WATER SUPPLY ASSESSMENT

Prepared for:

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INTRODUCTION

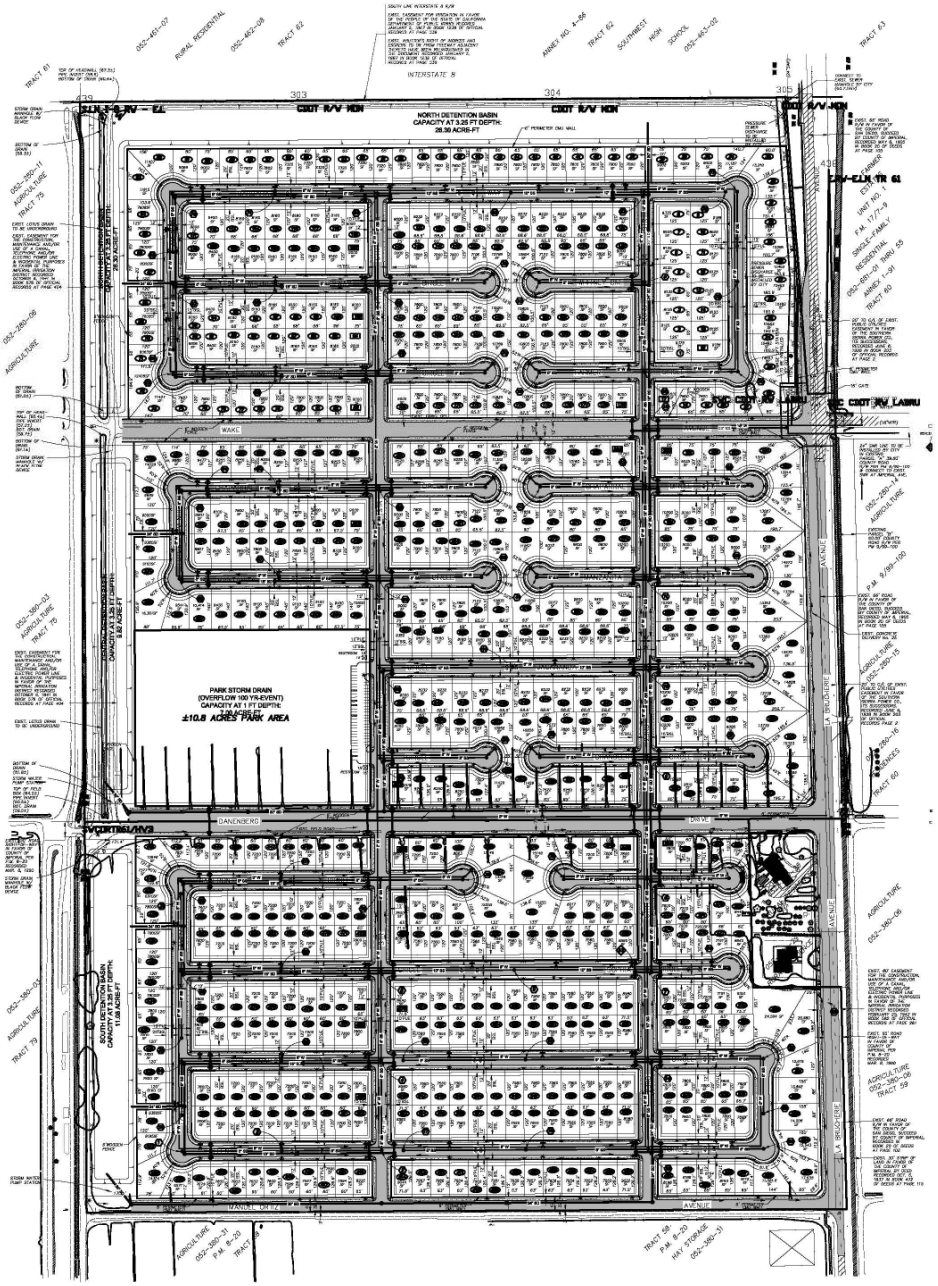
This Water Supply Assessment (WSA) has been prepared for the Lotus Ranch Development Project (the "Proposed Project") in accordance with applicable sections of the Public Resources Code and California Water Code as referenced in Senate Bills 610 and 221. The Proposed Project provides for residential development of 609 single family homes in phases on approximately 213 gross acres (gross area) and is situated fronting LaBrucherie Avenue to the east and Interstate 8 to the north, See Figure 1. The overall project site is situated on APN No. 052-280-001 and 052-380-001.

This WSA will provide information to verify that there is sufficient water supply to the City of El Centro ("City") to provide for the Proposed Project now and into the future. The City's latest Urban Water Management Plan (2010) was used in the preparation of this document.

This WSA develops the additional water demands that will need to be served by the City as a result of the proposed intensification of development in the Lotus Ranch Development. This proposed land use intensification and commensurate additional water demand requires the preparation of a WSA in conjunction with the environmental studies.

FIGURE 1 – PROJECT VICINITY MAP

FIGURE 2 – PROPOSED LOTUS RANCH TENTATIVE MAP



LEGISLATION

Because of the size of the Proposed Project (more than 500 dwelling units), the State of California, through Senate Bill (SB) 610, requires that a Water Supply Assessment be completed to evaluate the potential effect of the proposed development on current and future water supplies. While the Proposed Project will be implemented by numerous individual development phases that may have fewer than the threshold of 500 units (or a water use equivalent of commercial or office square footage) that triggers the preparation of a Water Supply Assessment, collectively the total project exceeds the threshold. Thus, the City has caused this Water Supply Assessment to be prepared. The following outlines the requirements of SB 610.

SB 610

SB 610 was chaptered into law on October 9, 2001 and became effective January 1, 2002. It mandates that a city or county approving certain projects subject to CEQA (i) identify any public water system that may supply water for the project, and (ii) request those public water systems to prepare a specified water supply assessment. The assessment is to include the following:

1. A discussion of whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing.
2. The identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts.
3. A description of the quantities of water received in prior years by the public water system under the existing water supply entitlements, water rights, or water service contracts.
4. A demonstration of water supply entitlements, water rights, or water service contracts by the following means:
    a. Written contracts or other proof of entitlement to an identified water supply.
    b. Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.
    c. Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.
    d. Any necessary regulatory approvals that are required in order to be able to convey

or deliver the water supply.

e. The identification of other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system.

No groundwater is included for the supply for the City, so the requirements for groundwater for SB 610 and SB 221 are omitted from this report.

