8	0.07	0.15	0.26
I	Low-Density Residential	24.1	2.8	0.06	0.13	0.23
J	Low-Density Residential	22.5	2.8	0.06	0.13	0.23
K	Low-Density Residential	15.0	2.8	0.04	0.08	0.14
L	Med-Density Residential	14.6	2.8	0.04	0.08	0.14
M	High-Density Residential	10.4	3.8	0.04	0.08	0.14
N	Med-Density Residential	17.0	2.8	0.04	0.08	0.14
	School A	19.4	2.0	0.03	0.06	0.11
	Retail/Commercial	16.6	1.5	0.02	0.04	0.08
	Industrial	224.3	1.5	0.30	0.60	1.20
	Parks/Open Space	34.3	3.0	0.09	0.19	0.33
	Ex. Railroad ROW ²	8.0	2.8	0.02	0.04	0.07
	Public Roads ROW ²	57.5	2.8	0.14	0.29	0.51
	P.G.&E. Substation ²	5.8	2.8	0.01	0.02	0.04
	Basins/Lakes/Slough	173.4	0.00	0.00	0.00	0.00
	TOTALS	909.1		1.55	3.21	5.79

1. City of Stockton South Stockton Water Master Plan Update, West Yost Associates, 11/2004.
2. A unit demand factor of 2.8 AF/AC for low- and medium-density residential land uses is assigned to major roads, right-of-ways, and public utility land use areas, as water duties are based on gross acres.

6.2.2 Objectives

The objective of the potable water plan is to ensure an adequate supply of potable water to meet the needs of the Tidewater Crossing Master Development Plan Area.

6.2.3 Policies

The following policies have guided the design of the infrastructure systems:

1. Per the Development Code, an adequate water supply, including mains of sufficient size and having a sufficient number of outlets to furnish adequate water supply for each lot of the subdivision and providing adequate fire protection for the development system will be provided. Fire flow shall be determined by the Municipal Utilities Department and fire hydrants will be installed in compliance with plans approved by the City Fire Marshall.
2. The water system will be designed in compliance with State water standards and American Water Works Association (AWWA) standards. The water system shall comply with the City's Standard Specifications and Plans and the requirements of the State Department of Health Services.
3. The water system will conform to the Master Water Plan developed as part of the City of Stockton 2035 General Plan. If the Master Water Plan is not adopted by the City Council, the Tidewater Crossing Project will be required to revise the South Stockton Water Master Plan, dated November 2004 (subject to City Council approval). The water system will be constructed and be dedicated to the City in compliance with Section 5 of the City Water Rates and Regulations.
4. The owners, developers, or successor-in-interest shall submit master plans for potable water, sewer, and storm drainage for the project for review and approval by the Director of the Municipal Utilities Department prior to the approval of improvement plans.



6.2.4 Plan

Potable water supply for the Tidewater Crossing development will be provided by the City of Stockton. An existing 24-inch water main traverses the development area. Connections to the existing City of Stockton water distribution system will occur at French Camp Road, Dudley Road, and Airport Way, as illustrated on the Tidewater Conceptual Master Potable Water Plan (Figure 6.1). The existing 24" water line will be located within City right-of-way. The distribution system for the Tidewater development incorporates the planned 24-inch and 12-inch water mains that traverse the project site, consistent with the 2035 General Plan and Water Master Plans prepared by West Yost Associates dated November 2004. All potable water main sizing as depicted on Figure 6.1 and any mains not currently shown that conform to the 2035 General Plan-Water Master Plans prepared by West Yost that differ from those as depicted in the Tidewater Crossing Development Water Distribution System Hydraulic Network Analysis will be subject to a reimbursement agreement with the City of Stockton Municipal Utilities Department. There will, however, be no reimbursement for over-sizing if such facilities are required to properly serve a project within the Master Development Plan area. All Reimbursements shall be in accordance with the Stockton Municipal Code.

Infrastructure phasing has been incorporated into Figure 6.1 to reflect the phasing of the project as depicted in Figure 11.1, Tidewater Crossing Phasing Diagram. The build-out of the actual infrastructure will be subject to market demands and the physical necessity to provide services to the various neighborhoods under construction by the project proponent.

6.2.5 Water Supply Assessment

The City of Stockton Municipal Utilities District (COSMUD) has prepared a Water Supply Assessment in conjunction with the proposed project. The City of Stockton provides domestic potable water through a combination of surface and ground water. Stockton East Water District (SEWD) provides approximately 45 million gallons per day (MGD) of treated surface water to the region's urban areas through its three urban contractors: City of Stockton Municipal Utilities District (MUD), CalWater, a private company, and San Joaquin County. Currently, groundwater from portions of the regional aquifer underlying each



purveyor and surface water from SEWD satisfy the urban contractors water demands.

Water demands for Tidewater Crossing are based on the proposed Project's preliminary land uses and land use areas, and estimating projected water demand values, peaking factors, and fire flow requirements. The estimated total maximum day and peak hour demands for the proposed Project are 3.21 MGD and 5.79 MGD (*Table 6.1 Estimated Potable Water Demands*).

The Tidewater Crossing Water Supply Assessment (WSA) prepared by the City of Stockton Municipal Utilities Department (COSMUD) and dated, August 30, 2006 concludes that the COSMUD has sufficient water supplies to meet the water demands of the Project.

