2015

CITY OF BRAWLEY

2015 URBAN WATER MANAGEMENT PLAN

-DRAFT PLAN-

CITY OF BRAWLEY

420 South Imperial Ave.
Brawley , CA 9221

PREPARED BY LEE & RO, INC. | 1199 S. Fullerton Rd. City of Industry, CA 91748 Tel: (626) 912-3391

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2015 Urban Water Management Plan

Contact Sheet

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The water supplier is a: **Municipality, Retailer**

Utility service provided by the water supplier includes: **Water and Sewer**

Is this agency a Bureau of Reclamation contractor? **No**

Is this agency a State Water Project contractor? **No**

Chapter 1 – Introduction and Overview

1.1 Background and Purpose

The Urban Water Management (UWMP) Act (California Water Code §10610 et seq.) requires urban water suppliers to report, describe, and evaluate:

- Water deliveries and uses
- Water supply sources
- Efficient water uses
- DMMs, including implementation strategy and schedule

In addition, the Water Conservation Bill of 2009 requires urban water suppliers to report in their UWMPs base daily per capita water use (baseline), urban water use target, interim urban water use target, and compliance daily per capita water use.

The UWMP Act directs water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future demands (CWC 10612 (b)). Urban water suppliers (see definition in Part II, Section P: Glossary) are required to assess current demands and supplies over a 20-year planning horizon and consider various drought scenarios.

The UWMP Act also requires that water shortage contingency planning and drought response actions be included in a UWMP. UWMPs are to be prepared every five years by urban water suppliers with 3,000 or more service connections or supplying 3,000 or more acre-feet of water per year. Public and private utilities with multiple service areas within their districts should follow the guidelines below.

- Public utilities above the UWMP submittal threshold should include all service areas regardless of size.
- For private utilities, if the district is above the threshold, then all the service areas within that district should be included. If the utility district is below the UWMP threshold, an UWMP is not required for that district.
- One urban water use target should be determined for each UWMP.

The normal UWMP submittal cycle requires that they be prepared and submitted in December of years ending in five and zero. However, because of recent changes in UWMP requirements, State law has extended the deadline for the 2010 UWMP to July 31, 2011. Although submitted in 2011, 2010 UWMPs will be referred to as 2010 UWMPs because they include 2010 water data and to retain consistency with the five- year submittal cycle.

Based on legislative changes resulting from the November 2009 passage of SBX7-7 (hereafter referred to as the Water Conservation Bill of 2009), development of UWMPs will also enable water agencies and, in turn, the State of California to set targets and track progress toward decreasing daily per capita urban water use throughout the state.

An UWMP, including discussion of the status of a water supplier's implementation of DMMs, is required for an urban water supplier to be eligible for a water management grant or loan administered by DWR, the State Water Resources Control Board (State Water Board), or the Delta Stewardship Council (CWC §10631.5(a)). A current UWMP must also be maintained by the water supplier throughout the term of any grant or loan administered by DWR.

Changes to California law require that, beginning in 2016, water suppliers comply with water conservation requirements established by the Water Conservation Bill of 2009 in order to be eligible for State water grants or loans. These changes are discussed further in Part II, Section B: Changes in UWMP Requirements Since 2005.

Purpose of the UWMP

The purpose of this report is to review the overall supply and demand of water for the City of Brawley, identify any possible deficiencies in the water supply for the **next 20 years (2010-2030).** There is no foreseeable water shortage in the City of Brawley for the next 25 years. The City of Brawley uses Colorado River water that can supply the City with sufficient water to meet all projected demand. Thus the City is not affected by climatic related supply shortages. There was a 10-year drought on the Colorado River (Oct 1999 - 2010); however, storage on the river was sufficient and the crucial elevation of 1075 was not reached. In addition, Imperial Irrigation District (IID) has senior water rights to Colorado River water and ranks urban supply higher than the agricultural supply; so even were drought on the Colorado River to impact IID's supply, the City's use would not be impacted.

An awareness of the importance of a sound water policy is important in recognizing that water in California is becoming a stretched resource. In fact, California's use of 5.2 MAFY of Colorado River water exceeds its right to 4.4 MAFY. This led to the Quantification Settlement Agreement of 2010 (QSA), under which the amount of Colorado River water available to California and to the Imperial Valley was quantified.

Land use decisions based in part upon water resources have significant effects on the physical, social, and economic character of the county. Although the UWMP is concerned with long-range goals and objectives, attention should also be given to currently existing conditions and

issues. This approach will enable the City to face important issues today, thereby avoiding problems in the future.

In addition to the statement of goals, objectives and policies, the UWMP includes discussions, data, and water conservation programs which provide for the prudent and conscientious management and utilization of water resources for future development in the City. The implementation of the UWMP is meant to assure that water resources are conserved and utilized as efficiently as possible, and to provide for the long-term viability and availability of this precious resource.

This UWMP follows the outline order of *2015 Urban Water Management Plans: Guidebook for Urban Water Suppliers* Final, Jan 2016, and includes the following:

- Chapter 1 – Introduction and Purpose
- Chapter 2 – Plan Preparation
- Chapter 3 – System Description
- Chapter 4 – System Water Use
- Chapter 5 – SB X7-7 Baseline and Targets
- Chapter 6 – System Supplies
- Chapter 7 – Water Supply Reliability
- Chapter 8 – Water Shortage Contingency Planning
- Chapter 9 – Demand Management Measures
- Chapter 10 – Plan Adoption, Submittal, and Implementation

**** Following Paragraphs in italicized text are verbiage from the law.*

Chapter 2 – Plan Preparation

2.1 Basis for Preparing a Plan

"Urban water supplier" means a supplier either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contract for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems… (10617).

In accordance with the CWC, urban water suppliers with 3,000 or more service connections or supplying 3,000 or more acre-feet of water per year are required to prepare an UWMP every five years. The City of

Brawley supplies over 3,000 connections and over 3,000 acre-feet of water per year. This report has been completed in compliance with the CWC requirements.

2.1.1 Public Water Systems

The plan, or amendments to the plan, submitted to the department … shall include any standardized forms, tables, or displays specified by the department (10644(a)(2)).

In accordance with CWC §10644(a)(2), the 2015 UWMP will use standardized data tables and SB X7-7 verification forms specified in the Appendix E of the *Guidebook for Urban Water Supplies*.

2.1.2 Agencies Serving Multiple Service Areas/Public Water Systems

In accordance with CWC §10617 the City of Brawley qualifies as an Urban Water Retailer based on its supplying more than 3,000 service connections and more than 3,000 acre-feet of water per year; see table 2-1 for further information.

Table 2-1: Retail Only: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
1310001	City of Brawley	5,490	1,538
	TOTAL	5490	1,538
NOTES:			

2.2 Regional Planning

The City of Brawley is not involved in any regional planning processes.

2.3 Individual/Regional Planning Compliance

The City of Brawley is reporting solely on its own service area and is not a member of a Regional Alliance, see Table 2-2. IID is the regional supplier from which the City of Brawley receives its water supply. In past years IID would prepare a regional UWMP which included the City of Brawley amongst others. Beginning in 2010 IID no longer prepared a UWMP and the cities it served were required to prepare and submit their own individual UWMP's.

Table 2-2: Plan Identification (Select One)		
☑	Individual UWMP	
☐	Regional UWMP (RUWMP) *(checking this triggers the next line to appear)*	
	Select One:	
	☐	RUWMP includes a Regional Alliance
	☑	RUWMP does not include a Regional Alliance
NOTES:		

2.4 Fiscal or Calendar Year and Units Measure

Urban retail water suppliers…may determine the targets on a fiscal year or calendar year basis (1608.20(a)(1)).

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☐	UWMP Tables Are in Calendar Years
☑	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Day that the Fiscal Year Begins (dd/mm)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	MG
NOTES:	

2.4.1 Fiscal or Calendar Year

The City of Brawley reports on the calendar year basis. The UWMP data is consistent with the data submitted in other reports to the state.

2.4.2 Reporting Complete 2015 Data

This 2015 UWMP includes the water use and planning data for the entire calendar year of 2015.

2.4.3 Units of Measure

In the 2015 UWMP, the city will using million gallons (MG) as a unit of measure to report volumes of water.

2.5 Coordination and Outreach

An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c) (10631(j)).

The plan, or amendments to the plan, submitted to the department … shall include any standardized forms, tables, or displays specified by the department (10644(a)(2)).

2.5.1 Wholesale and Retail Coordination

The City of Brawley's projection information that is communicated to the IID is shown in the following Table X. This information is shared to allow both agencies to properly analyze current and future water usage.

The above table includes estimates for demand projections for the City until year 20XX in acre feet per year. The estimates are based on the projected population growth and per capita water demand. These demands are provided to the IID for planning purposes. The City does not currently have a contract with the Imperial Irrigation District (IID) that limits the amount of water available to the City.

2.5.2 Coordination with Other Agencies and the Community

Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable (10620(d)(2)).

Development of this plan was coordinated with the Imperial Irrigation District, City Staff, the Mayor's Office, City Planning, Fire, Building, Police, and local Emergency Services offices. The following Table 2-4 identifies the Water Supplier(s) who are notified of projected water uses by the City of Brawley.

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name *(Add additional rows as needed)*
IMPERIAL IRRIGATION DISTRICT
NOTES:

Drafts of the Management Plan will be distributed to Imperial Irrigation District, Imperial County Planning/Building and Public Works Departments, and the City of Brawley for review and revisions. The final draft was distributed in XXXX 2016 to staff of the Imperial Irrigation District; the cities of Brawley, Calexico, Imperial; and Imperial County for agency comments and recommendations. Comments and recommendations have been incorporated into the Management Plan. Copies were distributed to Imperial County Planning/Building and Public Works departments; Imperial Irrigation District Public Affairs; cities of Brawley, Calexico, Imperial; the public libraries of El Centro, Calexico, Brawley, and Imperial; and to others on request for public review.

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan (10642).

Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area (10642).

The City of Brawley encourages community participation in its urban water management planning efforts.

Copies of the draft plan are available at City Hall. The City published notice in the local newspaper of the availability of the draft UWMP for public inspection and stating the date and time of the public hearing to adopt the UWMP. The notice was published once a week for two successive weeks.

The hearing took place on XXXX XX, 2016 at X:00pm at:

City Council Chambers
383 Main Street
Brawley, CA 92227

Following the public meeting, a formal public hearing was held during the regular meeting of the City Council for review and comment on the draft plan before the City Council's approval.

The final plan, which was adopted by City Council on XXXX XX, 2016, was distributed to the cities of Brawley, Calexico, Calipatria, El Centro, Holtville, and Westmorland; Imperial County Planning/Building and Public Works departments; Imperial Irrigation District's Public Affairs; public libraries in the cities of El Centro, Calexico, Brawley, and Imperial; and to others upon request. The final plan was submitted to the California Department of Water Resources within 30 days of Council approval.

2.5.3 Notice to Cities and Counties

Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision (10621(b)).

The City provides water to connections within its service boundary only. All those within the City's supply area have been notified in accordance with 10621(b).

Chapter 3 – System Description

Describe the service area of the supplier (10631(a)).

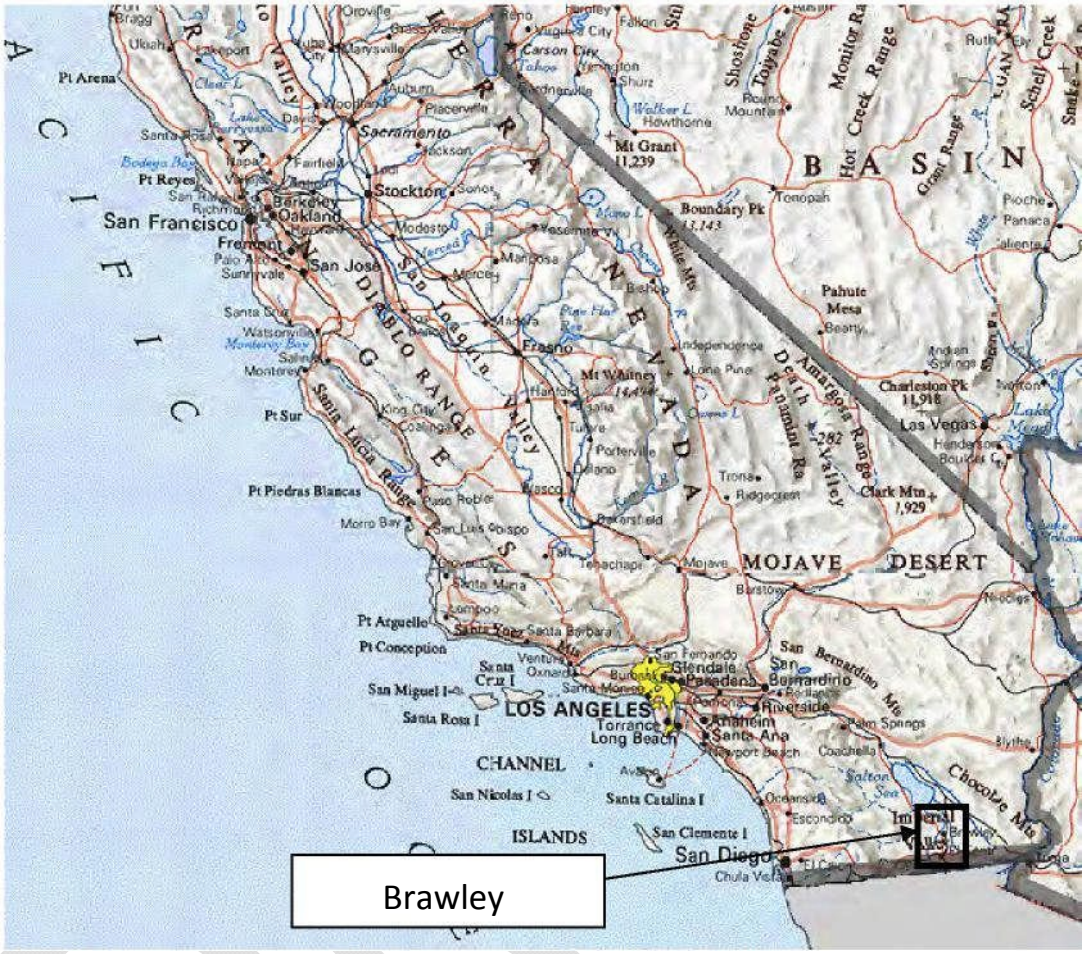

Figure 3-1: Vicinity Map for the City

3.1 General Description

The City of Brawley was founded in October of 1902 and was incorporated in February of 1908. The first settlers were Charles E. Guest, Edwin Mead and Earl Pound. The first building was the town site company office building which is now located on the property of Mr. J. F. Warner. The first bank was built on March First in 1904 and was called Imperial Valley Bank. The first church was the Methodist Episcopal, organized by Mr. H. C. Mullen of Imperial. The first grade school was erected in September, 1903, the first high school in 1909. In 1904 the Brawley Chamber of Commerce was chartered. In February of 1908 a petition was circulated to incorporate, and was signed by fifty citizens. The Brawley Airport was built in 1928. Brawley has grown slowly but consistently and on an economically sound basis. Figure 3-1 shows the location of the city with respect to the State of California.