The water supply assessment shall be included in any environmental document prepared for the project. The assessment may include an evaluation of any information included in that environmental document. A determination shall be made whether the projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.

Information must include a description of all water supply projects and programs that may be undertaken to meet total projected water use.

SB 221

SB 221 suggests that an Urban Water Management Plan (Gov. Code § 66473.7(c) may be a good source of information for developing a verification. Therefore, it is recommended that each water supplier review its most recently adopted UWMP to determine if the supply and demand analysis will provide the substantial evidence to satisfy SB 221.

The written verification must be supported by substantial evidence. That information can come from a variety of sources including an Urban Water Management Plan. Verification must demonstrate supply sufficiency by showing that water supplies available during normal, single dry, and multiple dry years within a 20-year projection will meet the projected demand associated with the proposed subdivision, in addition to existing and planned future uses, including, but not limited to, agriculture and industrial uses. All of the following must be considered:

- Historical records for at least 20 years;
- Urban Water Shortage Contingency Analysis prepared for Urban Water Management Plan,
- Supply reduction for “specific water use sector” per water supplier’s resolution, ordinance, or contract, and
- Amount of water expected from specified supply projects. (Government Code § 66473.7(a)(2)(A-D).)

Verification must be based upon "substantial evidence," possibly including relevant portions of an Urban Water Management Plan or SB 610 assessment. Government Code § 66473.7(c)

The Urban Water Management Planning Act (Water Code § 10631 – see Appendix C) requires the supplier to document water supplies available during normal, single dry, and multiple dry water years during a 20-year projection and the existing and projected future water demand during a 20-year projection. The Act requires that the projected supplies and demands be presented in five-year increments for the 20-year projection.

If the water demand for the proposed subdivision was accounted for in the most recently adopted urban water management plan; the water supplier may incorporate information from the UWMP into the verification. (Government Code § 66473.3)

If the water demand for the proposed subdivision was accounted for in a SB 610 assessment, the water supplier may incorporate information from the UWMP into the verification. (Government Code § 66473.3) The next section contains sample tables and data to demonstrate one method to present the required data.

Supplies from all sources including wholesaler's supplies, require documentation. This documentation includes identifying: water rights and/or contracts to the supply, associated capital outlay programs; federal, state and local permits for constructing infrastructure for conveying the supply, and; any necessary regulatory approvals required for conveyance.

CITY OF EL CENTRO WATER FACILITIES

The City provides potable water to homes and businesses by treating raw Colorado River water imported into the Imperial Valley and delivered to the city by the Imperial Irrigation District (IID). The imported water is a surface water source. Its treatment must comply with the Surface Water Rule of the Federal and State Safe Drinking Water Act. The California Department of Public Health (CDPH) granted a permit to the City of El Centro to supply water for domestic purposes to the City of El Centro. The treatment facility currently meets all applicable United States Environmental Protection Agency domestic water quality standards.

CITY OF EL CENTRO DISTRIBUTION SYSTEM

An extensive pipeline network supplies water to the City's customers at a normal operating pressure of 60 psi. Much of the distribution network is relatively new because of the population increase and the corresponding housing developments occurred in the last decade. Also, the

location of the water treatment plant changed in the mid-1950's creating new location requirements for the principal water lines.

A 30-inch pipe transports water from the treatment facility along Dannenberg Road. If the pipe were to be out of service, the only source of treated water would be the remote 5.0 MG storage tank on La Brucherie Road. Assuming the maximum velocity of 10 fps, the capacity of the 30-inch pipeline from the treatment plant can transport is 22,000 gpm (31.7 mgd), or 35,755 acre-feet per year.

Two water transmission pipelines extend from the 30-inch pipe in front of the water treatment plant. These pipelines carry water to the entire city. One 18-inch pipeline runs west from the treatment plant and then north along Imperial Avenue. At Hamilton Avenue, it continues west for one half mile until La Brucherie Road. There, it turns north and continues for several miles with several 12-inch lines branching from it.

The pipeline that heads north from the treatment facility is 30 inches in diameter. It flows north from the treatment plant along 8th Street until it reaches Driftwood Drive. There, it splits into one18-inch diameter main and one 24-inch diameter main. The 18-inch main flows east along Driftwood Road and provides service to the eastern and northeastern portions of the city. The 24-inch main flows north to Hamilton Avenue and provides water to the north part of the city.

An 18-inch diameter water main runs along Wake Avenue and will serve the proposed project.

WATER TREATMENT PLANT DISTRIBUTION PUMP STATION

Two booster pumping stations pressurize the water distribution system to the 60 psi operating pressure. One is located at the water treatment plant and the other is at the storage facility on La Brucherie Road. Three pumps at the treatment facility increase the pressure of the water to the normal distribution pressure. A fourth pump is original to the facility and is rated to pump at 40 psi. The three pumps were installed in 1993 when the system operating pressure was increased from 40 to 60-psi. Each is a 200 horsepower (hp) variable speed pump that has a capacity of 4,000 gpm at a 60 psi. The fourth, antiquated, pump is a constant speed centrifugal pump that can pump 4,500 gpm at 40 psi. At 60 psi, its efficiency and capacity are extremely reduced. As a result, it is used solely as a backup in the event that extra capacity becomes necessary or if the system's pressure is reduced significantly. Currently, the plant has a

pumping capacity of 12,000 gpm with all three 200-hp pumps operating at full capacity. When a fourth 200-hp pump is installed, the treatment plant's pumping capacity will increase to 16,000 gpm.

LA BRUCHERIE DISTRIBUTION PUMP STATION

At the La Brucherie facility, two pumps that are identical to those at the treatment plant pressurize the water to the system's normal operating pressure. There, two 200-hp variable speed pumps can each pump 3,500 gpm at 60-psi. The total pumping capacity of the La Brucherie facility is 7,000 gpm.

Water exits the La Brucherie pumps to the distribution system through an 18-inch cement mortar lined (CML) steel pipe. Water enters the storage tanks through the same 18-inch steel pipe. Water entering and exiting the facility is metered through a 12-inch meter. This produces a significant loss in pressure while water is entering the distribution system and it places higher demand on the station's pumps. For the same quantity of water to flow through the 12-inch meter as through the 18-inch pipe, the water's velocity must be much greater. The water experiences significant head loss from flowing through a different sized pipe and from frictional losses that increase substantially with the higher velocity. As a result, the pressure of the water after flowing through the meter is roughly 10 psi less than when it exits the pumps (at maximum flow).