The COSMUD makes this determination based on the information contained in the WSA and on the following specific facts:

- The existing near-term and long-term reliable supplies of SEWD surface supplies and indigenous groundwater supplies can deliver a sustainable reliable water supply without impacting environmental values and/or impacting the current stabilization of the groundwater basin underlying the COSMA.
- The existing conjunctive use program of using SEWD surface water and COSMA groundwater supplies shows that sufficient water rights and available groundwater supplies exist for the project.
- The project will be served by water supplies made available through the existing COS conjunctive use program within the COSMA.
- The COSMA has a conjunctive use water supply program that can meet water demands beyond the WSA demand level to 2035 based on the results of the 2035 General Plan Update Water Supply Evaluation..

FIGURE 6.1 TIDEWATER CONCEPTUAL MASTER POTABLE WATER PLAN

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6.3 NON-POTABLE WATER

The City of Stockton requires the installation of a recycled water distribution system in new developments for the irrigation of public areas where feasible and cost effective.

6.3.1 Objectives

The objective of the non-potable water plan is to provide for the provision of a non-potable water supply to the project site, when and/or if available.

6.3.2 Policies

The following policies are meant to guide the design and implementation of a non-potable water system within the project site:

1. The owners, developers, and/or successor-in-interest shall prepare and submit a master plan for a Non-Potable Water Delivery System within the project site for review and approval by the Director of the Municipal Utilities Department prior to the approval of improvement plans.
2. Consistent with the City's adopted Non-potable Water Ordinance, the owner, developer and/or successor-in-interest shall install non-potable infrastructure, in conformance with the City approved Non-Potable Water Delivery System Master Plan, for irrigation of large public landscaped areas where feasible and cost effective. Conditions of approval will require connection and use of non-potable water supplies when available to the site.
3. The owners, developers, and/or successor-in-interest will participate in a City-wide Consolidated Non-potable Water Supply Assessment District prior to the recordation of any small-lot final map for the purpose of development.

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FIGURE 6.2 TIDEWATER CONCEPTUAL MASTER NON-POTABLE WATER PLAN

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6.3.3 Plan

The Tidewater Conceptual Master Non-Potable Water Plan is illustrated on Figure 6.2. Infrastructure phasing has been incorporated into Figure 6.2 to reflect the phasing of the project as depicted in Figure 11.1, Tidewater Crossing Phasing Diagram. The build-out of the actual infrastructure will be subject to market demands and the physical necessity to provide services to the various neighborhoods under construction by the project proponent.

6.3.4 Integrated Water Management Plan

The project applicant has prepared an Integrated Water Management Plan (IWMP), which addresses in detail the elements of the non-potable water system for the project. The purpose of the Plan is to address the projected uses and management of all water for the development while emphasizing conservation, re-use and good management practices. The IWMP addresses (1) infrastructure, (2) project water demands, (3) groundwater management issues, (4) available water supply inventory, (5) plan alternatives and water delivery, and (6) non-potable water. The intent of the Plan is to adequately satisfy the City of Stockton requirements for the formulation of an effective plan for the management of the project water demands. In addition, an Engineer's report will be developed to evaluate the maintenance and operation costs with the non-potable water. The IWMP will be submitted, reviewed and approved by the City's Municipal Utilities Department prior to the start of any related infrastructure design. The details regarding the quality of several potential sources of make-up water and pumping locations for the non-potable water system are discussed within the Tidewater Crossing Water Source Use Analysis, which is submitted as an appendix to this plan.

6.4 WASTEWATER

6.4.1 Demand

Wastewater demands for the Tidewater Crossing development are calculated based on the preliminary land uses and land use areas provided by Randall Planning & Design, Inc., using average flow demand values and peaking factors presented in the City of Stockton Wastewater Collection System Master Plans and the City of Stockton Standard Specifications. The calculated ultimate wastewater flow values for the land uses in the Plan Area are presented in Table 6.2.

TABLE 6.2 ESTIMATED ULTIMATE WASTEWATER FLOWS

Land Use	Gross Acres (+ / -)	Flow Generation (Ave. Flow + I/I) (gpd/ac) ¹	Ave. Flow + I/I Generation (MGD)	Peak Factor	Design Flows (MGD)
Low / Medium Density Residential	359.4	2500	0.899	2.660	2.391
High Density Residential	10.4	7200	0.075	5.000	0.375
Schools	19.4	2500	0.049	5.000	0.245
Commercial	16.6	2800	0.047	5.000	0.235
Industrial	224.3	3400	0.763	2.720	2.075
Total	630.2		1.833	2.260	5.321

1. City of Stockton Sanitary Sewer Design Data - Planning Values
2. Inflow / Infiltration (I/I): 400 Gal/Day/Ac = .0004 MGD/ac
3. Peak Factor => $PF=2.50 (\text{Ave. Flow})^{-0.216}$
4. Design Flow: (Ave Flow + I/I) Peak Factor

6.4.2 Objectives

The wastewater plan has been designed to ensure the adequate collection, treatment, and safe disposal of wastewater.

6.4.3 Policies

The owners, developers, or successor-in-interest shall submit a master plan for sewer for the project prior to the approval of improvement plans.