The City of Brawley is located at the intersection of Highways 86 and 78. The City of Brawley's total planning area covers approximately 15,469 acres. Land uses within Brawley's incorporated boundaries include: 823 acres for rural residential, 2,030 acres for low density residential, 592 acres for medium

density residential, 1,012 acres of public facilities, 620 acres for commercial, 975 acres for industrial, 440 acres for light industrial and business, 1,206 acres of open space, 1,182 acres of transportation, and 6,589 acres for agricultural use.

The City of Brawley Urban Area has approximately 9,890 acres and surrounds the incorporated City of Brawley. The Brawley Urban Area is generally bounded on the west by the New River, Brandt Road, Kahn Road, Poe Subdivision and State Highway 86; on the north by Ward Road; on the east by Best Road, the Livesely Drain, and a line approximately one-half mile east of Best Road; and on the south by the Rockwood Canal, Mead Road, the Best Canal, Dogwood Road, and Shartz Road.

The City of Brawley is located in Imperial County, which is located in the southeast comer of California. It is bordered on the west by San Diego County, on the north by Riverside County, on the east by the Colorado River which is the California/Arizona boundary, and on the south by 84 miles of the International Boundary with the Republic of Mexico. Imperial County encompasses an area of 4,597 square miles or 2,942,080 acres. The Imperial Valley is an area within Imperial County that extends southward for 50 miles from the southern end of the Salton Sea to Mexico.

The Imperial Valley was created when the Colorado River formed a delta that isolated the Salton Trough from the Gulf of California. Subsequently, under desert conditions, the inland sea dried up. Later, the trough was occupied by lakes for various periods, and deposition into these lakes gave the valley its characteristic flat lands and fertile soils.

The geographic center of the Imperial Valley is one of the most productive agricultural areas in the world, despite the fact that it is in a very arid region. The general area of the Imperial Valley, also known as the Imperial Unit, is bounded on the north by the Salton Sea, on the south by the U.S. Mexico border, on the east generally by the East Highline Canal, and on the west generally by the Westside Main Canal.

Approximately fifty percent of lands in Imperial Valley are undeveloped and are under federal ownership and jurisdiction. One-fifth of the nearly 3 million acres in Imperial Valley are irrigated for agricultural purposes, most notably the areas known as Coachella Valley and the Imperial Valley. The Net irrigated agriculture area in 2013 consisted of 474,311 acres (IID 2013 Area Receiving Water Report). The developed area within the Imperial Valley represents less than one percent of the total amount of land. Approximately seven percent of Imperial Valley is within the boundaries of the Salton Sea.

A significant geographical feature in the Imperial Valley is the Salton Trough, which contains the Salton Sea and the Imperial Valley, and has been evolving for millions of years. It is a rift in the earth's crustal plates. The East Pacific Rise is the boundary between the Pacific and North American Plates. It extends up the Gulf of California by a series of spreading centers with strike slip faults. The thinning of the crust from the slow but continuous widening of the Salton Trough causes the earth's magma to rise closer to the surface and generates abnormally high heat flow, which in turn heats deep ground waters.

The trough is a structural extension of the Gulf of California. In prehistoric times it contained the ancient Lake Cahuilla (not to be confused with the present Lake Cahuilla which is located at the terminus of the Coachella Branch of the All-American Canal).

Description of City Facilities

City of Brawley Distribution System

Brawley's water system is comprised of a water treatment plant, three storage facilities, two pump stations, and approximately 75 miles of 4 to 24 inch water mains. The City's current water treatment plant has a design capacity of 15 million gallons per day (MGD) to accommodate peak daily use. The plant is expandable to 30 MGD to accommodate future growth.

The Brawley Water Treatment Plant went on line in June 2000. The treatment facility is designed to produce 15 million gallons per day with the capability to expand to 30 million gallons per day. The treatment incorporates several processes including pumping, chemical injection, primary sedimentation, flocculation, filtration, and finish water storage to ensure the city is provided with a reliable supply of safe, clean drinking water. Currently the treatment facility is producing an average of 8.5 million gallons per day of potable water (9,479 acre-feet per year). Total supply is regulated only by the total amount of water that can be treated at the water treatment plant.

2015 Distribution System Flows

Parameter	MGD	GPM
Annual Daily Average		
Maximum Day		
Minimum Day		
Maximum Day Peak Hour		
Minimum Day Peak Hour		
Maximum Month Average		
Minimum Month Average		

For finished water storage the City has three separate (3) MG above ground storage tanks. Two of the tanks are at the water plant, and one is located at the airport.

The City of Brawley takes its water from Mansfield Canal off the Central Main Canal. The capacity of the Mansfield Canal is 30 CFS (19 MGD). Water flows from the canal through a 54 inch pipeline into raw water storage ponds No. 5 and No. 6, which have capacities of 21.2 and 11.6 MG respectively. Water flows from the ponds to the raw water intake. The raw water pump station consists of three constant speed pumps with a capacity of 4,000 gpm each and two variable speed pumps with a capacity of 4000 gpm each. The treatment plant is permitted to treat 15 MDG and has a hydraulic capacity of 22.5 MGD. The pumps deliver water to the flash mixer where ferric chloride is added to coagulate the suspended solids. The water then proceeds to the two flocculation basins in parallel. Three stage flocculation is provided. The flow continues to two sedimentation basins where the floc is settled. Filtration is provided with four conventional dual media, anthracite and sand, gravity filters, with a surface area of 576 sqft. per filter. Filters are designed with a filter to waste system and air scour during the backwash. Backwash

water flows by gravity to two backwash recycle ponds. The supernatant is returned to the raw water ponds. Inactivation with gas chlorination is provided in three clear wells with a combined capacity of 10 MG. The city incorporates a comprehensive water quality program originating at the treatment facility and on through its pumping and distributions systems to ensure that all regulatory requirements are met. Overall the treatment train reduces the NTU from approximately 20 NTU from the raw water to less than 0.03 NTU flowing into the finished clear water reservoirs.

The removal and inactivation requirements for the plant are 4 log virus reduction and 3 log Giardia reduction. The plant is given 2.0 log virus removal credit through filtration and 2.5 log Giardia removal credit. Therefore it is required to achieve a 0.5 log Giardia inactivation. The plant can achieve this inactivation requirement by maintaining 0.3 mg/l of chlorine residual and the plant effluent and could achieve an additional log inactivation if required.

The City samples the influent raw water for turbidity and the presence of coliforms. Information from the City of Brawley indicates that the influent turbidity averages between 15 and 58 NTU. The highest influent turbidities appear to occur in the month of July every year.

Land Use

The Imperial Valley is predominantly an agricultural area. Agricultural development in the Imperial Valley began at the turn of the twentieth century and now includes approximately 475,000 acres of irrigated land that support a $1billion-plus annual local agricultural economy. Imperial Irrigation District is the regional water supplier in the Imperial Valley, delivering Colorado River flows to all agricultural lands and urban water retailers within its water service area. Imperial Irrigation District operates open channel gravity flow irrigation and drainage systems and continually strives to develop innovative ways to improve its operations, increase reliability, and to conserve water.

While the agriculture-based economy is well-established, land use is expected to vary somewhat over the coming years as urbanization and growth occur adjacent to existing urban areas. In addition, development of renewable and geothermal energy in rural areas is expected.

Current Land Use

Due to contractual restrictions related to IID's Colorado River entitlement, total farmable acres remain fairly constant and total net acres cropped exhibit minor fluctuations. Over the past several years cropping patterns have remained relatively constant with variations in forage crop acreage occurring as a result of market price fluctuations, production cost factors, and insect/disease pressures.

Total Farmable Area within the Service Area

	2013	2012	2011	2010
NET IRRIGATED AREA	417,668	432,555	440,564	431,638
TOTAL GARDEN CROPS	99,615	100,674	97,075	95,579
TOTAL FIELD CROPS	336,045	415,130	376,895	351,966
TOTAL PERMANENT CROPS	20,512	21,294	21,851	20,996

More than 120 types of crops are currently grown. In addition, a number of feedlots and dairies located in the Valley have significant economic impact. In 2009, based on acreage, Imperial Valley's top twelve crops were alfalfa, wheat, Bermuda grass, Sudangrass, lettuce, sugar beets, carrots, kleingrass, broccoli, onions, melons and sweet corn, representing nearly 90% of the cropped acreage. In the Imperial Valley, the total area farmed was 488,499 acres in1990, 481,151 acres in 1995, 479,000 acres in 2000, 473,903 acres in 2009, and 417,668 in 2013

Urban land uses within IID's Imperial Unit consist of cities, state prisons, a military base, geothermal plants, and other smaller industrial users. Most of the urban lands are concentrated in and around the incorporated and unincorporated cities with some small clusters of rural residences located away from the population centers. The land use plan map is provided on Figure3-2.

IMPERIAL COUNTY Land Use Distribution (in Acres), 1985			
Irrigated (Agriculture)			
	Imperial Valley per County General Plan Current Farmable per IID (2013) Total Area Receiving Water from IID (2010)	512,163 473,311 520,000	
	Bard Valley (Including Reservation)	14,737	
	Palo Verde Valley	7,428	
	Total	534,328	(18.2%)
Developed			
	Incorporated	9,274	
	Unincorporated	8,754	
	Total	18,028	(0.6%)
Salton Sea**		211,840	(7.2%)
Desert/Mountains			
	Federal	1,459,926	
	State	37,760	
	Indian	10,910	
	Private	669,288	
	Total	2,177,884	(74.0%)
IMPERIAL COUNTY TOTAL		2,942,080	Acres

*All acreages are approximations and are, therefore, only for informational purposes.

**Elevation of 230 feet below mean sea level.

Source: Imperial County General Plan, County Overview-September 1985 (still current as of 2016),

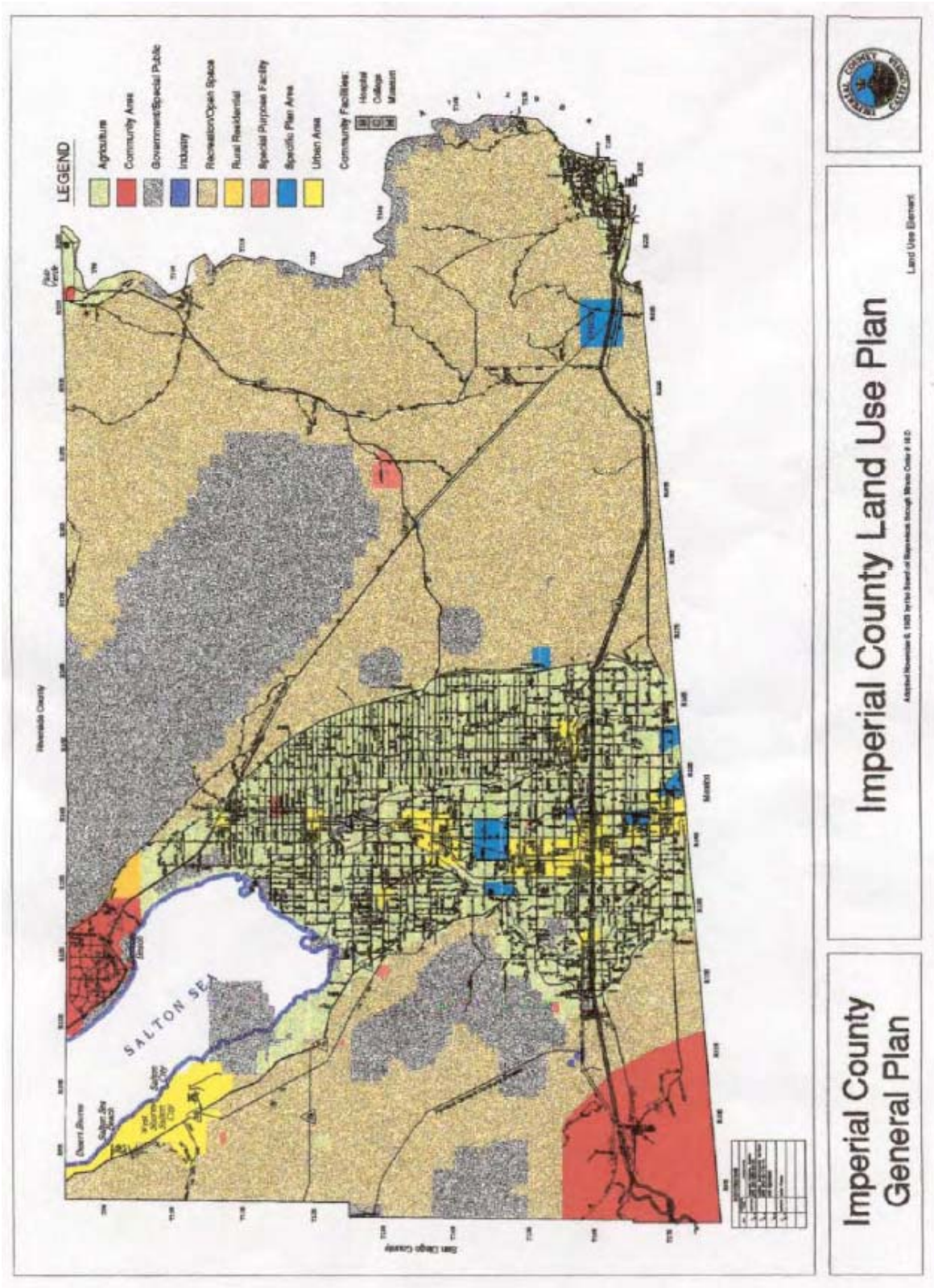

Figure 3-2: Imperial County Land Use Map

Future Land Use

The Imperial County General Plan, last updated in September 2004, identifies urban areas surrounding the incorporated cities of Brawley with 9,890 acres, Calexico with 6,980 acres, Calipatria with 2,880 acres, El Centro with16,000 (City of El Centro Draft General Plan, June 2003) acres, Holtville with 4,080 acres, Imperial with 8,480 acres, and Westmorland with 880acres. Urban areas surrounding the unincorporated communities include Heber with 960 acres, Nil and with 1,290 acres and Seeley with 1,520 acres. Urban areas for specific plans located within Imperial Unit boundaries include: East Border Crossing Specific Plan are a with 1,700 acres, Holtville Air Strip Specific Plan area with 1,830 acres, Mesquite Lake Specific Plan area with 5,760 acres (9 sq miles), and Heber Specific Plan area with 4,770 acres. Some of these designated urban areas have been developed and some have not. Some of these areas could possibly complete developments in the future.