Therefore, the exiting pressure of the pumps at the La Brucherie station must be set higher than the normal 60-psi operating pressure. This places more electrical demand on the pumps that could be reduced if the current meter were replaced with an 18-inch meter.

The water facilities include infrastructure for treatment, storage, and distribution. The water treatment plant consists of two raw water reservoirs, two clarifiers, a filtration system, and chlorination. The distribution system consists of a network of pipelines and two pumping facilities. Four treated water storage tanks supply water to the distribution system. Three tanks are located at the treatment facility and the fourth is located at La Brucherie Road and Barbara Worth Avenue.

The City of El Centro completed a water plant expansion in 2009. The lack of redundancy in treatment components was addressed. Redundant components allow emergency repairs or unanticipated maintenance on other similar treatment units without reducing production capacity. Filtration is considered the most vital treatment process in meeting present and anticipated new requirements.

CITY OF EL CENTRO WATER STORAGE FACILITIES

Water from the South Date Canal flows west via a 42-inch concrete pipe to the raw water pumping structure adjacent to the raw water reservoirs. Water received from the Dahlia Lateral enters the treatment site from the north end of the property in 18-inch and 24-inch concrete pipes that carry the water to the same pumping structure. As was mentioned earlier, the total amount of raw water that can currently be supplied to the City through the canals and delivery pipes is 31.6 MGD (35,755 acre-feet per year).

The City of El Centro has both raw and treated water storage facilities in case of emergencies. Treated water storage is for unanticipated interruptions in the water treatment plant capacity. Raw water storage is for unanticipated interruptions in raw water supply.

Raw water from South Date Canal delivery gate 20B and Dahlia Lateral delivery gate 1 is stored in the four reservoirs located on the treatment facility premises.

The four new raw water reservoirs, which replaced the existing two reservoirs, are located on the western side of the plant site that were constructed as a part of the new water treatment plant that was placed into operation in 2009. All ponds have a depth of 14 feet. Each reservoir has a nominal storage capacity of 12.5 million gallons (MG) for an approximate total of 50 MG of untreated water. The concrete slopes that form the sides of the reservoirs have side slopes of 2-horizontal to 1-vertical (2:1).

Water is pumped into the settling pond #1, flows by gravity to the settling pond #2, and then continues by gravity flow to ponds #3 and #4. Water can only be pumped to settling pond #1 or #2 from the raw water pump structure.

A 36-inch concrete pipe leads from the structure to the north reservoir and a 48-inch concrete pipe extends to the south reservoir. A 48-inch concrete pipe connects the two ponds. From the reservoir, the water enters the treatment system through distribution chamber via two concrete pipes, one from each reservoir. A 48-inch pipeline and 36-inch pipeline lead from the north and south reservoirs, respectively. This configuration utilizes the largest pipes and has adequate retention time for sedimentation of silt carried in the raw water.

An overflow pipe is located on the north wall of the north reservoir. It drains to an irrigation ditch north of the plant. The south pond overflows into the north pond, above the 48-inch circulation pipe. The overflow outlets prevent overtopping of the reservoirs where erosion of the reservoir embankments could undermine the structural integrity of the side slopes and cause massive

spilling. Shutting down the inflow pump station could also prevent a major overflow.

After undergoing treatment, the water is stored in four treated water tanks. Three tanks are located at the treatment facility and another is at the corner of La Brucherie Road and Barbara Worth Avenue. The total treated water storage is 15.0 MG. At the treatment facility, two tanks were installed with the original construction of the facility in 1956 and have a capacity of 2.5 MG each. In 1977, an additional treated water storage tank was placed on the site with a capacity of 5.0 MG, thereby doubling the amount of storage to 10.0 MG. The latest water storage capacity addition was the 1993 installation of a 5.0 MG tank at the corner of La Brucherie Road and Barbara Worth Avenue, located approximately 2 miles northwest of the treatment facility. In total, 67.5million gallons of raw and treated water can be stored if all the reservoirs and tanks were full simultaneously (see Table 1 below). The city average distribution flows are shown on Table 2.

Table 1 - El Centro Water Storage Capacity

Type of Storage	Location	Type of	Capacity	Year
Raw Water Storage				
Ponds #1, #2, #3, #4	Treatment Plant	Raw Water Settling	50.0	2009
Treated Water Storage				
Reservoir Tank #1	Treatment Plant	Welded Steel Tank	2.5	1956
Reservoir Tank #2	Treatment Plant	Welded Steel Tank	2.5	1956
Reservoir Tank #3	Treatment Plant	Welded Steel Tank	5.0	1977
Remote Reservoir	La Brucherie at	Welded Steel Tank	5.0	1993
Total Treated Water Storage			15.0	
Total Water Storage			67.5	

The two 2.5 MG tanks receive treated water directly from the filter Clearwell pump station, with water entering the tanks approximately six feet above the bottom. The 30-inch pipe splits at a “T” between the two tanks into two 24-inch concrete pipes leading directly into the tanks.

Table 2 - El Centro 2010 Distribution Flows

Parameter	MGD	GPM
Annual Daily Average	7.17	
Maximum Day	10.51	
Minimum Day	3.77	
Maximum Day Peak Hour		11,319
Minimum Day Peak Hour		4,722
Maximum Month Average Daily	9.31	
Minimum Month Average Daily	5.01	

The 5.0 MG storage tank located at the facility, which was constructed in 1977, similarly receives treated water from the filter Clearwell pumps via an asbestos cement pipe (ACP). The roof of the tank is 24 feet above the ground. The tank has a diameter of 197' 6". Flow to the tank passes through a 30-inch butterfly valve. Water enters the tank three feet above the bottom in the northeast section of the tank through a 36-inch diameter inlet. The outlet is located 78 feet from the inlet and 3' 5" above the bottom. The outlet is located on the north side of the tank. Water exits the tank through a 30-inch outlet and flows to the booster pumps through a 30-inch ACP and 24-inch butterfly valve.

At the main pumping room, the water is pressurized to the distribution system's normal operating pressure of 60 psi. Overflow from the 2.5 MG reservoirs is discharged through an 18-inch concrete pipe that leads west to the backwash pond. Like the others, this tank also overflows to the backwash pond. Overflows exit the tank on the northwest side through a 24-inch reinforced concrete pipe (RCP) and flows by gravity to the southeast corner of the backwash pond.