6.4.4 Plan

The wastewater facilities for the Tidewater Crossing project will be developed in accordance with the City of Stockton Wastewater Collection System Master Plans and the City of Stockton Standard Specifications. Wastewater generated from the Tidewater Crossing project will be conveyed via a network of gravity flow and force main lines designed to serve portions of the development areas identified in the City's Sanitary Sewer Master Plan as Existing System 8 and FGS 13 (Future Grow System 13, per 2035 General Plan). In accordance with that plan the medium-density neighborhood known as Neighborhood C along with the high-density and commercial areas will be temporarily served via connection to the existing system (*Figure 6.3*). As designed, this area would utilize a combination of 10-inch and 12-inch diameter pipes for sewer conveyance to serve the area. Flows from this area would be conveyed northward via an 8-inch force main line that would be located in Airport Way. The line will connect to the existing 18-inch line currently serving System 8. The connection to System 8 will be an interim solution. At the time that the French Camp Slough crossing and connection to the existing 66-inch line at Industrial Drive is complete, the temporary pump station will be abandoned and

flows rerouted to the regional sewer-pump station located on French Camp Road.

Wastewater flows generated from the 224± acre industrial park located on the eastern portion of the project will be conveyed westerly via a combination of 15-inch to 24-inch gravity lines, while the residential areas to the west will be served with a combination of 10-inch diameter and 30-inch diameter lines. All flows will connect to a regional lift station located at the western boundary of the project site. Flows emanating from the lift station will be conveyed to the north by two 24-inch force mains where they will tie into the City's existing 66-inch wastewater line located at the intersection of Industrial Avenue and McKinley Avenue. It should be noted that the pump station and sewer trunk lines have been sized to handle the entire FGS 13 area and have been stubbed accordingly.

The Conceptual Wastewater Master Plan is illustrated on Figure 6.3. Infrastructure phasing has been incorporated into Figure 6.3 to reflect the phasing of the project as depicted in Figure 11.1, Tidewater Crossing Phasing Diagram. The build out of the actual infrastructure will be subject to market demands and the physical necessity to provide services to the various neighborhoods under construction by the project proponent.

The Wastewater Collection System for the Tidewater Crossing Plan Area will conform to the Master Wastewater Plan developed as part of the 2035 General Plan. If the Master Wastewater Plan is not adopted by the City Council, the Tidewater Crossing Project will revise the current Wastewater Collection System Master Plan, dated August 1987, by Nolte and Associates. The System is designed to serve per the City's 2035 General Plan.

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FIGURE 6.3 TIDEWATER CONCEPTUAL MASTER WASTE WATER PLAN

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6.5 STORMWATER

6.5.1 Objectives

The Stormwater Plan has been designed to ensure the adequate collection, treatment, and safe discharge of onsite stormwater.

6.5.2 Policies

The owners, developers, or successor-in-interest shall submit a master plan for stormwater for the project prior to the approval of improvement plans.

6.5.3 Overview

The Tidewater Crossing project will incorporate a variety of drainage facilities in addition to water quality treatment elements to create an urban stormwater system. The project stormwater facilities will operate independently of the “regional” flood protection proposed for the project. Levees associated with French Camp Slough require that the interior drainage associated with the Project be designed to provide 100-year flood protection with the urban drainage system. The flood control protection required for the Tidewater Crossing project is described in Section 6.6.

The stormwater system includes four subwatersheds each with an independent urban stormwater pump station, temporary stormwater storage for the entire 24-hour 100-year runoff volume, naturalized stormwater quality treatment features, and unique man-made ponds. The four subwatersheds, include appropriately sized infrastructure to accommodate treated and detained flow from adjacent future plan areas as part of the storm drainage master planning for the City of Stockton 2035 General Plan. For further detailed analysis of the adjacent drainage areas, refer to the “Tidewater Crossing Interior Drainage Technical Assessment” submitted under separate cover as an Appendix to this plan. Figure 6.4, Stormwater Management / Water Quality Elements reflects the associated 2035 adjacent drainage areas.

The man-made ponds will allow water quality treatment and reuse of dry-weather/nuisance flows typically encountered with urban development. The water quality treatment elements have been designed as active ecosystems and naturalized aesthetic features for the development, which provides a visual amenity for the community while also providing a primary stormwater infrastructure element. The proposed unique naturalized stormwater quality features offer a combination of many unique advantages

for infrastructure planning and other benefits that are not available in conventional stormwater quality facilities, including:

1. Continuous year-round natural treatment process,
2. Storm water conveyance and storage,
3. Exceptional water quality,
4. Flood protection,
5. Combined land use elements,
6. Significantly reduced infrastructure costs,
7. Dry weather flow treatment,
8. Landscape and aesthetic treatment with natural water system,
9. Increased surrounding land values,
10. Natural ecosystem benefits,
11. Recreational design feature, and
12. Urban design element for communities.

6.5.4 Stormwater Quality Treatment System

All runoff generated from the project will receive some form of water quality treatment through a variety of different treatment features prior to discharging from the project. All discharges at the terminal pump stations are designed to be in accordance with the stormwater NPDES regulations. The pump stations will be designed consistent with the requirements of the City of Stockton, including the appropriate telemetry, electrical, wet well, secondary power supply, and discharge force main. Additional redundant pumps would be provided as a safety factor. All of the treatment facilities will meet the City of Stockton minimum water quality treatment requirements outlined in the municipal Storm Water Quality Control Program guidance document. The different proposed stormwater quality treatment facilities to be utilized within the project include:

1. Recirculating man-made stream system with treatment pools and wetland planters,
2. Constructed linear recirculating wetlands corridor,
3. Man-made permanent ponds or aquascape feature, and
4. Dry detention basin with pre-treatment constructed wetlands.