The total urban area surrounding cities and communities located within the Imperial Unit is 52,960 acres or 7.6 percent of the Imperial Unit area. The majority of these lands are currently farmed. Four Specific Plan Areas within the Imperial Unit are designated for possible development. The total area within the four Specific Plan Areas is 14,060 acres or 2.0 percent of the Imperial Unit area. Thus, total combined (actual plus projected) urban area surrounding cities and communities and for the four Specific Plan Areas is 67,020 acres or 9.6 percent of the Imperial Unit area.

Any urban areas yet to be developed will be characterized by a full level of urban services, in particular public water and sewer systems, and will contain or propose a broad range of residential, commercial, and industrial uses. It is anticipated that most urban developments that are yet to be developed will eventually be annexed or incorporated into existing cities, and provide the full range of public infrastructure normally associated with municipalities such as public sewer and water, drainage improvements, streetlights, fire hydrants, and fully improved paved streets with curbs and sidewalks that are consistent with city standards.

Trends in land use point to an increase in the development of existing urban areas to provide residential capacity for an increased population. With development of existing urban areas, associated increases in service and infrastructure will follow. Even so, total urban land use in the years 2010 through 2030 will remain small in comparison to agriculture land use within the Imperial Unit.

3.2 Service Area Boundary Maps

City of Brawley Water

The City of Brawley 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 limit is shown on Figure 3-4.

The City of Brawley's sphere of influence is located within the Imperial Unit of the Imperial Irrigation District's Irrigation (IID) service area, shown on Figure 3-3. 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 approximately 1,062,000 acres.

A significant portion (around 97%) of the water demand in the Imperial Region is for irrigation. Agriculture is successful in this region for two reasons: 1) rich soils which have accumulated on the valley floor over thousands of years; and 2) the large quantity of water that is transported 80 miles from the Colorado River via the All-American Canal and distributed to farmlands by a complex system of smaller canals. 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.

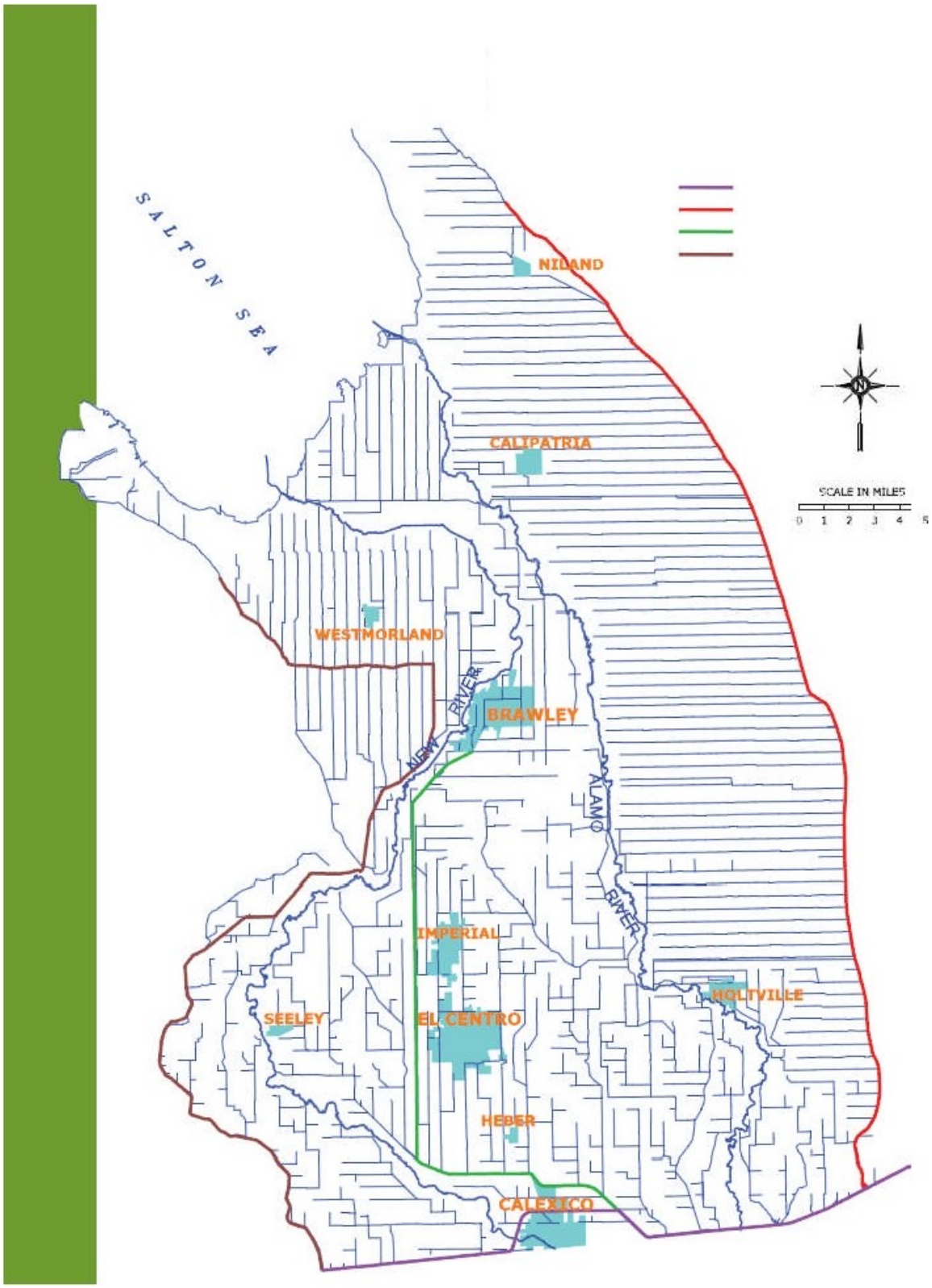

Figure 3-3: IID Imperial Unit Service Area

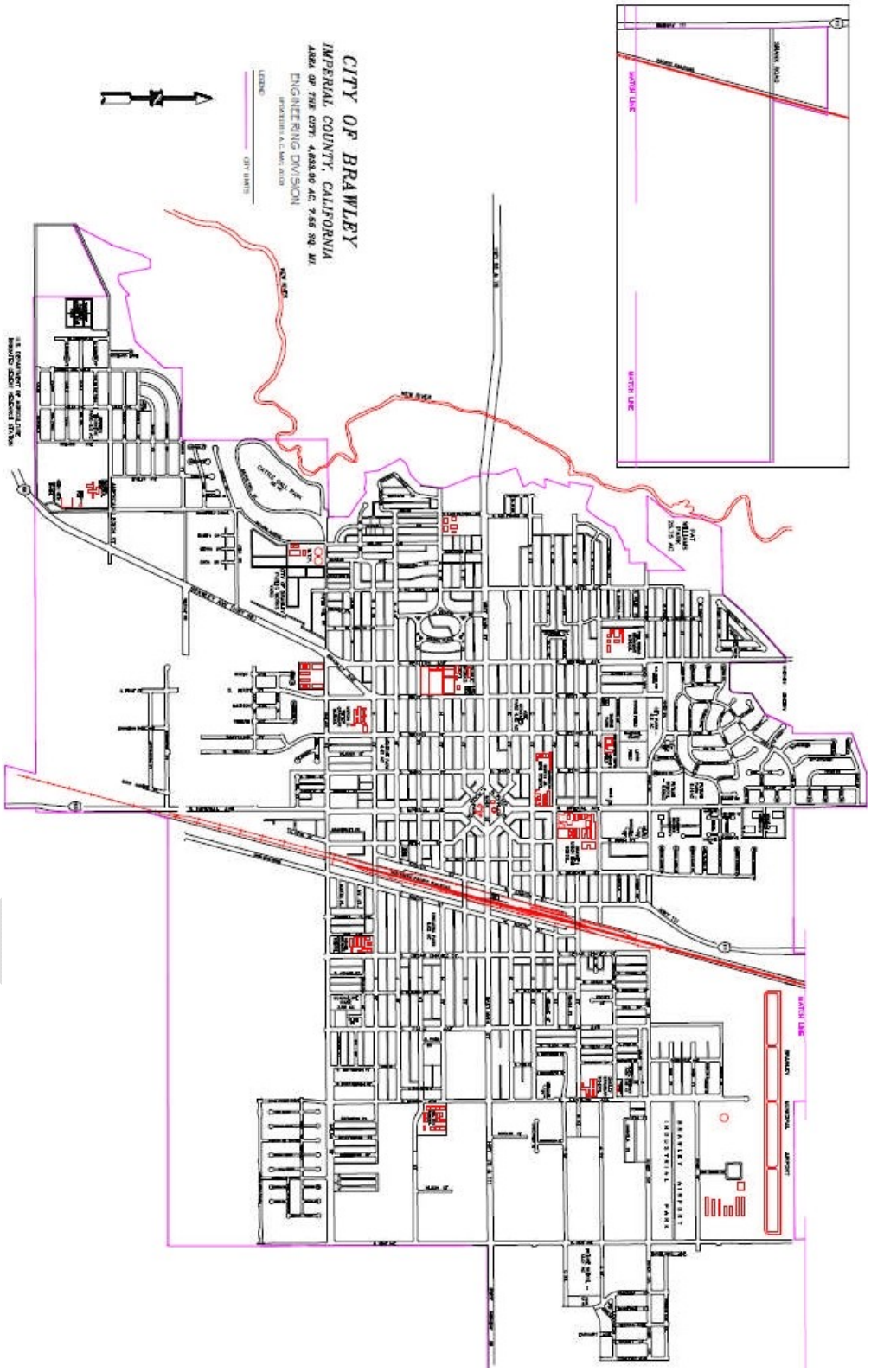

Figure 3-4: City Limit of the City of Brawley

3.3 Service Area Climate

Describe the service area of the supplier, including… climate…(10631).

3.3.1 Climate Change

Climate Factors

Imperial Valley is an arid desert, characterized by hot, dry summers and mild winters. Summer temperatures typically exceed 100 degrees Fahrenheit and the winter low temperatures rarely drop below 32 degrees Fahrenheit. The remainder of the year has a relatively mild climate with temperatures averaging in the mid-70s. The average annual air temperature is 72 degrees Fahrenheit and the average frost- free season is about 300 days per year.

Annual rainfall in the Imperial Valley averages less than three inches, with most rainfall associated with brief but intense storms. The majority of the rainfall occurs from December through March. Periodic summer thunderstorms are common in the region.

City of Brawley Historical Climate Data 5/1910 – 9/2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg. Max. Temp (F)	69.4	73.7	79.0	86.0	94.1	102.9	107.6	106.5	102.3	91.3	78.8	69.9	88.5
Avg. Min. Temp (F)	38.9	43.1	47.6	53.2	59.8	66.8	75.2	75.8	69.5	57.8	46.0	39.2	56.1
Ave. Total Precip. (in.)	0	0.39	0.26	0.11	0.03	0.01	0.05	0.30	0.25	0.22	0.17	0.46	2.65

Source: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca1048

Prevailing Winds

Imperial Valley elevations range from a few feet above to 273 feet below mean sea level. The U.S./Mexico border, located at the southern end of Imperial Valley, has an elevation of four feet above mean sea level. The Salton Sea located at the northern end of Imperial Valley, and the water level is 230 feet below MSL (the sea bottom is 273 feet below MSL). The relatively flat topography (235 feet in 35miles) of the Imperial Valley and surrounding areas, in conjunction with strong night and day temperature differentials, particularly in the summer months, produce moderate winds and deep thermal circulation systems. The thermal systems facilitate general dispersion of the air.

Wind data from Naval Air Facility El Centro that is used at El Centro Municipal Airport, show that the prevailing winds blow in a western direction. A crosswind occasionally blows in a southeast direction.

(Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population

estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available. (10631(a)).

3.4 Service Area Population and Demographics

Describe the service area of the supplier, including current and projected population …The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available (10631).

Past and Current Number of Connections by Customer Type – City of Brawley			
Customer Type	**2010**	**2015**	**Average Five Year % increase**
Single family res.	5,111	5,613	
Multi-family residential	421		
Commercial/Institutional	366		
Industrial	1		
Landscape Irrigation	8		
Other (Gov & Hospital)	24		
Brawley Total	**5,931**		

Future Population

California Department of Finance developed population estimates for Imperial County through 2015. Table 3-1 shows the current and projected population estimate from the State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2011-2014, with 2010 Benchmark. Sacramento, California, May 2008. The approximate average annual population growth rate was 2.0 percent during this period. This growth rate was used to estimate the population growth through 2035:

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	26,273	28,900	31,790	34,969	38,466	
NOTES: Population projection calculated as 10% increase per 5 year period.						

3.4.1 Other Demographic Factors

Describe the service area of the supplier, including. . . other demographic factors affecting the supplier's water management planning (10631).

Median Household Income

The U.S. Census Bureau estimated the median household income in California at $56,134 in 2009, and $46,816 in the year 2000. In comparison, median household income in Imperial County was $31,870 in the year 2000, with a per capita income of $13,239. Imperial County as a whole, and the City of Brawley in particular, are each designated as a disadvantaged community (68% of median household income in 2000); 2010 US Census data were not available when this UWMP was being prepared.

Source: http://www.census.gov/hhes/www/income/data/statemedian/index.html

Unemployment Rate

Imperial County has the highest unemployment rate of any county in the United States.