Water in the 5.0 MG La Brucherie storage tank is pumped from the tank into the distribution system to meet peak water demands during mornings and evenings. During the three-hour periods, 2,500 gpm is pumped into the system. The morning and afternoon releases generally start at 7 a.m. and 5:30 p.m., respectively. The tank is replenished during minimal consumption times, usually in the early afternoon and early morning. For this to happen, three criteria must be met. First, the pumps must not be pumping into the distribution system. Second, the water level in the tank must be less than 38 feet above the ground (40 foot tank). And finally, the system pressure must be greater than 55.4 psi.

Water from the La Brucherie storage tank can also be released outside of its normal schedule. Water is pumped into the distribution system when the system pressure falls below 54 psi for more than 180 consecutive seconds. The secondary pump begins pumping when the system pressure falls below 53-psi. This remote facility allows the system to meet varying water demands with more consistent water pressure throughout the city than would be the case were water pumped only at the treatment plant. It also allows better utilization of existing infrastructure capacity.

CITY OF EL CENTRO WATER SUPPLY AND DEMAND

SUPPLY

The City of El Centro receives raw water from the Imperial Irrigation District. Approximately three percent of the Imperial Irrigation District's untreated water is ultimately used for urban purposes and is provided indirectly to consumers through a variety of public and private treatment agencies.

The City of El Centro's sphere of influence is located within the Imperial Unit of the Imperial Irrigation District's Irrigation (IID) service area. The 699,092 acre Imperial Unit serves the Imperial Valley including the urban areas for the cities of El Centro, Calexico, Imperial and Brawley and approximately a quarter of Imperial County's unincorporated area. In total, IID delivers water to an area of just over 520,000 acres, including cities, cemeteries, schools, parks, golf courses, etc. in addition to the irrigated land. The Imperial Irrigation District's total service area, lying entirely within Imperial Valley, is divided into four units: Imperial, West Mesa, East Mesa, and Pilot Knob, with a gross acreage of 1,061,637 acres.

Recycled water low in salinity could be used for agricultural; however, treatment and distribution of recycled wastewater low in salinity is not cost effective option at this time. Colorado River water salinity has averaged 760 parts per million over the last 20 years, and treated municipal wastewater is approximately 200-300 ppm higher in salinity. In addition, agricultural producers are averse to using treated wastewater due to consumer perceptions that the crops might be tainted.

Table 3 - El Centro Supply Capability

Supply reliability — current water sources (Acre Feet)				
Water supply sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2015	Year 2025	Year 2035
Imperial Irrigation District	35,755	35,755	35,755	35,755
Percent of normal year:	100%			

The water supply available to the city is determined by the water treatment plant capacity and raw water influent and distribution piping, which is currently 35,755 acre-feet per year. Multiple dry water years do not affect the City's water supply (See Table 3).

DEMAND

Table 4 - City of El Centro Gross Water Use and Per Capita Use 1995-2014

Year	El Centro Population Estimates (Data from US Census Bureau)	Gross Water Use - Water Pumped into the distribution system (Million Gallons)	Average Per Capita Per Day Use (Gallons)
1995	38,882	2,774.454	195
2000	38,126	2,864.000	206
2001	37,773	2,854.369	207
2002	37,661	2,879.611	209
2003	37,664	2,858.400	207
2004	37,836	2,931.460	212
2005	38,966	2,981.490	209
2006	39,797	3,153.160	217
2007	39,476	2,983.640	207
2008	40,081	2,943.706	201
2009	41,241	2,861.635	190
2010	42,694	2,621.240	168
2011	43,011	2,694.908	172
2012	43,077	2,685.131	171
2013	43,363	2,675.151	169
2014	43,763	2,603.861	163

The City's Urban Water Use Target for 2020 is 190 gallons per capita per day (gpcd). In 2010, the average was 168 gpcd, using US Census Bureau figures for population (See Table 4).

The 2020 City of El Centro Urban Water Use Target was calculated to be 190 gallons per capita per day (gpcd) using Method 3 in the Guidebook to Assist Urban Water Suppliers to prepare a 2010 Urban Water Management Plan (See Table 5).

Table 5 - El Centro Urban Water Use Target

2020 City of El Centro Urban Water Use Target (gallons per day per person, or gpcd)	190

The City averaged 153 gallons per day per capita in 2010 according to the Urban Water Management Plan. The 2010 UWMP used the Department of Finance estimates for population, the best information available at the time.

Table 6 - Total and Projected El Centro Water Use 1995 - 2030

Total water use, in acre-feet								
Water Use	1995	2000	2005	2010	2015	2020	2025	2030
Total water deliveries	7,989	8,258	8,542	7,456	11,198	12,374	13,540	14,705
Sales to other water	0	0	0	0	0	0	0	0
Additional water uses	524	531	541	573	141	141	141	141
Total	8,513	8,789	9,083	8,029	11,339	12,515	13,681	14,846

SUPPLY PROJECTIONS

Table 7 - Water Supply Projections

Retail agency demand projections provided to wholesale suppliers, in acre-feet						
Wholesaler	Contracted	2010	2015	2020	2025	2030
Imperial Irrigation District	No Contract	8,029	11,198	12,374	13,540	14,705

The above tables, Table 6 and Table 7 include estimates for demand projections in five-year intervals for the City until 2030 in acre-feet. The estimates are based on projected population growth and per capita water demand.

The City's contract with Imperial Irrigation District contains no limitation to the amount of water available to the City and is currently set as depicted on Table 8.

Table 8 - Existing and Planned Sources of Water

Wholesale supplies — existing and planned sources of water					
Wholesale sources[1,2]	Contracted Volume[3]	2015	2020	2025	2030
Imperial Irrigation District	No Contract	11,198	12,374	13,540	14,705
Units: acre-feet per year					

WATER RIGHTS

The City of El Centro has been supplying potable drinking water since the early years of the 1900's when water became available from the Colorado River. El Centro receives its drinking water from the Colorado River via the Imperial Irrigation District's (IID) All-American Canal and the Central

Main Canal that run south of the city limits. The South Date Canal and the Dahlia Lateral Number 1 run north from the Central Main Canal and supply the water treatment facility. The raw water is stored in reservoirs until undergoing treatment.

The City of El Centro depends solely on the Colorado River for surface water inflows, supplied by the Imperial Irrigation District. The Imperial Irrigation District imports the raw Colorado River water and distributes it to the City and for agricultural purposes. Water from agricultural drains, the New and Alamo Rivers are high in total dissolved solids and other contaminants and are unsuitable for potable water use. The City treats the raw surface water to meet state and federal drinking water standards before distribution.