The water quality of the engineered ponds, recirculating stream systems, and wetlands are designed to recreate the natural biological processes and develop a managed ecosystem that provides water quality treatment

through naturally occurring biological processes. The Tidewater Crossing Water Source Use Analysis, submitted as an appendix to this plan, addresses the quality of several potential sources of make up water for the engineered ponds.

6.5.5 Description of Project Urban Watershed Systems Units

The onsite development project drainage area was subdivided into four different independent urbanized watersheds based on area tributary to the four different terminal stormwater pump stations. These watersheds are hydraulically independent and the drainage boundaries correspond to the proposed surface drainage patterns associated with the grading. Watershed No. 1 corresponds to the easterly residential area located on the south side of the slough. Watershed No. 2 corresponds to the western residential area on the south side of the slough. Watershed No. 3 consists of the western residential and commercial area on the north side of the slough. Watershed No. 4 includes the eastern industrial area located on the northern side of the slough.

The proposed project stormwater quality facilities identified for this project exceed the minimum requirements outlined in the City of Stockton NPDES program with Stockton's Storm Water Quality Control Criteria Plan (SWQCCP) and represent current state-of-art to more effectively treat stormwater while "recycling" nuisance or dry-weather flows. However, as part of the additional engineering analysis for the stormwater system, a separate SWQCCP will be prepared for the project that evaluates the stormwater treatment function of the different facilities. An Engineers Report will be prepared that identifies the approximate maintenance and operation costs, including a maintenance program. The owners, developers, or successor-in-interest (ODS) will establish a maintenance entity acceptable to the City to provide funding for the operation, maintenance, and replacement costs of the storm water best management practices. The proposed storm water quality facilities to be utilized within the project shall be consistent with the treatment control measures of the SWQCCP. The ODS shall comply with all requirements and pay all associated fees as required by the City's Storm Water pollution Prevention Plan as set forth in its NPDES Storm Water Permit.

Design characteristics for each of the four watersheds are described in Tables 6.3-6.6, respectively. Figure 6.4, Stormwater Management / Water

Quality Elements and Figure 6.5, Conceptual Master Stormwater Plan present a conceptual illustration of the Plan.

TABLE 6.3 WATERSHED SYSTEM NO.1 - CHARACTERISTICS	
Stormwater Pump Station Capacity (100-year volume evacuation within 24-hour period)	34 cfs
Area of open water ponds	3 acres
Average depth of ponds	10 feet
100-year 24-hour detention storage volume	37 acre-feet
Temporary flood storage area beyond stream, including ponds	12 acres
Water quality treatment volume	10.6 acre-feet
Water quality treatment facility	Recirculating stream corridor with wetland pockets and interconnected permanent treatment ponds with permanent pools

The force main specific to Watershed System No. 1 is discussed in more detail in "Tidewater Crossing Interior Drainage Technical Assessment," submitted under a separate cover as an appendix to this plan.

TABLE 6.4 WATERSHED SYSTEM NO.2 - CHARACTERISTICS	
Stormwater Pump Station Capacity (100-year volume evacuation within 24-hour period)	32 cfs
Area of open water pond	4.0 acres
Average depth of pond	8 feet
100-year 24-hour detention storage volume	24 acre-feet
Maximum detention basin storage depth	6 feet
Water quality treatment volume	6.9 acre-feet
Water quality treatment facility	Treatment pond with downstream recirculating wetlands connected to downstream dry detention basin

TABLE 6.5 WATERSHED SYSTEM NO.3 - CHARACTERISTICS

Stormwater Pump Station Capacity (100-year volume evacuation within 24-hour period)	8.0 cfs
Area of open water ponds	1.1 acres
Average depth of ponds	10 feet
100-year 24-hour detention storage volume	12 acre-feet
Lake temporary surcharge storage height	6 feet
Water quality treatment volume	3.4 acre-feet
Water quality treatment facility	Constructed pond system with permanent aquascape pool feature

TABLE 6.6 WATERSHED SYSTEM NO.4 - CHARACTERISTICS

Stormwater Pump Station Capacity (100-year volume evacuation within 24-hour period)	25 cfs
Pretreatment wetland area	5 acres
Average depth active water treatment	2 feet
100-year 24-hour detention storage volume	48.5 acre-feet
Detention basin minimum bottom area	9 acres
Detention basin average storage depth	6 feet
Water quality treatment volume	10.0 acre-feet
Water quality treatment facility	Recirculating stream corridor with wetland pockets and interconnected permanent treatment ponds with permanent pools

The use of four terminal stormwater pump stations has been carefully analyzed in the project design. The specific issues requiring the use of the four stormwater pump stations include:

- Physical constraints of the French Camp Slough dividing the project into two distinct watersheds. It is not feasible to gravity drain the storm drainage runoff across French Camp Slough.
- The south side of the project drains to two different terminal drainage facilities based on the natural grade (1) easterly portion to French Camp Slough, and (2) westerly portion to the South San Joaquin Irrigation District Discharge Channel.
- If the number of pump stations is reduced then it would require extremely large diameter underground pipes to provide drainage in the opposite direction of the natural drainage patterns or back drainage for different portions of the site. For further detail analysis of the use of four terminal pump stations, as well as potential discharging constraints into French Camp Slough and SSJID Canal,

Refer to the “Tidewater Crossing Interior Drainage Technical Assessment” submitted under separate cover as an Appendix to this plan.