Unemployment Numbers – Imperial County and Cities

Area Name	Labor Force	Employment	Unemployment	Unemployment Rate (%)
Imperial County	81,200	60,800	20,400	25.1
City of Brawley	14,000	10,100	3,900	27.6
City of Calexico	16,200	11,700	4,500	28.0
City of Calipatria	1,800	1,300	500	26.7
El Centro	23,600	18,000	5,600	23.8
Heber CDP	1,800	1,100	700	38.7
City of Holtville	3,500	2,700	800	23.4
City of Imperial	5,000	4,200	900	17.4
City of Westmorland	1,500	900	500	35.6

Source: California Employment Development Department
http://www.labormarketinfo.edd.ca.gov/?pageid=1006

The table below shows the 2000 census data for population, housing units, average household size, land area, and population density for the individual cities within the Imperial Valley.

Year 2000 Demographic Data for Imperial Valley Cities

	Population[1]	Housing Units[1]	Average Household Size	Land Area (acres)[2]	Population per Acre
Brawley	23,915	7,514	3.3	9,890	2.4
Calexico	36,079	9,148	4.0	8,300	4.3
Calipatria	7,884	1,073	3.6	4,285	1.8
El Centro	40,817	13,029	3.3	14,300	2.8
Holtville	5,715	1,620	3.6	4,080	1.4
Imperial	9,516	2,955	3.3	8,480	1.1
Westmorland	2,430	748	3.5	880	2.8
Total	126,356	36,087		50,215	
Weighted Average			3.51		2.37

1-State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2008, with 2000 Benchmark. Sacramento, California, May 2008.
2–County of Imperial–Imperial County General Plan, 2006

Chapter 4 – System Water Use

Water Demands

Table 4-1 and Table 4-2 displays current and projected water consumption by user category. Single family residences' water usage comprises approximately 60% of the total amount of water that is billed by the city. Multiple family housing units (apartments, duplexes) use a further 14%, thereby bringing the portion consumed by residences to approximately 75% of the total water. Table 4-3 shows total water demand for 2015 and projected demand at 5-year interval out to 2035.

4.1 Recycled versus Potable and Raw Water Demand

4.2 Water Uses by Sector

Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape;(G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; (I) Agricultural
(10631(e)(1)).

The water use projections shall be in the same five-year increments described in subdivision (a) (10631(e)(2)).

Un-metered flows include park irrigation and system losses. It is anticipated that the un-metered flows will decrease over time, as the City plans to install meters at all park locations. Currently un-metered flows and system losses account for approximately 9% of the total flows. It is anticipated that this will be reduced to 1.5% over the next 20 years. The treated water flows from 2005 to 2010 decreased 12.5% over the five year period. This is probably mostly due to the fact the City installed residential water meters in 2009.

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
Use Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family		Drinking Water	1,120
Multi-Family		Drinking Water	171
Commercial		Drinking Water	103
Industrial		Drinking Water	25
Institutional/Governmental		Drinking Water	1
Landscape	not monitored		
Groundwater recharge	NA		
Saline water intrusion barrier	NA		
Agricultural irrigation	NA		
Wetlands or wildlife habitat	NA		
Sales/Transfers/Exchanges to other agencies	NA		
Losses			
Other			
		TOTAL	1,420
NOTES:			

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type *(Add additional rows as needed)*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
Use Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*		2020	2025	2030	2035	2040-opt
Single Family		1,131	1,142	1,153	1,164	
Multi-Family		171	173	175	177	
Commercial		103	104	105	106	
Industrial		25	25	26	26	
Institutional/Governmental		1	1	1	1	
Landscape						
Groundwater recharge		0	0	0	0	0
Saline water intrusion barrier		0	0	0	0	0
Agricultural irrigation		0	0	0	0	0
Wetlands or wildlife habitat		0	0	0	0	0
Sales/Transfers/Exchanges to other agencies		0	0	0	0	0
Losses						
Other						
TOTAL		1431.2	1445.26	1459.2	1473.7	0
NOTES:						

Calculations for gross water use through 2030

Year	DoF Brawley Population Estimates	Average Per Capita Per Day Use (Gallons)	Calculated Gross Water Use (Million Gallons)	Calculated Estimated Daily Water Use (Gallons Per Day) Average	Calculated Estimated Daily Water Use (Acre Feet per Year) Average
2015					
2020					
2025					
2030					

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	1,420	1,431	1,445	1,459	1,474	0
Recycled Water Demand *From Table 6-4*	0	0	0	0	0	0
TOTAL WATER DEMAND	1,420	1,431	1,445	1,459	1,474	0
NOTES:						

4.3 Distribution System Water Losses

Quantify, to the extent records are available, past and current water use over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: … (10631(e)(1)(J)).

For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update (10631(e)(3)(A)).

The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association (10631(e)(3)(B)).

The City of Brawley does not currently perform water loss audits. Key city personnel are currently in discussions to establish a water loss audit protocol for future years; no loss data exists to date for Table 4-4.

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss
No audit on water loss	

4.4 Estimating Future Water Savings

If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area 10631(e)(4)(A).

To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following: (i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact 10631(e)(4)(B).

Table 4-5 summarizes the method of water demand projection. Future water savings are not included in projections. Lower income residential demands are not included in projects.

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	NO
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc… utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	NO
NOTES:	

4.5 Water Use for Lower Income Households

The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier (10631.1(a)).

There are 520 very low income and 520 extremely low income units in the City of Brawley, according to the Housing Element. These are anticipated to increase by 2.6% each year. The demand was projected using the 2015 and 2020 per capita demand calculated in this document. Flows for 2025 and 2030 were estimated using a 2.6% growth per year.

To estimate the projected water demands the units are multiplied by 4.0 (# of capita per household per County Data) and the Urban Water Target for 2015 and 2020 respectively.

2015
Extremely low income:
520 units * 4.0 cap/unit * 245 gallon/cap/day = 509,600 gallon/day or
186 million gallons per year or 571 acre feet per year

Very low income:
520 units * 4.0 cap/unit * 245 gallon/cap/day = 509,600 gallon/day or
186 million gallons per year or 571 acre feet per year
Growth for both extremely low and very low incomes was estimated at 2.6% per year, and the Urban Water Target is XXX gpdc:

2020 (estimated)
Extremely low income:
588 units * 4.0 cap/unit * 222 gallon/cap/day = 522,150 gallon/day or
191 million gallons per year or 585 acre feet per year

Very low income:
588 units * 4.0 cap/unit * 222 gallon/cap/day = 522,150 gallon/day or
191 million gallons per year or 585 acre feet per year

4.6 Climate Change

Chapter 5 – SB X7-7 Baselines and Targets

Water Conservation Bill of 2009 (SBX7-7)

The Water Conservation Bill of 2009 (SBX7-7) is one of four policy bills enacted by the California legislature as part of the November 2009 Comprehensive Water Package (Special Session Policy Bills and Bond Summary).The Water Conservation Bill of 2009 provides the regulatory framework to support the state wide reduction in urban per capita water use described in the 20x2020 Water Conservation Plan (DWR and others 2010). It also addresses agricultural water use; and commercial, industrial, and institutional (CII) water use. Method 1 was used to calculate the target per capita water use.

Before California can achieve the Final 2020 Statewide Target of 154 GPCD, each water supplier must determine and report its existing baseline water consumption and establish either its own or cooperative targets. This reporting is to begin with the 2010 UWMP, as required by the Water Conservation Bill of 2009.

SBX7-7 describes what is required of water suppliers to identify their water conservation targets and track their progress toward achieving those targets. It also requires that water suppliers document and report targets and progress in UWMPs (CWC§10608.20(e)).

The existing City's water billing system identifies customers' categories so that accounts can be classified by use class and can identify each customer by sector and usage category. The total amount of water delivered into the system is metered at the water treatment plant and is shown in Table XX.

The City does not use recycled water and therefore no deductions for recycled water was used.

The industrial flows from National Beef were subtracted from the daily system gross water use because they are greater than 15% of the total water pumped into the system as allowed by law.

5.1 Guidance for Wholesale Agencies

This section is not required as the City is a water retailer.

5.2 Updating Calculations from 2010 UWMP

An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) (10608.20(g)).

This plan updates the 2010 UWMP with the revised census data for 2015 from the Department of Finance and follows the appropriate calculations and information organization as outline in the *2015 UWMP Guidebook.*

5.2.1 Update of Target Method

5.2.2 Required Use of 2010 U.S. Census Data

5.2.3 SB X7-7 Verification Form (Appendix E)

5.3 Baseline Periods

An urban retail water supplier shall include in its urban water management plan...due in 2010 the base line daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data (10608.20(e)).

An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) (10608.20(g)).

Using Department of Finance and city pumping records, the 2015 average daily per capita consumption is approximately XXX gallons per day (gpd), not including National Beef demand. Per Capita water usage is very seasonally dependent, largely due to increased landscape irrigation during the hot summer months. Winter usage by all residences is only XX% of that during summer months. Residences consume more than all other users and have the most fluctuation in monthly usage. Commercial and Governmental customers reduce water consumption during cooler months.

The City receives substantial industrial demand from National Beef. The following is a table showing the average daily demand from 2001 to 2010 of the National Beef demand (in million gallons).The year 2001 and a portion of 2002 were estimated because the city does not have records of the demand during that time.

Average Daily Demand National Beef, Million Gallons per Day

Month	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
January	0.72	0.72	0.72	0.87	1.00	1.01	1.28	1.18	1.56	1.76
February	0.92	0.92	0.92	0.74	0.65	0.87	1.13	1.68	1.42	1.46
March	0.64	0.64	0.63	0.67	0.64	1.00	1.32	1.37	1.59	1.46
April	0.74	0.74	0.73	0.96	0.97	1.13	1.18	1.61	1.38	1.62
May	0.82	0.82	0.82	0.88	0.82	0.97	1.26	1.74	1.55	1.65
June	0.86	0.86	0.93	0.94	1.00	0.83	1.41	1.30	1.59	1.72
July	0.93	0.93	0.79	0.86	0.87	1.16	1.16	1.56	1.64	1.69
August	0.73	0.73	0.59	0.97	0.88	1.26	1.33	1.42	1.52	1.65
September	0.88	0.88	0.80	1.00	0.81	1.29	1.12	1.49	1.44	1.57
October	0.73	0.73	0.77	0.90	0.69	0.84	1.23	1.67	1.44	1.58
November	0.92	0.92	0.80	0.80	0.92	1.34	1.24	1.50	1.53	1.56

December	0.74	0.74	0.71	0.74	0.91	1.19	1.29	1.36	1.61	1.52
Average	**0.80**	**0.80**	**0.77**	**0.86**	**0.85**	**1.07**	**1.25**	**1.49**	**1.52**	**1.60**

Monthly Fluctuation of the Per Capita Use – 2010 Pumping and Meter Records

2010 Pumping Records	Total Flow Into the Distribution System	National Beef Demand	Total Per Capita Per Day National Beef	Per Capita Per Day Without National Beef	National Beef Percent of Total Flow
January	181,161,000	54,560,000	63	147	30.1%
February	154,550,000	40,880,000	53	146	26.5%
March	184,370,000	45,260,000	53	162	24.5%
April	215,760,000	48,600,000	58	201	22.5%
May	261,940,000	51,057,000	59	245	19.5%
June	283,350,000	51,540,000	62	279	18.2%
July	306,930,000	52,297,000	61	296	17.0%
August	284,190,000	51,243,000	60	271	18.0%
September	269,080,000	47,190,000	57	267	17.5%
October	212,470,000	48,856,000	57	190	23.0%
November	194,210,000	46,770,000	56	177	24.1%
December	160,680,000	47,120,000	55	132	29.3%
Average Monthly	225,724,250	48,781,083	58	205	21.6%

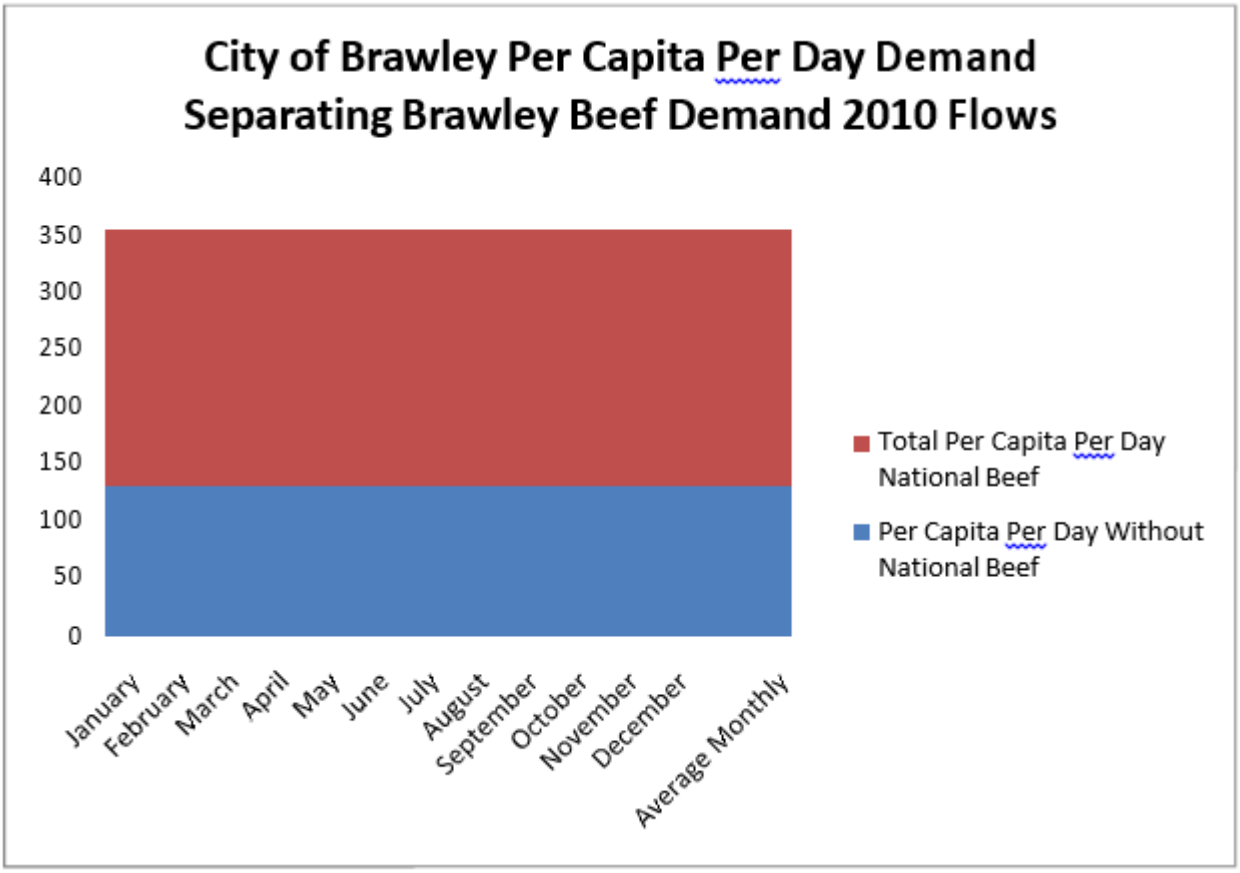

Figure 5-1 Chart of the Monthly Fluctuations of the Per Capita Use – 2010 Pumping Records

National Beef (Industrial) demand was 21.6% of the total water pumped into the system in 2010. When National Beef demand is subtracted from the total demand, the per capita per day use drops dramatically for the year 2010. See above figure.