IID has a longstanding right to import Colorado River water, and holds legal title to all its water and water rights in trust for landowners and water users within the District (California Water Code §§20529 and 22437; Bryant v. Yellen, 447 U.S. 352, 371 (1980), fn.23.). These date from as early as 1885, when a number of individuals, as well as the California Development Company, made a series of appropriations of Colorado River water, pursuant to stipulations of California law, for use in the Imperial Valley.

The right to water from the Colorado River is governed by numerous compacts, state and federal laws, court decisions and decrees, contracts, and regulatory guidelines collectively known as the "Law of the River." These documents apportion the water and regulate the use and management of the Colorado River among the seven basin states (Colorado, New Mexico, Utah, Wyoming, Arizona, California and Nevada) and Mexico. A brief review of those parts that impact the Imperial Irrigation District follows:

COLORADO RIVER COMPACT (1921)

In 1921, representatives from the seven Colorado River basin states, with the authorization of their legislatures and at the urging of the federal government, began negotiations regarding the distribution of water from the Colorado River. In November of 1922, the representatives from the upper basin states (Colorado, New Mexico, Utah and Wyoming) and lower (Arizona, California, and Nevada) signed the Colorado River Compact (Compact), an interstate agreement giving each basin perpetual rights to annual apportionments of 7.5 million acre-feet (MAF) of Colorado River water.

BOULDER CANYON PROJECT ACT (1928)

The Compact was made effective by provisions in the 1928 Boulder Canyon Project Act, which authorized construction of Hoover Dam and the All-American Canal, and served as the United States' consent to accept the Compact. Officially enacted on June 25, 1929, through a Presidential Proclamation, this act resulted in ratification of the Compact by six of the basin states and required California to limit its annual consumptive use to 4.4 MAF of the lower basin's apportionment plus not less than half of any excess or surplus water unapportioned by the Compact. Arizona refused to

sign and subsequently filed a lawsuit. California abided by this federal mandate through the implementation of its 1929 Limitation Act. The Boulder Canyon Project Act further authorized the Secretary to "contract for the storage of water... and for the delivery thereof for irrigation and domestic uses," and further defined the lower basin's 7.5 MAF apportionment split, with an annual allocation of 0.3 MAF to Nevada and 2.8 MAF to Arizona. While the three states never formally accepted or agreed to these terms, a 1964 Supreme Court decision (Arizona v. California, 373 U.S. 546) declared their consent to be inconsequential since the Boulder Canyon Project Act was authorized by the Secretary.

CALIFORNIA SEVEN-PARTY AGREEMENT (1931)

Following implementation of the Boulder Canyon Project Act, the Secretary requested that California make recommendations regarding distribution of its allocation of Colorado River water. In August 1931, under chairmanship of the State Engineer, the California Seven-Party Agreement was developed and authorized by the affected parties to prioritize California water rights. The Secretary accepted this agreement and established these priorities through General Regulations issued in September of 1931. The first four priority allocations account for California's annual apportionment of 4.4 MAF, with agricultural entities using 3.85 MAF of that total. The remaining priorities are defined for years in which the Secretary declares that excess waters are available.

Arizona v. California US Supreme Court Decision (1964, 1979)

In 1963, the Supreme Court issued a decision settling a 25-year-old dispute between Arizona and California, which stemmed from Arizona's desire to build the Central Arizona Project to enable use of its full apportionment. California argued that Arizona's use of water from the Gila River, a Colorado River tributary, constituted use of its Colorado River apportionment, and that California had developed a historical use of some of Arizona's apportionment, which, under the doctrine of prior appropriation, precluded Arizona from developing the project.

The Supreme Court rejected California's arguments, enjoined the Secretary from delivering water outside the framework of apportionments defined by the law, and mandated the preparation of annual reports documenting the consumptive use of water in the three lower basin states. In 1979, the Supreme Court issued a Supplemental Decree which addressed Present Perfected Rights (PPRs) referred to in the Colorado River Compact and in the Boulder Canyon Project Act. These rights are entitlements essentially established under state law, and have priority over later contract entitlements.

On March 27, 2006, the Supreme Court issued a Consolidated Decree to provide a single reference to the provisions of the original 1964 decrees and several subsequent decrees (1966, 1979, 1984, and 2000) that stemmed from the original ruling. This decree also reflects the settlements of the federal reserved water rights claim for the Fort Yuma Indian Reservation.

COLORADO RIVER BASIN PROJECT ACT (1968)

Congress authorized construction of a number of water development projects in both the upper and lower basins, including the Central Arizona Project (CAP) in 1968. The act made the priority of the CAP water supply subordinate to California's apportionment in times of shortage, and directed the Secretary to prepare, in consultation with the Colorado River Basin states, long-range operating criteria for the Colorado River reservoir system.

QUANTIFICATION SETTLEMENT AGREEMENT (QSA) AND RELATED AGREEMENTS

The Quantification Settlement Agreement (QSA) and Related Agreements that became effective in October 2003 are a set of inter-related contracts that settle certain disputes among the United States, the State of California, Imperial Irrigation District (IID), Metropolitan Water District (MWD), Coachella Valley Water District (CVWD) and the San Diego County Water Authority (SDCWA) that became effective in October 2003. The agreements resolve, for a period of 35 to 75 years, issues regarding the reasonable and beneficial use of Colorado River water; the ability to conserve, transfer and acquire conserved Colorado River water; the quantification of Priorities 3 and 6 within California for the use of Colorado River water; and the obligation to implement and fund environmental impact mitigation related to the above.

Conserved water transfer agreements between IID and SDCWA, IID and CVWD and IID and MWD are all part of the QSA and Related Agreements. These contracts identify the conserved water volumes and transfer schedules for IID along with price and payment terms. As specified in the agreements, IID will transfer to SDCWA up to 200,000 AFY, and to CVWD up to 103 AFY, and MWD 105,000 Acre AFY of water conserved from delivery system improvements and on-farm efficiency improvements, all in return for payments totaling billions of dollars. In addition, IID will transfer up to 67,000 AFY of conserved water from the lining of the All-American Canal to SDCWA and certain San Luis Rey Indian Tribes 16,500 AFY in exchange for the payment of all lining project costs and a grant to IID of certain rights to use the conserved water.

As a result of the QSA and Related Agreements, IID will be able to more efficiently deliver Colorado River water to the Imperial Valley. Imperial Valley water users will be able to more effectively irrigate

their farms, thus preserving Imperial Valley water rights and agricultural output, with costs and impacts compensated by the payments to IID for the conserved water. IID will face minimum future risk from challenges to the purpose or reasonableness of IID's water use, and thus enable the Imperial Valley to rely upon the large senior Colorado River water rights IID possesses.