- The stormwater pumps are small pumps since the system is not designed as a “peak flow” pump, but designed only to evacuate the basin within a 24-hour period.

The new requirements for stormwater treatment of the project runoff mandate more creative stormwater facility master planning that integrate the most effective treatment system, not necessarily limited by the number of pump stations. The project proponent and the City of Stockton Municipal Utilities Department will ensure that the regional storm drainage solution for the Tidewater Crossing plan area, along with adjacent properties as shown in Figure 6.4, will conform to the Storm Drainage Master Plan as part of the 2035 General Plan. _

6.6 REGIONAL FLOOD CONTROL

6.6.1 Objective

The objective of the Flood Control Plan is to ensure the health and safety of people and protect property and structures within the community from the risk of flooding.

6.6.2 Policy

Prohibit development of residential land uses, critical emergency response facilities, and streets that provide access to such properties within a floodway or floodplain that is subject to the risk of a 100-year flood event.

6.6.3 Plan

A regional flood control system has been designed to protect the proposed project uses from potential flooding hazards. As a result of the relationship of the project/applicant holdings to adjacent non-applicant parcels, the flood protection requirements were expanded to reduce flood hazards for an area larger than defined by the project site. Figure 6.6 illustrates the Flood Control Master Plan improvements and features proposed for the project. The project flood control facilities will operate independently of the on-site storm drainage proposed for the project, which in itself is designed to handle the 24-hour 100-year on site storm runoff.

FIGURE 6.4 STORMWATER MANAGEMENT / WATER QUALITY ELEMENTS

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FIGURE 6.5 CONCEPTUAL MASTER STORM WATER PLAN

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The Tidewater Crossing Draft Hydrologic / Hydraulic Analysis and Pre-Design Report dated September 15, 2006 is an appendix to this Plan (published under a separate cover). The North Littlejohns Creek Drainage Study, updated May 2003 by A.R. Sanguinetti & Associates, was referenced in the analysis of Weber Slough and its' impacts to the flood control improvements incorporated into the hydraulic model for the project.

The following describes the components of the flood control system:

Flood Control Basin & Weir

1. The flood control plan includes providing a 93 +/- acre detention basin along French Camp Slough to store floodwater and eliminate the existing floodplain areas outside of the existing levees. The detention basin will be a flow-by basin with a total storage volume of 1,700 ac-ft. The 25-foot deep flood control basin is regional detention associated with the French Camp Slough watershed, which is independent of the project local onsite drainage system. The design features of the basin, 3 to 1 slopes and an annual maintenance to remove vegetation around the perimeter and bottom, will eliminate the basin as a source of habitat to migratory bird species.
2. The regional watershed is associated with runoff generated offsite and upstream of the project. The regional basin does not have specific evacuation design criteria because of the size of the watershed it serves and the flood flows required to be detained. After a major storm event, the basin will be emptied via a pump station which will be sized to evacuate the entire basin volume in an appropriate number of days in conformance with an agreed upon standard which will be determined by the entity assigned to maintain the flood control basin. The City of Stockton Municipal Utilities Department's Pump Station Design Standards and Guidelines will be used as a template for all elements of the flood control pump station, and basin should it be agreed upon that the City maintain specific elements of the flood control system.
3. The Tidewater Crossing Project's flow-by detention basin

incorporates the use of a weir, approximately 1,000 feet long, so flood flows will not spill overland, through and beyond the project limits. Peak overflow, of approximately 1,000 cfs, will spill only 0.5-feet deep over the weir, or 0.5-feet below the 100-year high water channel elevation, additionally providing assurance that excessive fish loss will not occur. For proper operation of the basin overflow weir, grade control across the French Camp Slough channel is recommended as part of the project components. A hard surface at grade crossing the channel (approximately 6- to 8-feet wide) will maintain the grade and configuration of the channel over time. This hard surface can be comprised of concrete, a strip of rock, or a less visible earthen filled interlocking matrix of concrete blocks.

Weber Slough Overflow Channel

4. An overflow channel for Weber Slough, to the detention basin, will be constructed to convey approximately 200 cfs. The channel will be 30-feet wide if earthen lined, or as narrow as 15-feet wide of concrete lined with vertical walls.

Weber Slough Culvert

5. The culvert on Weber Slough, at the Army National Guard driveway, will be upsized to convey flow, approximately 350 cfs, to meet the capacity of the existing downstream channel in Weber Slough.

Levee Improvements

6. In addition to the detention basin, three levee projects are required to achieve the flood control objectives. Using fill from the detention basin, existing levees will be raised and/or reconstructed to provide freeboard protection above the 100-year flood water surface profile, floodwalls may be needed where there is tight access. The height of the levees will range from three to five feet. On Lone Tree Creek, from State Route 99 to the confluence of South Littlejohns Creek, new levees will be constructed. The new levees will range in height

from four to seven feet, and some areas will likely require floodwalls to avoid filling under large oak trees. The above levee improvements will be tied into existing and proposed roadway crossings, including State Route 99, Tidewater Railroad, Airport Way, UPRR and any other proposed bridges. The tie-ins will be transitioned from the levee to the structure with floodwalls or fill to match roadway grade.