5.3.1 Determination of the 10-15 Year Baseline Period (Baseline GPCD)

(b) "Base daily per capita water use" means any of the following: (1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010. (2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010 (10608.12(b)(1 & 2)).

The consecutive 10 year average per capita, per day use (subtracting National Beef Industrial Demand) is XXX gallons since 20XX:
Table 5-1 (data from SB X7-7)

The City does not currently use recycled water; therefore, no deduction for recycled water was made.

5.3.2 Determination of the 5-Year Baseline Period (Target Confirmation)

For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010 (10608.12 (b)(3)).

METHOD 1: City of Brawley Urban Water Use Target **XXX**

(95 percent of the 5 year average GPCD)

City of Brawley 2020 Urban Water Use Target

5.4 Service Area Population

(e)An urban retail water supplier shall include in its urban water management plan due in 2010…the baseline per capita water use,…along with the bases for determining those estimates, including references to supporting data. (f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections (10608.20 (e&f)).

The plan…shall include any standardized forms, tables or displays specified by the department (10644(a)(2)).

A table below shows the 2005 through 2015 population from the California Department of Finance (DoF). The population estimates are for the area directly served by the Cities.

DoF Population Data: 2005 through 2015

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Braw ley	23,863	25,342	25,421	26,391	26,976	27,743	24,953	25,229	25,559	25,768	25,967
Calexico	36,003	36,533	37,151	38,558	39,380	40,075	38,572	38,958	39,674	40,266	40,653
Calipatria	7,876	7,807	7,736	7,757	8,111	8,233	7,705	7,663	7,995	7,117	7,533
El Centro	40,728	41,766	41,626	43,119	44,303	45,365	42,598	43,013	43,535	44,059	44,366
Holtville	5,703	5,813	6,232	6,437	6,521	6,641	5,939	5,999	6,073	6,123	6,178
Imperial	9,496	10,083	11,726	12,693	12,985	13,374	14,758	15,044	15,412	16,066	16,762
Westmorland	2,424	2,360	2,349	2,394	2,429	2,416	2,225	2,248	2,280	2,299	2,311
Unincorporated	34,774	36,117	38,801	38,147	38,723	39,182	37,778	37,558	37,487	37,362	37,228
Incorporated	126,093	129,704	132,241	137,349	140,705	143,847	136,750	138,154	140,528	141,698	143,770
Imperial Valley Total	160,867	165,821	171,042	175,496	179,428	183,029	174,528	175,712	178,015	179,060	180,998

Source: DoF; Table 2: E-4 Population Estimates for Cities, Counties and State, 2005-2015

5.5 Gross Water Use

"Gross Water Use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following: (1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier (2) The net volume of water that the urban retail water supplier places into long term storage (3) The volume of water the urban retail water supplier conveys for use by another urban water supplier (4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24 (10608.12(g)).

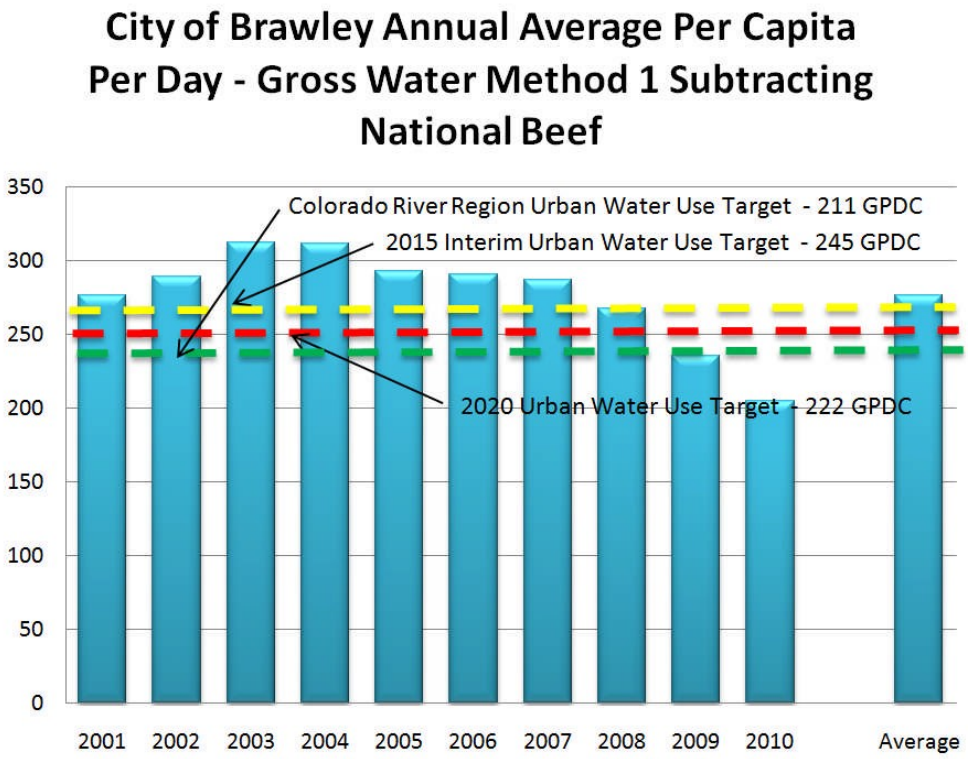

Figure 5-2 City of Brawley Annual Average GPCD – Gross Water

5.5.1 Gross Water Tables

There are several tables from the SB X7-7 Verification Form that are related to gross water calculations. The City of Brawley will not deduct indirect recycled water and/or process water from their gross water because recycled water is not currently use nor is it planned to be used in the future. Figure 5-2 shows the trend of GPCD.

5.6 Baseline Daily Per Capita Water Use

Reference tables from SB X7-7.

5.7 2015 and 2020 Targets

An urban retail water supplier shall include in its urban water management plan due in 2010. . . urban water use target, interim urban water use target,…along with the bases for determining those estimates, including references to supporting data (10608.20(e)).

An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan… (10608.20 (g)).

The City's Urban Water Use Target for 2020 is ***XXX*** GPCD. In 2015, the average was XXX GPCD (already in compliance). The City will be required to meet the goal of XXX GPCD by 2020 to be eligible for future state funding unless revised in the 2015 UWMP update. The City remains in in compliance in 2015.

5.7.1 Select and Apply a Target Method

Reference tables from SB X7-7.

5.7.2 5-Year Baseline – 2020 Target Confirmation

Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day (10608.22).

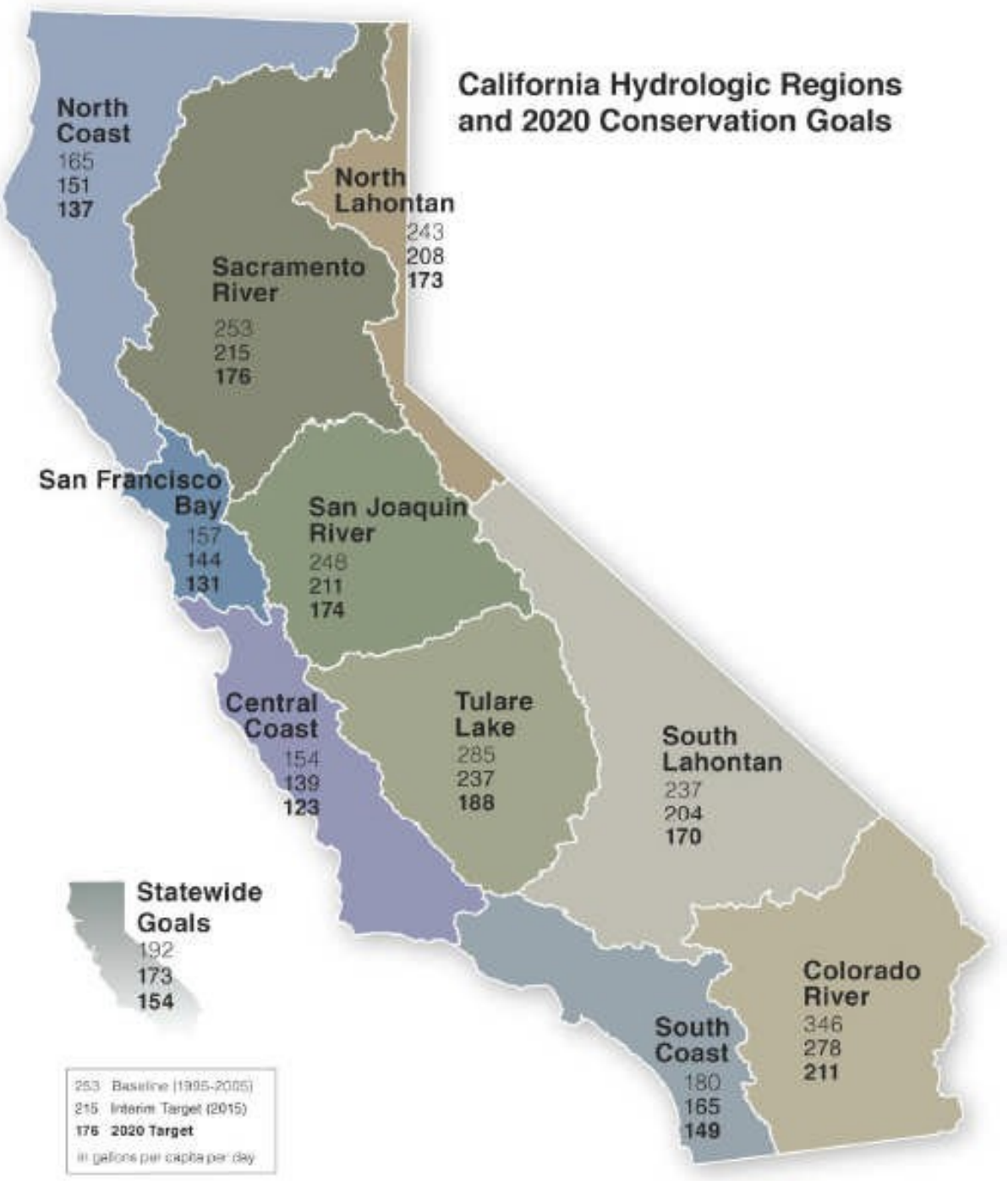

Figure 5-3 California Hydrologic Regions and 2020 Conservation Goals

5.7.3 Calculate the 2015 Interim Urban Water Use Target

The 2010 UWMP estimated the Interim Urban Water Use Target for 2015 using the average of the base line (276 gcpd) and 2020 Urban Water Use Target (XXX gcpd):

Interim Urban Water Use Target for 2015 (average between the Base Line and Urban Water Use Target GPCD)	**XXX**

Interim Urban Water Use Target for 2015

The actual water usage in 2015 is XXX gpcd. The City of Brawley has met/missed their 2015 Interim Urban Water Use Target. This projection aligns with meeting the 2020 gpcd target.

5.7.4 Baselines and Targets Summary

Table 5-1 provides a summary of reporting requirements and the corresponding SB X7-7 tables.

Table 5-1: Baselines and Targets Summary
Retail Agency or Regional Alliance Only

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*From SB X7-7 Table 1*	*From SB X7-7 Table 1*	*From SB X7-7 Table 5*	*From SB X7-7 Table 8*	*SB X7-7 Table 7-F*
5 Year	*From SB X7-7 Table 1*	*From SB X7-7 Table 1*	*From SB X7-7 Table 5*		

*All values are in Gallons per Capita per Day (GPCD)

NOTES:

5.8 2015 Compliance Daily per Capita Water Use (GPCD)

"Compliance daily per-capita water use" means the gross water use during the final year of the reporting period… (10608.12(e)).

Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015 (10608.24 (a)).

An urban retail water supplier shall include in its urban water management plan due in 2010 . . . compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data (10608.20 (e)).

5.8.1 Meeting the 2015 Target

5.8.2 2015 Adjustments to 2015 Gross Water Use

(1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors: (A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period. (B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period. (C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period. (2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40 (10608.24(d)(1&2)).

5.9 Regional Alliance

Table 2015 shows adjustments to 2015 gross water use in GPCD. No optional adjustments from *Methodology 8* were made.

Table 5-2: 2015 Compliance
*Retail Agency or Regional Alliance Only**

Actual 2015 GPCD	2015 Interim Target GPCD	**Optional Adjustments to 2015 GPCD** Enter "0" for adjustments not used *From Methodology 8*					2015 GPCD *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events	Economic Adjustment	Weather Normalization	TOTAL Adjustments	Adjusted 2015 GPCD		
96	80	0	0	0	0	96	96	No
**All values are in Gallons per Capita per Day (GPCD)*								
Taken from Drought report								

Chapter 6 – System Supplies

6.1 Purchased or Imported Water

Imperial Irrigation District Water Use

The Imperial Irrigation District provides wholesale water service. Demand for water in the Imperial Unit service area is divided into three basic categories: agricultural, municipal, and industrial. Presently the Imperial Irrigation District delivered approximately 97% of its annual flows to agricultural water users, 2% to municipalities, and 1% percent for industrial purposes.

The Imperial Irrigation District's consumptive use values include the total use of raw water in the Imperial Unit. These consumptive use values include agriculture, small acreage, service laterals, municipalities, industrial, losses and unaccounted raw water. There is no available data that completely distinguishes between these uses of raw water.