In short, the QSA and Related Agreements provide the methods and the means to allow IID to elevate its Colorado River water use to efficient 21st Century standards and ensure the continued availability.

In October 2003, all the water districts, the State and the Interior reached agreement on the final terms of the QSA and related agreements, see Figure 3. For closure among State interests, three elements proved critical. First, the IID, SDCWA, CVWD and MWD agreed to provide four sources of economic support for Salton Sea restoration: (1) conditional new transfers between the IID/CDWR (CA Department of Water Resources) and CDWR/MWD as described in the succeeding paragraph; (2) conditional reassignment of mitigation water to CDWR for resale to MWD at a price of $250/AF (in 2003 dollars) per acre-foot delivered to the Salton Sea, provided that the reassignment is consistent with the restoration of the Salton Sea and satisfies other conditions; (3) a joint contribution by the IID, CVWD, and SDCWA to the Salton Sea Restoration Fund established by the California Legislature with payments totaling a present value of $30 million; and (4) payment by MWD to a Salton Sea Restoration Fund of $20 (in 2003 dollars) per acre-foot for all special surplus water MWD receives from the reinstatement of the Interim Surplus Guidelines.

As part of the final negotiations, the IID and CDWR entered into a conditional agreement for the IID to sell CDWR an aggregate of 800,000 acre-feet of conserved water, through the year 2017 for delivery to the Salton Sea as mitigation for impacts of the SDCWA transfer. CDWR is responsible for all mitigation costs, including environmental and any socioeconomic impacts from land fallowing used to make water available to CDWR. The water will be sold to CDWR at a price of $175/acre foot (in 2003 dollars). Therefore, the price received by the IID in any year equals $175/acre foot adjusted by changes in a contractually defined price index from 2003 to the year of delivery.

FIGURE 3 – IID QSA DELIVERY SCHEDULE

Compromise IID QSA Delivery Schedule (KAF)									
		Delivery				Conservation Practice			
	1	2	3	4	5	6	7	8	9
Agreement Year	Calendar Year	IID to SDCWA	IID to CVWD	IID to MWD	Total Delivery (Col 2+3+4) or (Col 6+7)	Efficiency for Delivery	Fallowing for Delivery	Fallowing for Mitigation	Total Fallowing (Col 7+8)
4	2006	40	0	0	40	-	40	20	60
5	2007	50	0	0	50	-	50	25	75
6	2008	50	4	0	54	4	50	25	75
7	2009	60	8	0	68	8	60	30	90
8	2010	70	12	0	82	12	70	35	105
9	2011	80	16	0	96	16	80	43	120
10	2012	90	21	0	111	21	90	45	135
11	2013	100	26	0	126	46	80	70	150
12	2014	100	31	0	131	47	60	90	150
13	2015	100	36	0	136	96	40	110	150
14	2016	100	41	0	141	121	20	130	150
15	2017	100	45	0	145	145	0	150	150
16	2018	130	63	0	193	193	0	0	0
17	2019	160	38	0	228	228	0	0	0
18	2020	192.5	73	2.5	268	268	0	0	0
19	2021	205	78	5	288	288	0	0	0
20	2022	202.5	83	2.5	288	288	0	0	0
21	2023	200	88	0	288	288	0	0	0
22	2024	200	93	0	293	293	0	0	0
23	2025	200	98	0	298	298	0	0	0
24	2026	200	103	0	303	303	0	0	0
25	2027	200	103	0	303	303	0	0	0
26	2028	200	103	0	303	303	0	0	0
27-45	2029-2047	200	103	0	303	303	0	0	0
46-75	2048-2077	200	50	0	250	250	0	0	0

QSA by and among IID, MWD, and CVWD, Exhibit C, http://www.iid.com/Media/Quantification-Settlement-Agreement(QSA-among-IID,-MWD,-and.pdf , (p 39 of 44)

The Imperial Irrigation District is the only supplier of water to the City, and there is no alternative source water. The water quality of the agricultural drains, New River and Alamo River are high in total dissolved solids and other contaminants and are as such unusable as a potable or irrigation water source.

The City receives water from the All-American and Central Main Canals. If either the All-American Canal or Central Main Canal were shut down, water could not be delivered to the treatment plant. The shutdown could be for scheduled maintenance or as a result of an emergency, such as an earthquake. In October 1979, an earthquake caused levee and slope failures along the All-American Canal east of El Centro, severely limiting water flow. This is the only time during the last 25 years that the All-American Canal was shut down.

Maintenance is scheduled to be performed monthly on the South Date Canal and Dahlia Lateral. Typically, however, the South Date Canal and the Dahlia Lateral are shut down about three times annually, usually lasting approximately three days each time. The Central Main Canal and the All-American Canal are seldom shut down. To perform maintenance on the Central Main Canal, the water level is lowered but service is not completely interrupted. According to plant operators, this is done every five to ten years.

In the event that there is a water shortage in the Lower Colorado River Basin, the Imperial Irrigation District/San Diego County Water Authority water transfer agreement states that both agencies will share, on a pro-rata basis, any reductions in water to Imperial Irrigation District should a shortage declaration by the Secretary of the Interior for the Lower Colorado River Basin affect the Imperial Irrigation District's water conservation and transfer programs. When the amount of water in usable storage in Lake Mead is less than 15 million acre-feet and the unregulated inflow into Lake Powell is forecasted to be less than 8.8 million acre-feet, the Imperial Irrigation District and the San Diego County Water Authority have agreed to meet and confer to discuss a supplemental water transfer agreement in anticipation of the shortage.

Should operating conditions on the Colorado River indicate Imperial Irrigation District may be impacted by reductions in water deliveries, the Imperial Irrigation District will notify all of its water users by mail and will conduct an educational outreach program in conjunction with the local media and municipal water systems. The notice will request all water suppliers, and in particular residential, industrial, and commercial water users, to conserve water on a voluntary basis. Urban water suppliers will be responsible for notifying their customers and implementing their own voluntary water conservation measures and programs.

Urban water supply reductions in the Imperial Unit are not likely to occur during the next twenty years. Urban water supply shortage stage one is voluntary, has cut back conditions of less than 15 percent, and is estimated to provide up to 79 percent of the reduction goal for urban water suppliers. Urban water supply shortage stage two is voluntary, has cut back conditions of 15 percent to less than 25 percent, and is estimated to provide 7 to 12 percent of the reduction goal for urban water suppliers. Urban water supply shortage stage 3 is mandatory, has cut back conditions of 25 percent to less than 35 percent, and is estimated to provide the remainder of any reduction goals for urban water suppliers.