The primary purpose of the flood control basin is to detain flood waters during a 100-year flood event. However, when not being used for flood control the 93± acre basin has the potential to accommodate a variety of active and passive uses. Since the occurrence of Hurricane Katrina in 2005, federal, state and local standards and regulations in regard to flood plain management and flood control have been in a state of flux. It is highly likely that these regulations and standards will evolve during the construction of the flood control basin and may play a role in the determination of how the flood control basin can be utilized when not being used for detaining flood waters caused by a 100-year flood event. While under private ownership, it is likely that the floor of the flood control basin will accommodate the farming of row crops or vineyards. It is foreseeable that the flood control basin could serve as a publicly owned and operated multi-use facility should local funds from the City, County or other sponsoring agency become available and future regulations and standards do not prohibit such use. Any use of the basin will be regulated through a flood control easement administered by a responsible maintenance entity.

The Federal Emergency Management Agency, FEMA, will be responsible to accredit the levees through the approval of a Conditional Letter of Map Revision, CLOMR.

The Flood Control Master Plan improvements and features are illustrated on Figure 6.6

6.7 SOLID WASTE

6.7.1 Objective

The objective of the solid waste disposal plan is to ensure the safe and efficient disposal or recycling of solid waste from the Tidewater Crossing community.

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FIGURE 6.6 FLOOD CONTROL MASTER PLAN

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6.7.2 Policy

The Tidewater Crossing Master Development Plan shall ensure the provision of appropriate solid waste removal, storage, handling, and collection.

6.7.3 Plan

The City of Stockton provides domestic solid waste collection to all areas within the city limits through Waste Management, Inc. and Stockton Scavengers. The City's current and future provision for refuse collection will be made available to Tidewater Crossing once the site is annexed. The City of Stockton implemented a new solid waste system on June 1, 2004 (Ordinance #015-03). Residents receive three containers: one 30-gallon garbage cart, one 60-gallon recycling cart, and one 90-gallon recycling cart (used for food and yard waste). The three-cart system serves to help the City of Stockton recycle or "divert" 50% of its waste from landfills.

6.8 ENERGY

6.8.1 Objective

The objective of the energy plan is to ensure the adequate provision of electric and gas services for all residents with the Tidewater Crossing Master Development Plan Area.

6.8.2 Policies

The project developer or successor-in-interest and the City shall coordinate with the service provider of electricity services in planning and expansion of those services to serve the future needs of all residents within the Tidewater Crossing Plan Area.

The project developer or successor-in-interest and the City shall coordinate with the service provider of gas services in planning and expansion of those services to serve the future needs of all residents within the Tidewater Crossing Plan Area.

6.8.3 Electricity

The development of the Tidewater Crossing Community will create new electrical demands for PG&E facilities. PG&E facility planners have indicated the need to extend a new electric transmission line to the project area. Additionally, facility planners have also identified the need for an electric substation to be located within the project area.

As part of its commitment to provide electrical power to the project area PG&E plans to tap into its existing Tesla-Stockton Cogen Junction 115 kilovolt (KV) electric transmission line located at Sperry Road and McKinley Road or near French Camp Road and Lombard Street. PG&E plans to construct a new 115 KV double-circuit tubular steel overhead transmission pole line within a 50-foot wide dedicated electric transmission right-of-way (ROW), either (1) southeast along the French Camp Road from near Lombard Street and then north into the planned business/industrial area or (2) southeast from Sperry Road and McKinley Road parallel to the UPRR right of way into the planned business/industrial area. The tubular steel pole line will support two sets of overhead transmission wires and two sets of overhead distribution wires. The steel poles will be approximately 100-feet tall. Twenty-four hour all-weather access to the pole line will be planned for maintenance and operations. Also within the electric transmission ROW, provisions will be made to allow for the installation of underground electric distribution lines as required.

The Tidewater Crossing Project will be required to provide a three to five acre (rectangular in shape) parcel within the planned business/industrial area in the northeast portion of the project for the installation of an electric substation. The substation will convert the 115 KV transmission voltage down to either a 21 KV or 12 KV distribution voltage level. The electric substation site will require year-round, 24-hour, all-weather access. Moreover, roadway access to the site will need to accommodate very large trucks and cranes with a large turning radius.

PG&E facility planners have indicated that a public utility easement will be required on both sides of all roadways throughout the entire project for the installation of gas and electric distribution feeders along with other utilities as required.

The Conceptual Master Electrical Plan is illustrated on Figure 6.7, which shows existing facilities in and around the project and planned backbone distribution routes.

6.8.4 Gas Service

The development of the Tidewater Crossing community will create new gas demands for PG&E facilities. PG&E facility planners have indicated their intent to utilize a series of existing gas mains located within East

French Camp Road and Airport Way to feed the various phases of the plan. The distribution mains will be sized and built according to phased development and looped where necessary. The project proponent and or landowner will be required to work with PG&E in coordinating any necessary relocation of existing facilities. Underground facilities will be contained within a joint utility trench. The joint trench location will conform to City of Stockton Standard Details 5A-F or as approved by the City Engineer. Proper trench placement will take into consideration proper separation between utility services and street trees.

The Conceptual Master Gas Plan is illustrated on Figure 6.8. The plan shows existing facilities in and around the project and planned backbone distribution routes.