Water distribution systems “lose” water during distribution for several reasons. Specific water distribution “losses” depend on the type of distribution system. A piped water distribution system can lose water due to pipe failures or leaks. Open channels, ponds, reservoirs, and water basins can “lose” water from seepage through the soil, surface evaporation into the air, and plant consumptive use.

An open channel, gravity flow water distribution system has operational spill. Operational spills are excess flows discharged from a channel into a drain or other sump (Salton Sea). Operational spills can result from: carriage water that is required to fill and empty the reaches of sloping channels; increases in water user flexibility for water ordering and delivery scheduling; and terminating water deliveries during rainfall events, storm runoff, and flood flows.

The Imperial Irrigation District has an open channel gravity flow water distribution system. Its water distribution system losses result from three major conditions: seepage, operational spills, and evaporation. The Imperial Irrigation District's water distribution system losses have been reduced through the years by numerous water conservation and demand management programs and projects. The demand management programs and projects are described in detail in the Imperial Irrigation District Demand Management Section of this plan.

Agricultural Water Use in the Imperial Valley

Over 120 types of crops are grown in the Imperial Valley. Most relevant to the Water Element is an examination of the various crop types, the acreage dedicated to each and the demand for irrigation water generated by each crop per acre of cultivation. Water demand is provided below on a net consumption basis and is based upon historical acreage and water use data. Major water consuming crops include alfalfa (5.20ac.ft./acre), asparagus (4.12 ac.ft./acre), cotton (3.45 ac.ft./acre), and tomatoes (2.23 ac.ft/acre). More efficient crops include carrots (1.21 ac.ft./acre), squash (1.58 ac.ft./acre), and barley (1.64 ac.ft./acre). Since the 2000’s 500,000 acres are in cultivation over the year including double cropping. Crops grown on this acreage consume approximately 1,500,000 acre-feet per year. Table below shows the historical average of individual crop acreage and water use in Imperial Valley over a ten year period.

Approximately ninety-seven percent of the water imported into Imperial Valley from the Imperial Irrigation District is used for agricultural purposes. Imperial Irrigation District supplies more than

2,500,000 acre-feet of water annually for primarily agricultural purposes to its customers in Imperial Valley, to just over 500,000 acres of irrigated farmland (double cropped).

IID Crop Acreage and Water Use in Imperial Valley (Historical Average)

Crop	Area (Acres)	Water Use (af)
Garden Crops	**1985**	
Broccoli	7,000	11,480
Carrots	12,000	14,540
Lettuce	35,000	47,017
Cantaloupes	15,000	33,213
Watermelons	5,000	10,929
Other Melons	4,000	8,903
Onions	10,000	17,725
Squash	1,000	1,578
Tomatoes	3,000	6,695
Vegetables (misc.)	5,000	8,083
Field Crops		
Alfalfa	185,000	961,692
Barley	1,000	1,650
Bermuda Grass	15,000	52,125
Cotton	40,000	137,900
Rye Grass	4,000	9,500
Sorghum	3,000	7,330
Sudan Grass	20,000	47,500
Sugar Beets	35,000	122,208
Wheat	105,000	204,488
Miscellaneous	2,000	4,695
Permanent Crops		
Asparagus	3,000	12,355
Citrus Fruits	2,000	7,163
Duck Ponds (feed)	8,000	24,000
Jojoba	3,000	10,745
Trees and Vines	1,000	3,582
Miscellaneous	1,000	3,982
Source: Water Requirements and Availability Study. Prepared by Parsons Water Resources, Inc. for the IID. November 1985.		

6.2 Groundwater

Waters within the shallow aquifers of the Salton Trough generally move at right angles to contours lines, and towards the Salton Sea. Based on pumping data and water studies on various wells, groundwater is from six to eight feet below the ground surface level throughout most of the Imperial Valley.

The deep water reservoir underlying Imperial Valley has been estimated at 1.1 billion to 3.0 billion acre-feet, with total recoverable water estimated to be about twenty percent of the water in storage.

Table 6-1 Retail: Groundwater Volume Pumped

☑	Supplier does not pump groundwater. The supplier will not complete the table below.						
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	N/A	0	0	0	0	0
Fractured Rock	N/A	0	0	0	0	0
	TOTAL	0	0	0	0	0
NOTES: Not Applicable						

6.2.1 Basin Description

(Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater (10631(b)(2)).

The City does not use groundwater.

6.2.2 Groundwater Management

(Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management (10631(b)(1)).

There is no groundwater management plan for the City.

For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board (10631(b)(2)).

The City does not use groundwater.

6.2.3 Overdraft Conditions

For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition (10631(b)(2)).

The City does not use groundwater.

6.2.4 Historical Groundwater Pumping

(Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records (10631(b)(3)).

The City does not use groundwater.

6.3 Surface Water

The City of Brawley has been supplying potable drinking water since the early years of the 1900's when water became available from the Colorado River. Brawley receives its raw water from the Colorado River via the Imperial Irrigation District's (IID) All-American Canal and the Central Main Canal. The raw water is stored in reservoirs until undergoing treatment. The raw water is stored in reservoirs until undergoing treatment.

The City of Brawley 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.

Agricultural Drains

As part of its operating system, the IID maintains an extensive drainage system. Agricultural and storm water drainage is provided by the Alamo and New Rivers, over 1,405 miles of IID open drains and drainage pumps and over 34,400 miles of landowner tile drains. The ultimate repository for drainage water from the IID is the Salton Sea. With a surface area of about 383 square miles (or 245,000 acres), it is California's largest lake. The Salton Sea receives approximately 1,100,000 acre feet of drainage flows annually (since 2003) from Imperial, Coachella and Mexicali
Valleys, as well as rainfall, storm runoff from the surrounding mountains and groundwater inflow.

There are three general categories which describe the surface water in Imperial
Valley. These are freshwater, brackish water, and saline water. The freshwater (with TDS generally less than 1,000 ppm) include the All-American Canal and other canals and laterals which deliver irrigation water to the agricultural fields within the County. The brackish waters (with TDS in the range of 2,000 to 4,000 ppm) include the Alamo River, New River and the agricultural drains that flow into these rivers or directly into the Salton Sea.

The Salton Sea represents the saline water category. Salinity concentrations have been rising and are currently higher than ocean water (the Salton Sea's current TDS was approximately 53,000ppm in 2010 vs. an average of 34,000ppm for ocean water). The Salton Sea evaporates between eight and nine feet per year. The surface waters in Imperial Valley thus pass through a salinity gradient from the Colorado River to the Salton Sea.

This regional salinity gradient exists because of the high evaporation of the Imperial Valley, high temperatures, low annual rainfall, and continual leaching of salts from irrigated areas due to the high salinity of the Colorado River Water (approximately 750ppm). Evapotranspiration is water transported and evaporated from plants and surrounding soil surfaces. Although water is continually evaporated from the major canals, this evaporation represents a relatively minor increase in dissolved solids concentration because of the short residence times within the water conveyance system.

Normal evapotranspiration rates from the irrigated fields from efficient irrigation practices substantially reduce the amount of water and increase the concentration of salt entering the drainage system. For these reasons and due to salinity within the soils, a 300% to 500% increase in total dissolved solids concentration is normal within the Imperial Unit as water is efficiently applied to agricultural lands from the All- American Canal and is conveyed to the IID drains, the New River and the Alamo River, and eventually to the Salton Sea.

The increase in salinity is extremely important because it affects the aquatic ecosystems. However, salinity is not the only water quality issue. The intensive irrigation in the valley presents the potential for the introduction of agricultural chemicals, such as pesticides and herbicides, into downstream waters. Field erosion and dredging activities also result in siltation in the New and Alamo Rivers and the Salton Sea. The bacteriological quality of these waters is also a concern because these streams receive locally generated municipal waste discharges, in addition to the waste load entering the United States from Mexico.

New River

The New River originates in Mexico, and flows northward across the International Boundary into Imperial Valley. The flow continues through the Imperial Valley and ultimately discharges into the Salton Sea. The primary purpose of the New River is to convey agricultural drainage in the Imperial and Mexicali valleys to the Salton Sea. A corollary use of the New River is to convey treated community and

industrial wastewaters. This corollary use is strictly controlled in the Imperial Valley by waste discharge requirements prescribed and enforced by the California Regional Water Quality Control Board. However, Mexico's corollary use of the New River is largely ignored and uncontrolled.

Mexico discharges raw and inadequately treated sewage, toxic industrial wastes, garbage and other solid wastes, animal wastes, and geothermal wastewaters out of the Mexicali area of Mexico and into the Imperial Valley. This process has continued for over forty years, resulting in the on-going pollution of the New River at the International Boundary. As Mexico's industry and population continue to grow, these problems have a high potential to increase if corrective measures are not taken.

Until August of 1983, the problem of Mexico polluting the New River had been the responsibility of United States Section of the International Boundary and Water Commission (IBWC), a joint United States/Mexico federal agency with responsibility for dealing with border water and sanitation problems between the two nations. Over a period of thirty years, the California Regional Water Quality Control Board made several representations to the United States Commissioner on the IBWC to obtain corrections to the problem. Since 1975, the California Regional Water Quality Control Board has been monitoring water pollution of the New River to identify the pollutants actually coming from Mexico. This information is presented to the United States Commissioner to aid and encourage Mexico in implementing corrective measures.

In August of 1980, Minute No. 264 to the Mexico-American Water Treaty was signed, which specified time schedules for completing work that was to result in a full cleanup of the river. In addition, minimum water quality standards were specified for New River water quality at the International Boundary. Mexico has been in violation of practically all of the specified schedules and standards since Minute No. 264 went into effect in December of 1980. There is no evidence that Minute No. 264 has had any influence on actions in Mexico to clean up the river.

In July of 1983, the California Regional Water Quality Control Board conducted an investigation. The purpose of the investigation was to determine the type(s) and extent of waste discharges into the New River and its tributaries from Mexico so that possible corrective action could be considered and pursued. The investigation identified problems that must be addressed to obtain adequate corrections. These problems included:

1. City sewer lines which are not connected to the City's main sewer system discharging raw sewage to the river;
2. Breakdowns in the sewer system resulting in the discharge of raw sewage to the river;
3. Discharge of wastes to the river by septic tank pumpers;
4. Discharge of wastes to the river from adjacent unsewered residences;
5. Discharge of untreated industrial wastes to the river including highly toxic chemicals wastes, many of which are on the Environmental Protection
Agency's list of 129 priority pollutants and some of which are carcinogens;
6. Inadequate treatment of sewage and industrial wastes by Mexicali, whose sewage treatment plant consists of nothing more than raw sewage lagoons;
7. Location of the City's garbage dump such that refuse is disposed of directly into the river water;
8. Discharges of untreated wastes from a slaughterhouse, dairy, and hog farms;
9. Discharges from residential hog and cattle pens located adjacent to the river and its tributaries; and
10. Discharge of geothermal wastes to the river.

In August of 1983, a United States/Mexican Agreement for protection and improvement of the environment in the border area was signed by the Presidents of Mexico and the United States. Under this agreement, responsibility for border environmental problems, including the New River pollution problem, was transferred from the International Boundary and Water Commission to the United States Environmental Protection Agency for the United States, and to the Mexican Secretarial de Desarollo Urbano y Ecologia (SDUE) for Mexico. Since this transfer of responsibility, progress has been slow and it is questionable if the agreement has served any useful purpose in controlling pollution in the New River.

In April of 1987, Minute No. 274 to the Mexican-American Water Treaty was approved by the United States and Mexico. The minute provided for a $1.2 million United States/Mexico jointly funded project to construct certain works in Mexico to reduce pollution in the New River. Although this project is just a step towards resolving the pollution problems of the New River, it sets a precedent for the involvement of the United States in the implementation of corrective actions within Mexicali.

According to the International Boundary and Water Commission of the United States, additional projects are needed to help reduce water pollution from Mexico. Mexico and the United States are currently negotiating measures to solve the problem. Upon agreement between both governments, a new Minute will be approved and added to the Mexican-American Treaty to supersede Minute No. 274. The main goal of the new Minute would be to establish a long-term solution to the water pollution problem.

The Alamo River is also polluted with contaminants. A small amount of groundwater seepage from agricultural fields crosses into Imperial Valley from Mexico to the Alamo
River and has low pollutant concentrations.

The main pollutants in the water are pesticides which get drained into the Alamo River during irrigation. However, the potential for polluting the Alamo River could increase not only from the pesticides contained in the water but from potential development at or near the Alamo River at the International Boundary, such as the new border crossing that has been constructed near the Alamo River as it crosses into the United States.

This new border crossing could create an urban sprawl effect in this area of Imperial Valley, which would increase drainage into the Alamo River. The Alamo River currently has a small concrete culvert that passes underneath the All-American Canal which drains seepage water coming from Mexico. Additional flows could impact the river and present a financial burden to Imperial Valley and lead to environmental health problems.

An option proposed by the California Regional Water Quality Control Board has been to shunt the Alamo River into a drainage system which would eventually drain into the New River before it crosses into the United States. In order for this to happen, both governments must agree. Presently, nothing has been settled but further negotiations are currently being reviewed between the United States and Mexico, in hopes to minimize potential problems that could result from the development of the new border crossing.

Surface Water from the Colorado River

Water is supplied to the City from the All-American Canal through the Central Main Canal. The supply point for the water plant is the South Date Canal and the Dahlia Lateral Number 1. Both of these canals flow north from the Central Main Canal. The South Date Canal runs immediately east of the treatment facility and has capacity to deliver 22.6 million gallons per day (MGD) of untreated water to the plant.

The Dahlia Lateral Number 1, located west of the plant, is capable of supplying the plant with an additional 9.0 mgd. The Dahlia Lateral has been used as a water source more during the last few years. This is because it has fewer services drawing water from it than the South Date Canal. It maintains a steadier flow and is a more reliable source. The capacity of water delivery from the Dahlia Lateral is limited due to the size of gate 18A and the back pressure of the Lateral. The total amount of raw water that can currently be supplied to the City is 31.6 mgd (35,755 acre-feet per year).

Rainfall average is less than three inches per year and does not contribute to Imperial Irrigation District's water supply, although at times it may reduce agricultural water demand.

As the City grows and develops on existing agricultural land, theoretically there will be more supply of water available. Agriculture requires more raw water per acre than developed land.