RELIABILITY OF WATER SUPPLIES

Table 9 - Factors Resulting in Possible Inconsistency of Supply

Factors resulting in inconsistency of supply							
Water supply sources[1]	Specific source name, if any	Limitation quantification	Legal	Environmental	Water quality	Climatic	Additional information
Imperial Irrigation District	None	None	None	None	None	None	None

Units: acre-feet per year

There are no known upcoming factors that will result in inconsistency of supply, see Table 9.

IMPERIAL IRRIGATION DISTRICT SUPPLY

It is unlikely that the urban water supply of Imperial Irrigation District would ever be affected, even under shortage or drought conditions on the Colorado River. Urban water use in the Imperial Unit makes up less than three percent of the total water delivered by the Imperial Irrigation District. Under a worst case water supply scenario, the Imperial Irrigation District could meet the demands of urban water users. Due to the high priority of the Imperial Irrigation District's water rights, Colorado River

flows, and the storage facilities on the Colorado River it is highly unlikely that Imperial Irrigation District's water supply will be affected, even in dry years.

WATER SHORTAGE CONTINGENCY PLANNING

Upon a catastrophic water supply reduction, mandatory provisions to reduce individual urban consumer water use will be placed into effect. During a shortage the City would increase media attention to the water supply situation and would step up public water education programs, encourage property owners to apply for landscape and interior water use surveys and continue to advertise the importance of customers installing efficient plumbing fixtures.

During declared shortages, or when a shortage declaration appears imminent, the City Manager activates a City water shortage response team. The team includes: water, fire, planning, health, emergency services, public affairs, parks and recreation, and the Mayor's Office. During a declared water shortage, the City will accept applications for new building permits but will not issue permits until the shortage declaration is rescinded. An appeal process is available and ends at the City Council.

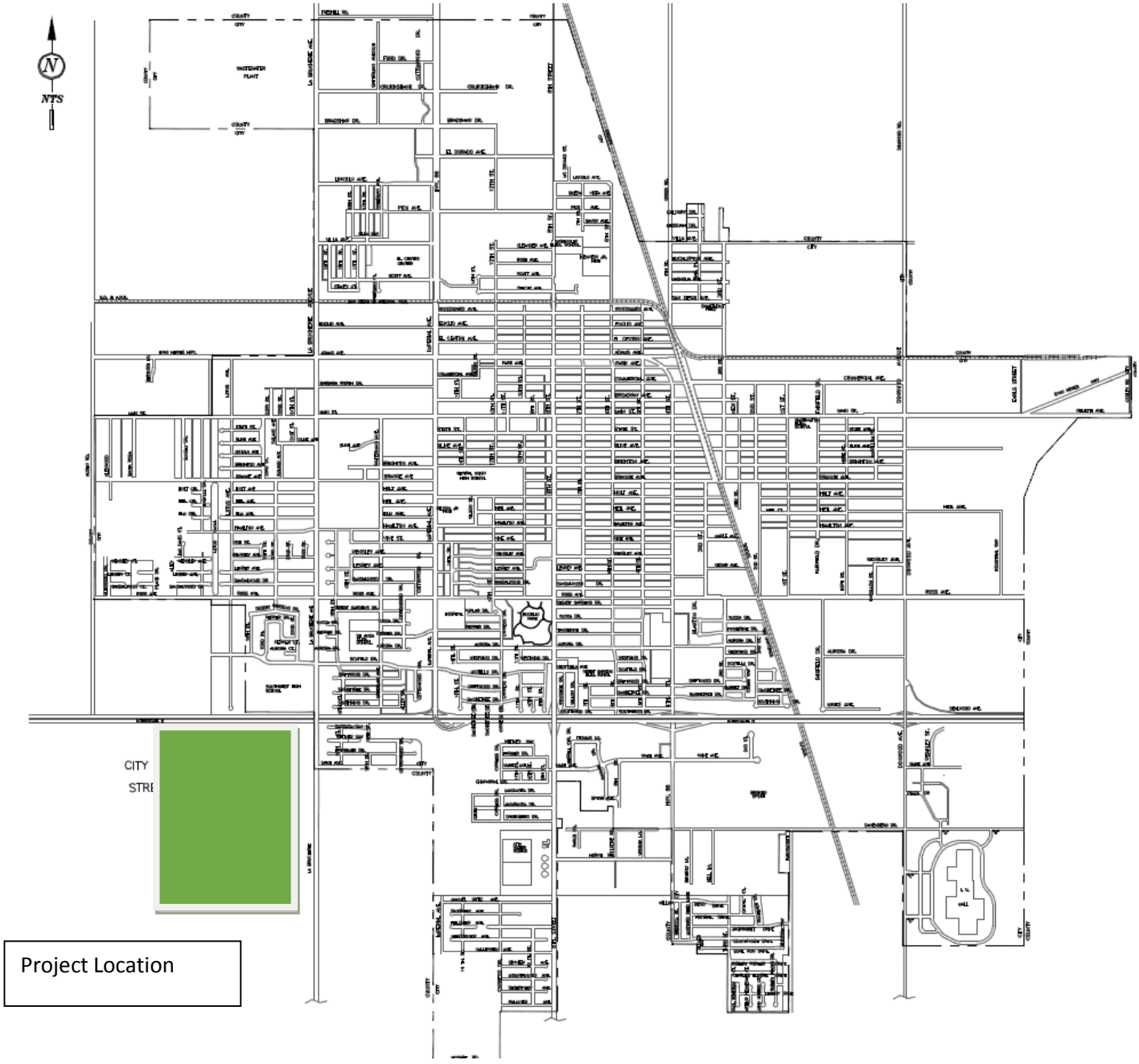
In the event of extended regional power outages, the City will use standby diesel generators that will power critical functions at the water treatment plant. The fuel would be brought in every two days. In this way the residents of El Centro would not lose supply of potable water.

In the event of an earthquake that damages critical components of the water treatment plant, the City will divert irrigation water into the potable water distribution system. Under this scenario non-potable water would be delivered to City customers and the water would have to be boiled by each customer prior to potable water use. The water could be delivered by diesel powered pumps to the City’s distribution system. If the All-American or Central Main Canal is damaged and unable to transmit water, the City will declare a water shortage emergency and will implement the appropriate conservation measures. The City will have approximately ten days of raw water storage to rely on from the time of the emergency with these conservation measures in place.