6.9 COMMUNICATION

6.9.1 Objectives

The objective of the telecommunication plan is to ensure the adequate provision of telephone and internet services for all residents within the Tidewater Crossing Plan Area.

The objective of the cable television plan is to ensure the adequate provision of cable television and internet services for all residents with the Tidewater Crossing Plan Area.

6.9.2 Policies

The project developer or successor-in-interest and the City shall coordinate with the service provider of telephone and internet services in planning and expansion of those services to serve the future needs of all residents within the Tidewater Crossing Plan Area.

The project developer or successor-in-interest and the City shall coordinate with the service provider of cable television and internet services in planning and expansion of those services to serve the future needs of all residents within the Tidewater Crossing Plan Area.

6.9.3 Telephone Service/Fiber Optics

Telephone and internet service to the project area will be made available by AT&T California. AT&T planners have indicated that a new trunk fiber optic cable will need to be extended from the closest AT&T central office located at 7700 McKinley in French Camp to the project site. The

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FIGURE 6.7 CONCEPTUAL MASTER ELECTRIC PLAN

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FIGURE 6.8 CONCEPTUAL MASTER GAS PLAN

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REMOVE

future trunk facilities will follow an existing aerial pole line along the south side of East French Camp Road to Airport Way. The facilities will proceed north along Airport Way to the project. A site will be required to provide for the placement of a Controlled Environment Vault (CEV). The location of the CEV will be negotiated with the project proponent. The CEV will serve as the hub for fiber optic and copper cables providing services to the development and surrounding area.

Extending from the CEV location will be a series of fiber optic and copper cables. The fiber optic distribution cables will serve a series of Primary Flexibility Points (PFP) for the residential neighborhoods. The number of PFPs will be determined based upon phased construction and neighborhood population. Currently each PFP cabinet is designed to serve up to a maximum of 864 homes. At locations where copper facilities may need to be placed, Video Capable Remote Access Devices (VRAD) may be required. VRAD cabinets currently have the capabilities to serve up to a maximum of 576 units.

The project proponent and or landowner will be required to work with AT&T in coordinating any necessary relocation of existing facilities. Underground facilities will be contained within a joint utility trench. The trench layout generally consists of multi-duct facilities within the backbone areas, and duct plus direct buried facilities within the collector and service streets. The joint trench location will conform to City of Stockton Standard Details 5A-F or as approved by the City Engineer. Proper trench placement will take into consideration proper separation between utility services and street trees. The Conceptual Master Telecommunications Plan is illustrated on Figure 6.9. The plan shows existing facilities in and around the project and planned backbone distribution routes.

6.9.4 Cable Television

Cable television and internet services to Stockton are provided by Comcast. The provision of cable service is subject to Part IV of the Stockton Municipal Code entitled "Cable Television Franchises Procedures, Specifications and Terms." Comcast plans on extending fiber optic trunk facilities from French Camp along East French Camp Road. The future trunk facilities are planned to follow an existing aerial pole line along East French Camp Road to Airport Way. The facilities will proceed north along Airport Way to the project. The distribution of Comcast facilities will generate from a series of fiber

nodes capable of serving up to 1,200 units. The location of the nodes will be dependent upon project phasing and construction.

The project proponent and or landowner will be required to work with Comcast in coordinating any necessary under-grounding of facilities. Underground facilities will be contained within a joint utility trench. The trench layout generally consists of multi-duct facilities within the backbone areas, and duct plus direct buried facilities within the collector and service streets. The joint trench location will conform to City of Stockton Standard Details 5A-F or as approved by the City Engineer. Proper trench placement will take into consideration proper separation between utility services and street trees.

The Conceptual Master Cable Television Plan is illustrated on Figure 6.10. The plan reflects only planned backbone distribution routes. There are no existing Comcast facilities in the project area other than coaxial cable along Dudley Road.

6.10 PUBLIC SERVICES

6.10.1 Fire Protection

Demand

Per the General Plan Goals and Policies report, the City should provide fire station facilities (engines and other apparatus) and staffing necessary to maintain the City's service standards.

Objectives

The objective of the fire and emergency services plan is to provide adequate protection and response times to the Tidewater Crossing community.

Policies

1. The circulation plan of Tidewater Crossing shall provide adequate access for emergency vehicles, particularly firefighting equipment, as well as provide evacuation routes.
2. Adequate fire flow requirements will be maintained throughout the Plan Area.

FIGURE 6.9 CONCEPTUAL MASTER TELECOMMUNICATION PLAN

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FIGURE 6.10 CONCEPTUAL MASTER CABLE TELEVISION PLAN

11 X 17

REMOVE

Plan

The City of Stockton Fire Department will be responsible for providing fire protection services to the Plan Area. The Department is evaluating the construction of a fire station within the commercial portion of the Plan Area. If the department decides to purchase land to build a new fire station pursuant to City policies, the project proponent will make available a one acre site within the commercial area that is acceptable to the City of Stockton Fire Department. Construction could occur during the second or third phase of development. The Fire Department will also provide emergency medical, transport services, and technical rescue services, and response to hazardous materials spills.



6.10.2 Police Protection

Demand

The General Plan Goals and Policy Report suggests a new staffing ratio policy of 1.5 sworn officer per 1,000 residents served. With an estimated population of 7,600 people, the Tidewater Crossing will necessitate the addition of 11 additional law enforcement officers.