Municipal water is not a large portion of the total water delivered by the IID. It represents only approximately three percent (3%) of the total water delivered. The total municipal use has not significantly changed since 2006. Table below shows the total water delivered. Since the portion of water used by the municipalities is low compared to the overall use, it is not anticipated that there will be any shortage of raw water from the IID. The city's main constraint of raw water availability is in the raw water inlet piping capacity. As was mentioned earlier, the total amount of raw water that can currently be supplied by the IID to the City is 31.6 MGD (35,755 acre-feet per year) which is more than enough capacity for the foreseeable future.

IID Consumptive Use Amount vs. Total Municipal Use

Year	IID Net Consumptive Use Amount (Total Imperial Valley) (AF)	Total Municipal Use (AF)	Total Other Non-Agricultural Use (AF)	Total Agricultural Use (AF)
2010	2,363,800	50,819	54,749	2,258,232
2015	2,236,300	55,877	66,382	2,114,041
2020	2,316,300	61,397	78,015	2,176,888
2025	2,284,300	67,335	85,558	2,131,407
2030	2,279,300	71,233	93,101	2,114,966

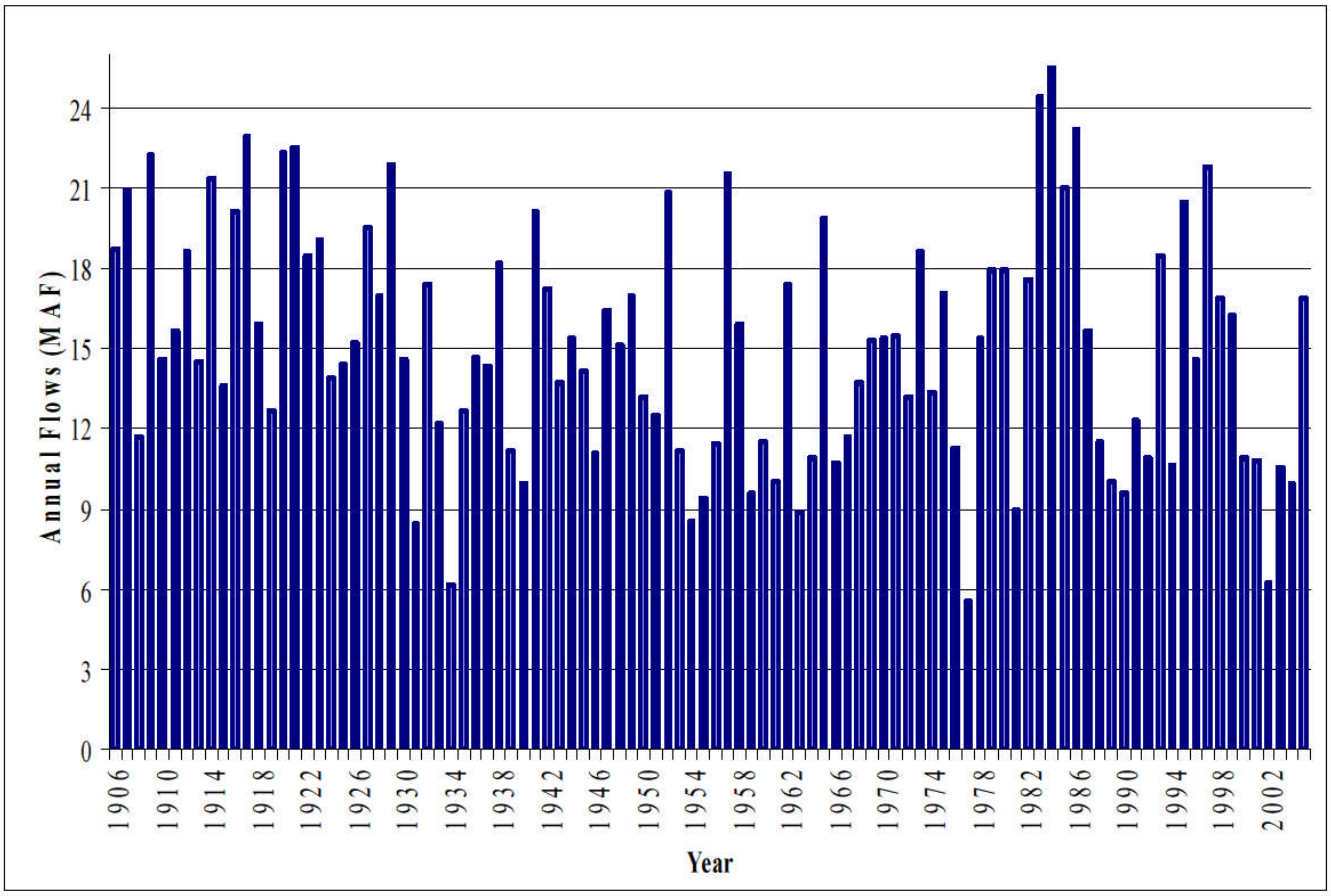

Figure 6-1 Colorado River Annual Flow (MAF) 1906-2002

Colorado River Reliability

Under the Law of the River, IID has significant historical legal protections in place to maintain its 3.1 MAF Priority 3a water right to consumptive use of Colorado River water even during lower Colorado River flow periods.

Historical Data on the Colorado River Water Supply

The Colorado River flow at Lees Ferry has been gauged since 1921. By removing reservoir and diversion effects, the USBR has created a "natural flow" record for this site. The long-term (1906- 2004) average natural flow is estimated to be about 15.1 MAF based on the gage record. The annual natural flow records are shown in Figure 6-1. A few important points should be noted from the natural flow record:

(1) The period 1906-1930 and prior was the available gauge record when many of the Colorado River compacts were drafted. This period had a 10-year running average flow of about 17.0 MAF, which is higher than almost any other period in the gage record.

(2) The 10-year running average from 1934 to 1984 was almost always less than 15 MAF, meaning that the 1922 Compact apportioning 7.5 MAF to the Upper and Lower Basins could not have been fully satisfied for most of this 50-year period.

(3) Allocations from the Colorado River total 16.5 MAF, divided as 7.5 MAF each to the Upper and Lower Basins, and 1.5 MAF to Mexico. The long-term average natural flows from the gauge record are less than these total allocations.

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 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. 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 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.

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

Canal Lining Projects

In 1986, Congress passed Public Law 100-675 that governs the allocation of water conserved by the lining of the All-American and Coachella canals and assigns responsibility for the repayment of costs. Water conserved by these projects was to be made available to the IID, CVWD, and MWD in accordance with the priorities established under the Seven-Party Agreement. Parties who use the conserved water were to reimburse the party constructing the project for an apportioned share the amortized capital costs, plus an apportioned share of the costs of operation, maintenance, and any net costs the lining projects impose on IID. In 1988, Congress authorized the Secretary of the Interior to develop a well field or construct a new lined canal or line previously unlined portions of the All-American Canal in

southeastern California, and to enter into an agreement with the MWD and/or certain other California water agencies to fund the lining project. The canal is owned by the United States. An estimated 67,700 acre-feet of water a year that was lost by seepage into groundwater from unlined portions of the canal is expected to be saved by this project and made available for use according to the terms of the QSA and related agreements.

On September 25, 1998, the California Legislature passed Senate Bill 1765 authorizing the sum of $200 million be used by the Director of CDWR to finance and arrange for lining portions of the All-American and Coachella Canals. The “Agreement for the Funding of the All-American Canal Lining Project” was developed by the IID and CDWR, and approved by the Board of Directors of the IID on July 24, 2001. Pursuant to the agreement with CDWR, CDWR will reimburse the IID for all costs up to $126 million associated with the canal lining project. The project also qualifies for an additional $9.5 million of Proposition 50 funding approved in the November 2002 general election. The total amount of funding reserved for the canal lining project from the State of California is $135.5 million.

All-American Canal

The All-American Canal (AAC) is the Imperial Valley's lifeline from the Colorado River. In 2008, 2,878,320 acre-feet of Colorado River water was accounted for by water balance through the All-American Canal to nine cities and 475,000 acres of farmable lands throughout the Imperial Valley.

Considered an engineering marvel, even by today's standards, the 80-mile gravity flow All-American Canal begins at Imperial Dam on the Colorado River about 20 miles northeast of Yuma, Arizona. Dropping a total of 175 feet between Imperial Dam and IID’s Westside Main Canal, the All-American Canal extends south and then west, parallel to the Mexican/American border much of the way.

Crossing 14 miles of sand dunes on the east side of the Imperial Valley, the All-American Canal ends in the southwest corner of the Imperial Irrigation District's delivery area. The AAC until 2009 was unlined, resulting in an estimated 67,700AFY in seepage. The All-American Canal Lining Project included 23 miles of concrete lining.

The Project consisted of the planning; environmental compliance and permitting activities; preparation of schedules, plans, specifications and cost estimates; administration; design; construction; and implementation of environmental mitigation measures required to construct the 23-mile concrete lined canal parallel to the existing earthen canal, from one mile west of Pilot Knob to Drop 3. The new concrete lined section of the AAC is expected to conserve 67,700 acre-feet per year of Colorado River water that was historically lost to seepage, mainly into Mexico.

The new section of concrete lined AAC was constructed parallel to the existing AAC alignment using conventional construction methods and now permitted the current unlined section of the AAC to remain in service and to provide normal water deliveries to IID customers during construction. IID operates and maintains the Project in accordance with its existing contract with USBR. Construction was completed in 2009.

Colorado River Environmental Considerations

Several fish species and other wildlife species either directly or indirectly have the potential to affect Colorado River options, thus changing power operations and the amount of water deliveries to the lower basin. A number of species that are on either endangered or threatened lists under the Endangered Species Act are present in the area of the Lower Colorado River, including among others,

the bonytail chub, razorback sucker, southwestern willow flycatcher and Yuma clapper rail. To address this issue, a broad-based State/Federal/tribal/private regional partnership has been formed, which includes water, hydroelectric power and wildlife management agencies in Arizona, California and Nevada. The objective is to accommodate current water diversions and power production and optimize opportunities for future water and power development while working toward the conservation of habitat and toward recovery of the endangered species. These efforts also have the objective of reducing the likelihood of additional "threatened/endangered" species listings.

Operations of the Water System

The Water Control Section of the IID's Water Department is responsible for the transmission of water through the main canal system and its diversion to the laterals for distribution to the users. Water distribution is a complicated task that involves adjusting the appropriate check, delivery and other structures. There are approximately 3,400 check structures and 5,600 irrigation delivery structures within the system. A coordinated procedure has evolved to handle this complex distribution process.

Groundwater is generally unusable for municipal potable water supplies or irrigation in the Imperial Valley. The salinity, or total dissolved solids count, is too high.

The deepest groundwater is in some cases is believed to be moderately altered ocean water. Above this level, the water may consist of residuals from prehistoric fresh water lakes that filled the Salton Trough. Waters at this level vary from low to moderate salinity. The next higher layers are high temperature, and in places highly saline waters.

In the central part of the Imperial Valley, the groundwater has a higher salinity than the Colorado River water, which has an approximate salinity of 750mg/L. Most wells had total dissolved solids concentrations of between 1,000 and 3,000 mg/L. The ionic composition of the water in the central part of the valley is similar to that of the East Mesa. However, as the total dissolved solids concentration increases, the ionic composition becomes more dominated by sodium chloride. The pH of these waters is usually slightly basic, with an occasional value less than seven.

In the western section of the valley, water quality varies widely. Almost all of the wells in Coyote Valley have total dissolved solids concentrations below 500 mg/L; however, West Mesa wells have levels between 1,800 and 5,200 mg/L. The shallow aquifers beneath the Imperial Valley are affected by canal seepage and deep percolation of applied irrigation water (raw Colorado River water) from agricultural fields.

Percolation from agricultural fields has resulted in local salinities higher than Colorado River water because of the leaching of salts from these fields. In other areas, mounds of good quality fresh water have resulted from seepage from irrigation canals. This has occurred significantly in the unlined major canals and the All-American, East Highline, and Coachella canals.

6.4 Stormwater

The City does not treat and reuse stormwater.

6.5 Wastewater and Recycled Water

The City owns and operates a waste water treatment facility but does not produce or use recycled water.

6.5.1 Recycled Water Coordination

Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area (10633).

Recycled Water Feasibility

The City of Brawley provides sewer service and has a wastewater treatment plant which produces secondary (includes de-nitrification) treatment level wastewater.
Treated waste water is discharged to percolation ponds.

Treated wastewater in the City of Brawley does not currently meet Title 22 Standards, and no wastewater is currently recycled within the City's service boundary. The WWTP discharges the treated waste water to IID drainage canals, where it eventually enters the Salton Sea.

There are potential uses for recycled water that include but is limited to: landscape irrigation, industrial reuse, wetlands, some agricultural uses (consistent with State regulations) and wildlife habitat enhancement. There are some recycled water projects that have been proposed in the Imperial Valley for use in Solar and Geothermal plants.

<u>Keystone Regional Water Reclamation Facility & Wastewater Collection System</u>

In February of 2006, the County of Imperial approved the Mesquite Lake Specific Plan Area (MLSPA), defining land use and development standards for approximately 5,100 acres. Located within the central Imperial County area, between the Cities of Brawley and Imperial, the area has seen many proposed projects and generated considerable interest. However, the high cost of initial infrastructure – specifically, a reliable wastewater treatment facility to generate recycled water at a reasonable cost-benefit ratio – has presented an obstacle to progress.

The region has committed to collaborating across jurisdictional boundaries to proactively shape the future of job creation in the region. With the recent County adoption of a traffic impact fee to address roadway improvements in central Imperial
County, and plans for water treatment facilities well underway, the remaining major infrastructure piece is the Keystone Regional Water Reclamation Facility. The Facility opens the door for years of development and job creation.

The proposed Keystone Regional Water Reclamation Facility ensures centralized wastewater treatment for the Keystone Planning Area and adjacent lands in the County of Imperial. It will provide essential wastewater treatment and reclamation services to industrial developments within the Mesquite Lake Specific Plan Area, as well as services to nearby commercial developments, mixed use projects, residential developments, recreational area and educational facilities.

The Plant design integrated the latest green technology. The project is self-contained, with solar and co-generation production opportunities. It will be the first plant in Imperial County to generate Title 22 quality recycled water, utilizing state of the art membrane technology to produce high quality recycled water. It is initially equipped to produce up to 5 million gallons per day (MGD) of water for industry, recreation and irrigation. The build out capacity of the plant is 50 MGD. Users are readily available.