LOTUS RANCH PROJECT

PROJECT LOCATION AND DESCRIPTION

Figure 4- Project Location and City Limits of the City of El Centro



The project proposes the development of 609 single family residential units and is located in Imperial County just outside of the current City of El Centro city limits. The project area is in the planning stages of being annexed into the City of El Centro. The site is situated north of the proposed Manuel Ortiz Avenue and south of Interstate 8. The project also boundaries La Brucherie Avenue to the east and Imperial Irrigation Lotus Drain to the west. The surrounding area is zoned agricultural and has continuous farming operations. The existing natural terrain is generally flat and slopes slightly north-easterly.

PROJECT IMPACTS

PROJECT DEMAND ESTIMATES

According to the 2010 census, there are 3.27 persons per household in the City of El Centro. With 609 units, this represents 1,992 persons. The City of El Centro water use goal per the 2010 UWMP for 2020 is 190 gallons per day per person (gpcd). Currently the State of California is under an extreme drought and the governor has implemented emergency measures to conserve water. The State has determined that the City shall reduce the total water consumption by 25% over 2014 total flows. To be conservative, the project total water demand will utilize the 190 gpdpc per the 2010 UWMP to calculate the total estimated water consumption by the project.

With a per capita water use estimated to be 190 gallons per day per person, the project will result in an additional 378,480 gallons per day total, or 138.15 million gallons per year (424 acre feet per year) demand.

The proposed project will be constructed in nine phases, see Table 10. Construction for phase one is estimated to start in March 2016, and the final phase will be completed in 2022. The project includes a city park and currently proposes landscaped areas in both the front and backyards of the residences.

Table 10 - Proposed Project Phasing and Estimated Construction Dates

Phase	Total Lots	Estimated Construction Dates
A1-A2	49	2016
A3-A4	49	2017
A5-A6-A7	81	2018-2019
A8-A9	68	2020
B1-B2	44	2016-2017
B3-B4	72	2018-2019
C1-C2	64	2021
C3	50	2022
C4	76	2023-2024
C5	52	2025
Total:	**609**	

WATER CONSERVATION MEASURES

At this time the project estimates are 190 gpcd, representing the total demand of the project including all landscaped areas. The actual water demand required by the project may be lower due to the current drought conditions and low-flow plumbing fixtures, reduced landscaping and other demand management measures as required by the City for the project.

NORMAL, SINGLE DRY, AND MULTIPLE DRY YEAR WATER SUPPLY

The City's projected average use over the next 15 years is shown below (Tables 11 and 12). The projections are based on the Urban Water Target of 190 gpcd.

Table 11 - Supply and Demand Comparison Normal Year

Supply and demand comparison — normal year				
	2015	2020	2025	2030
Supply totals	11,198	12,374	13,540	14,705
Demand totals	11,198	12,374	13,540	14,705
Difference	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%
Units are in acre-feet per year.				

Table 12 - Supply and Demand Comparison Single Dry Year

Supply and demand comparison — single dry year				
	2015	2020	2025	2030
Supply totals	11,198	12,374	13,540	14,705
Demand totals	11,198	12,374	13,540	14,705
Difference	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%

The total demand totals through 2030 were calculated using the urban water targets and population growth estimates. The total supply is limited by the amount of water that the water treatment plant can produce and the influent raw water pipeline. The City is able to produce 35,755 acre-feet of water per year (Table 14). For purposes of preparing the Tables, the supply matches the forecasted demand.

The City forecasts no supply shortage at any point in the future, See Table 13. The Equitable Distribution Program will provide for the distribution of water in any year when expected demand for IID water is likely to exceed expected IID supply. Under the Equitable Distribution Program, when a supply/demand imbalance is declared, IID apportions the estimated supply among the various types of water users. Municipal and Commercial water users will receive the first allocation, the base amount of 2006 usage plus current District wide average use per capita multiplied by the increase in population since 2006.

Table 13 - Supply and Demand Comparison Multiple Dry Year Events

Supply and demand comparison — multiple dry-year events					
		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	11,198	12,374	13,540	14,705
	Demand totals	11,198	12,374	13,540	14,705
	Difference	0	0	0	0
	Difference as % of Supply	0.0%	0.0%	0.0%	0.0%
	Difference as % of Demand	0.0%	0.0%	0.0%	0.0%
Multiple-dry year second year supply	Supply totals	11,198	12,374	13,540	14,705
	Demand totals	11,198	12,374	13,540	14,705
	Difference	0	0	0	0
	Difference as % of Supply	0.0%	0.0%	0.0%	0.0%
	Difference as % of Demand	0.0%	0.0%	0.0%	0.0%
Multiple-dry year third year supply	Supply totals	11,198	12,374	13,540	14,705
	Demand totals	11,198	12,374	13,540	14,705
	Difference	0	0	0	0
	Difference as % of Supply	0.0%	0.0%	0.0%	0.0%
	Difference as % of Demand	0.0%	0.0%	0.0%	0.0%
Units are in acre-feet per year.					

Table 14 - El Centro Supply Capability Multiple Dry Water Year Events

Supply reliability — current water sources (Acre Feet)				
Water supply sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2015	Year 2025	Year 2035
Imperial Irrigation District	35,755	35,755	35,755	35,755
Percent of normal year:	100%			

The water supply available to the city is determined by the water treatment plant capacity and raw water influent and distribution piping, which is currently 35,755 acre-feet per year. Multiple dry water years do not affect the City's water supply, (Table 13).

CONCLUSION

With a conservative per capita water use estimated to be 190 gallons per day per person, the project at build out will result in an additional 378,480 gallons per day total, or approximately 138.15 million gallons per year (424 acre feet per year) demand. This represents 5.3% of the total current flows from the water treatment plant. The actual water demand required by the project may be lower due to the current drought conditions and low-flow plumbing fixtures, reduced landscaping and other demand management measures as required and implemented by the City.

The city is capable of treating and distributing 35,755 acre feet of water per year. Current demand is approximately 8,000 acre feet per year. Per the above estimates, the project will require 424 acre feet per year. The total water demand as described in the 2010 UWMP for the City by 2025 when the project is estimated to be fully completed is 13,540 acre feet per year.

The City of El Centro receives water from the Imperial Irrigation District that ultimately receives water from the Colorado River, a very reliable source. The city's raw water is a very small percentage of the total water allocated to the Imperial Irrigation District's allotment. Therefore, the city has the water supply and capability of delivering the total water required by the project, even in multiple dry years as is being experienced currently.