Objectives

The objective of the policing plan is to ensure adequate police protection and service to the Tidewater Crossing community.

Policies

In support of the law enforcement goals, the Tidewater Crossing Plan Area will use building and site design features as a means for crime prevention and reduction whenever possible.

Facility and Equipment Needs

1. The City of Stockton shall provide additional police personnel as needed to adhere to City standards, as approved by the Council in the adopted 2035 General Plan.
2. The Community Development Department will inform the Police Department as to the pace of development activities within the plan area and surrounding vicinity in order that the department can prepare for the expansion of services to the plan area.
3. The owners, developers, and/or successors-in-interest shall pay all required Public Facility Fees to defray capital facilities costs associated with expanding police protection services.

Safety and Security Concerns

1. The owners, developers, and/or successors-in-interest are encouraged to utilize strategies defined by the National Crime Prevention Institute, which address Crime Prevention through Environmental Design.
2. The Owner, Developer and/or successors-in-interest (ODS) shall prepare a detailed security plan for each tentative map and/or development area and submit same for the approval of the Police Department. The security plan shall provide for an on-site full time (24/7) security patrol service funded by the Homeowners Association and shall also include video surveillance equipment with 14-day continuous recording capability and 30 day archival capacity subject to the approval of the Police Department at strategic locations in the community without violating private property rights.
3. Prior to recordation of any Final Map (or concurrent when forming a homeowners association), the Owner, Developer and/or successors-in-interest (ODS) shall establish a financing entity acceptable to the Police Department to provide funding for the maintenance of a private security force and related camera /surveillance system and if necessary replacement at the end of the useful life of physical improvements (i.e. cameras, monitors, cabling) and all "Improvements" serving or for the special benefit of the subdivision.
4. The City shall ensure the proper and timely maintenance of publicly landscaped areas to enhance visibility caused by plant overgrowth and obstructive or inoperable lighting.
5. The Police Department, with the assistance of any homeowners association and/or business association, shall coordinate the formation of Neighborhood and/or Business Watch Programs within the community.

Crime Prevention/Target Hardening during Construction

1. The owners, developer, and/or successors-in-interest are strongly encouraged to take an active role in regard to crime prevention during the construction stage of development, and should consider the following measures:
 - Utilize the services of a licensed, uniformed security guard during evening hours, Monday through Friday, and 24

hours on weekends and holidays to secure the construction site.

- Fence construction areas so that they are not accessible to the public after normal working hours, weekends and holidays.
- Utilize effective nighttime lighting to illuminate the construction site; especially locations where equipment and building materials are stored.
- Withhold installing appliances in residential units until nearing the final walkthrough by owners, or if installed, ensure the residence is securely locked.

Plan

The City of Stockton Police Department will provide protection to the Plan Area once the site has been annexed to the City.



6.11 SCHOOLS

6.11.1 Demand

The Manteca Unified School District provided student generation factors to be used in estimating the number of future students generated by the build-out of the Tidewater Crossing project (see Table 6.7).

ZONE	K-6	7-8	9-12
LDR	0.429	0.111	0.199
MDR	0.429	0.111	0.199
HDR	0.099	0.026	0.046

The student population of Tidewater Crossing is expected to have 919 elementary school students, 238 middle school students, and 427 high school students.

Applying the generation rates presented in Table 6.7, the various residential areas are expected to produce a total of 1,584 students. The estimated student population is represented in Table 6.8.

TABLE 6.8 ESTIMATED STUDENTS IN TIDEWATER CROSSING				
LAND USE	K-6	7-8	9-12	Total
LDR	570	148	265	983
MDR	323	83	150	556
HDR	26	7	12	45
Total	919	238	427	1,584

The Tidewater Crossing Plan Area is currently served by French Camp Elementary School (located at 241 East French Camp Road) and East Union High School (located at 1700 North Union Road).

6.11.2 Objectives

The objective of the school plan is to provide sufficient school capacity to serve the anticipated population of the Tidewater Crossing community.

6.11.3 Policies

1. Schools will be located within the Plan Area such that they are easily accessible by motorized vehicles, bicycles, pedestrians, and public transportation.
2. The locations of the schools will minimize the need for students to cross arterial and collector streets, when feasible.

6.11.4 Plan

A 19.4-acre school site will be located in the middle of the eastern Tidewater Crossing neighborhood. The Manteca Unified School District has also expressed interest in a 17-acre school site in the western neighborhood to serve as a school annex. Approximately 96 teachers and staff members will be needed to educate the student population.

Because the proposed school sites are within two miles of the Stockton Metropolitan Airport, they must undergo a review by Caltrans Division of Aeronautics and the Department of Education. The proposed school sites are not within 1,500 feet of the railroad right-of-way. Both Caltrans and the Department of Education approved the proposed school sites in April 2007.

6.12 LIBRARY

The Tidewater Crossing Community will be served by Stockton's existing and future public libraries outside the project area. The nearest library is the Maya Angelou Branch located at 2324 Pock Lane. A Weston Ranch/Southwest Branch Library occupying 7,000 square feet was constructed along French Camp Road in 2006. No libraries are included in this plan.

The estimated population for Tidewater Crossing will generate the need for approximately 5,480 square feet of library space, 36 seats, and 30 books.

6.13 CHILD CARE

Child care within the Tidewater Crossing Community will be addressed as a private commercial venture. Child care facilities are a permitted use in the Community's commercial zone.