The City of Brawley is working with the City of Imperial in actively seeking funding to build the proposed recycled water facility. It is anticipated that the 5.0 MGD of recycled water will become available in 2015, and that the recycled water produced by the facility will double every five years through 2030.

6.5.2 Wastewater Collection, Treatment, and Disposal

(Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal (10633(a)).

Wastewater Collection and Treatment in Imperial

The City Waste Water Treatment Plant (WWTP) manages wastewater collection and treatment for the City. All of the wastewater flows from the City (including storm water run-off), and is collected and treated at the WWTP. The WWTP treats an average of 4.0 million gallons per day (mgd).

Wastewater Treatment					
Treatment Plant Name	**Location (City)**	**Average Daily (2010)**	**Maximum Daily (2010)**	**Year of Planned Build-out**	**Planned Maximum Daily Volume**
WWTP	Brawley	4.0MGD	4.5 MGD	2040	8.0 MGD

The City owns and operates a municipal wastewater treatment facility. The treatment system consists of preliminary, primary, and secondary treatment before being disinfected and discharged. Wastewater is discharged o the New River, a water of the United States, and a tributary to the Salton Sea.

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015

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Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected in 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
Add additional rows as needed						
City of Brawley	Metered	821	City of Brawley WWTP	Brawley WWTP	No	No
	Estimated					
Total Wastewater Collected from Service Area in 2015:		821				

NOTES:

Treatment Process Description

The city owns and operates a wastewater collection, treatment and disposal system and provides sewerage service to the City of Imperial. The wastewater treatment facility located at 701 East 14th Street, Imperial, California. The wastewater flows through the Dolson Drain, Lilac Drain, Rose Drain, Alamo River and then enters the Salton Sea.

The City owns and operates the wastewater treatment plant. Recently the wastewater treatment plant was expanded to treat an average daily flow (ADF) of 2.4 mgd and a peak daily flow (PDF) of 4.8 mgd. The current wastewater treatment plant consists of an influent pumping station, grit chamber, two parallel oxidation ditches, two secondary clarifiers, an ultraviolet disinfection system, and sludge drying beds.

The City recently upgraded to the facility in the following ways: 1) installed a new screening mechanism. Retrofitted the existing headworks channel with a screening dewatering system; 2) Installed a packaged lift station, wet well, and appurtenant piping to deliver water from the existing splitter box to the extended aeration/activated sludge basin; 3) Installed an extended aeration/activated sludge basin with integral clarifier treatment system with separate building to house the blowers; 4) Removed the existing ultraviolet disinfection system and replaced with a higher output capacity UV system; 5) Constructed 10 additional sludge drying beds; 6) Upgraded the existing electrical to accommodate the proposed facilities.

(Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project (10633(b)).

There is no current recycled water use in Brawley. It is anticipated that the Keystone Regional Water Reclamation Facility and Wastewater Collection System will become online in 2015, producing 5.0 MGD, doubling in capacity every five years until 2030. A portion of the wastewater treated at the plant could be diverted from the Brawley collection system, reducing the wastewater collected at the existing plant.

6.5.3 Recycled Water System

(Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use (10633(c)).

6.5.4 Recycled Water Beneficial Uses

(Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses (10633(d)).

The Keystone Regional Water Reclamation Facility, anticipated to produce recycled water in 2015, will ensure centralized wastewater treatment for the Keystone Planning Area and adjacent lands in the County of Imperial. It will provide essential wastewater treatment and reclamation services to industrial developments within the Mesquite Lake Specific Plan Area, as well as services to nearby commercial developments, mixed use projects, residential developments, recreational area and educational facilities.

Since the QSA has been approved, recycled water may become more of a feasible option for new industry within the Imperial Valley. There is not enough water for IID to allocate to proposed renewable energy projects without developing new sources and/or policies.

“IID Interim Water Supply Policy for Non-Agricultural Projects” dated 09/29/2009 (IWSP) currently designates up to 25,000 AFY of water to Non-Agricultural Projects within IID’s water service area.

(Describe) the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision (10633(e)).

As shown on Table 6-5, Recycled water was not used in 2010 nor projected for use in 2015. The Integrated Regional Water Management Plan (IRWMP) that is currently being developed will evaluate regional recycling opportunities and potential grant funding for projects consistent with the Imperial regional goal and objectives, and the State's preferences and priorities.

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

☑	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.

Use Type *These are the only Use Types that will be recognized by the WUEdata online submittal tool*		2010 Projection for 2015	2015 actual use
Agricultural irrigation			
Landscape irrigation (excludes golf courses)			
Golf course irrigation			
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	Required for this use		
Total		0	0

NOTES: No recycle uses

6.5.5 Actions to Encourage and Optimize Future Recycled Water Use

(Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year (10633(f)).

(Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use (10633(g)).

The plans and specifications for the Keystone Regional Water Reclamation Facility & Wastewater Collection System have been prepared and are ready for construction. The city is seeking funding sources for the recycled water treatment facility and installing a dual distribution system. It is currently beyond the City's resources. However the city will work with regional partners through the Integrated Regional Water Management Plan, developers and industry to promote recycled water and the potential of funding the recycled treatment plant and new purple pipe distribution systems in the Keystone area. Summary of plans are shown on Table 6-6 below.

Table 6-6 Retail: Methods to Expand Future Recycled Water Use

☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.
	Provide page location of narrative in UWMP

Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Add additional rows as needed			
		Total	0
NOTES: City does not have the infrastructure to recycle water			

6.6 Desalinated Water Opportunities

Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply (10631(h)).

There are no plans to use and treat the brackish groundwater as a long-term supply in the Imperial Valley.

There are no plans for the City of Brawley to use and treat the brackish groundwater as a long-term supply in the Imperial Valley. There are no feasible opportunities for the City of Brawley to independently development of desalinated water sources within the planning horizon of the 2015 UWMP, because of the supply availability and cost effectiveness of treating surface water from the Colorado River. If it becomes financially feasible in the future, there may be consideration for desalination of brackish groundwater and drain water on a regional basis.

6.7 Exchanges or Transfers

Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis (10631(d))

The City does not have plans to exchange or transfer water. All agencies within the Imperial Valley utilize the same raw source water from the Imperial Irrigation District. However, if connected to another water system there would be the benefit of an emergency water supply. The City will evaluate the potential for long term possibilities. The City is working in cooperation with the City of Imperial to construct a regional reclaim facility to divert some untreated wastewater from its collection system.

6.8 Future Water Projects

…The urban water supplier shall include a detailed description of expected future projects and programs… that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program. (10631(g)).

Table 6-7 Retail: Expected Future Water Supply Projects or Programs

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Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency
	Drop Down List (y/n)	*If Yes, Agency Name*			*Drop Down List User may select more than one.*	*This may be a range*

Add additional rows as needed

NOTES:

Although the City does not have any future water supply projects planned to increase the amount of the water supply available, the City of Brawley is a participant in the Imperial Water Forum. The Imperial IRWMP being developed by the Water Forum includes evaluation of potential future projects and programs that may be implemented to increase the amount of the water supply available in all types of years. The Imperial IRWMP will contain an implementation plan and listing of projects to be implemented to increase the water supply portfolio. As a participant in the IRWMP, the City is working within the larger Region through the collaborative IRWM effort to increase the amount of supply within the Region.

6.9 Summary of Existing and Planned Sources of Water

Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a) (10631(b)).

Table 6-8 Retail: Water Supplies — Actual

Water Supply	Additional Detail on Water Supply	2015		
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		Actual Volume	Water Quality *Drop Down List*	Total Right or Safe Yield *(optional)*
Add additional rows as needed				
Purchased or Imported Water	1987.53	1,987	Drinking Water	
Total		1,987		0
NOTES:				

(Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records (10631(b)(4)).

The City does not use groundwater.

6.10 Climate Change Impacts to Supply (Optional)

Climate change impacts to be added at a later date or omitted.

Chapter 7 – Water Supply Reliability

7.1 Constraints on Water Sources

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable (10631(c)(2)).

The main factors that can cause water supply shortages for the City are water pollution, earthquakes and long term energy outages at the treatment and pumping facilities.

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.

There are no known upcoming factors that will result in inconsistency of supply.

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.

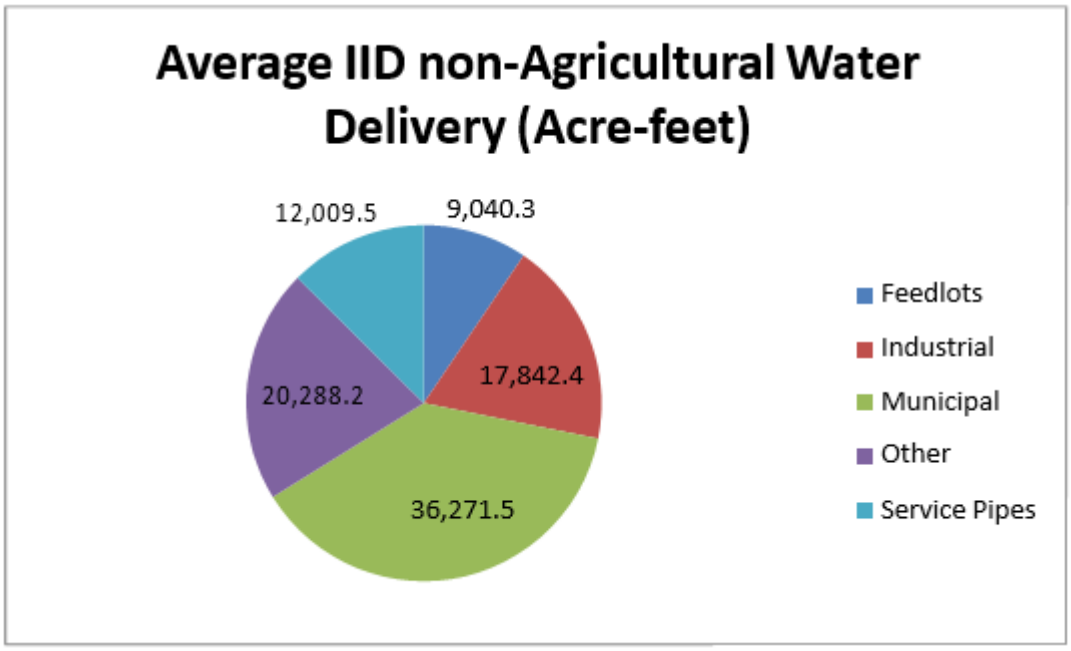

Figure 7-1 Non-Agricultural Water Delivery by the IID (Acre-Feet) 2006-2009

IID Non-Agricultural Water Delivery

IID Non-Agricultural Water Delivery (**Acre-feet**)					
	2006	2007	2008	2009	Average
Feedlots	5,004.6	5,222.5	11,889.1	14,045.0	9,040.3
Industrial	18,398.6	17,424.9	18,447.0	17,099.2	17,842.4
Municipal	35,942.3	36,404.6	36,236.1	36,503.1	36,271.5
Other	20,563.6	21,342.6	19,988.1	19,258.5	20,288.2
Service Pipes	12,001.3	12,001.3	12,034.2	12,001.2	12,009.5
Total	**91,910.4**	**92,395.9**	**98,594.5**	**98,907.0**	**95,452.0**

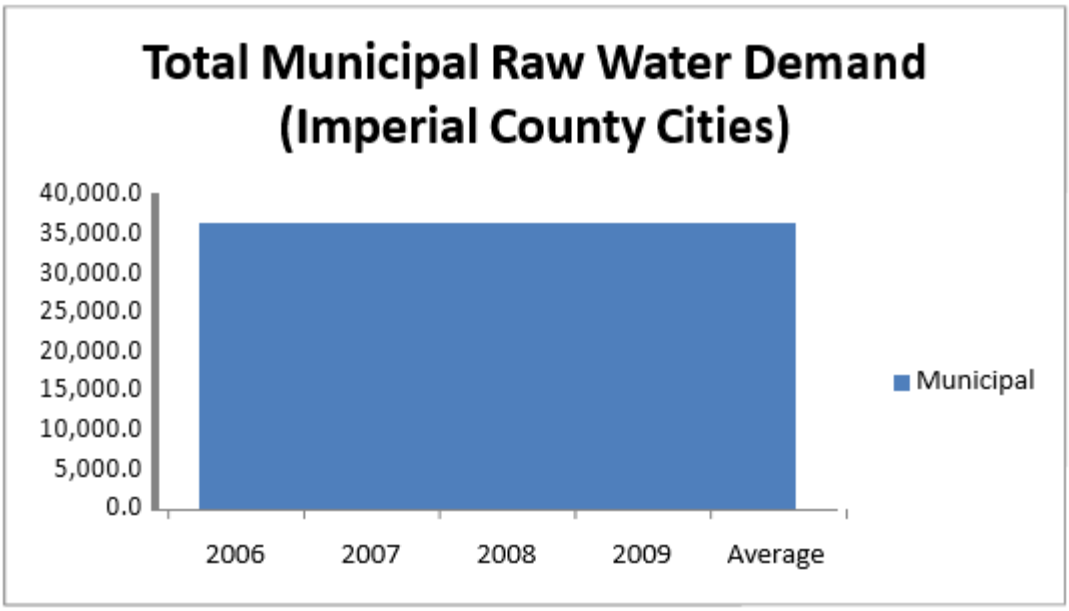

Figure 7-2 Total Municipal Raw Water Demand (Imperial County Cities) since 2006 (Acre-Feet)

Total Estimated Water Flow by the IID

IID Water Balance Imperial Unit (**Acre-feet**)					
	2006	2007	2008	2009	Average
Agricultural	2,366,591.9	2,320,920.8	2,413,609.8	2,279,083.9	2,345,051.6
Non-Agricultural	91,910.4	92,395.9	98,594.5	98,907.0	95,452.0
Salton Sea Mitigation Water	0.0	22,399.7	24,793.9	28,989.3	19,045.7
Seepage (Delivery)	86,000.4	86,000.4	79,728.5	64,995.1	79,181.1
Seepage (AAC)	219,861.1	248,816.5	299,527.3	573,644.5	335,462.4
Main Canal Spill	1,638.5	2,212.9	2,422.8	2,248.2	2,130.6
Lateral Spill	118,999.0	112,567.0	117,610.9	106,496.9	113,918.5
Net Evaporation	24,518.4	24,092.3	24,147.0	24,038.1	24,199.0
Total	**2,909,519.7**	**2,909,405.5**	**3,060,434.7**	**3,178,403.0**	**3,014,440.9**

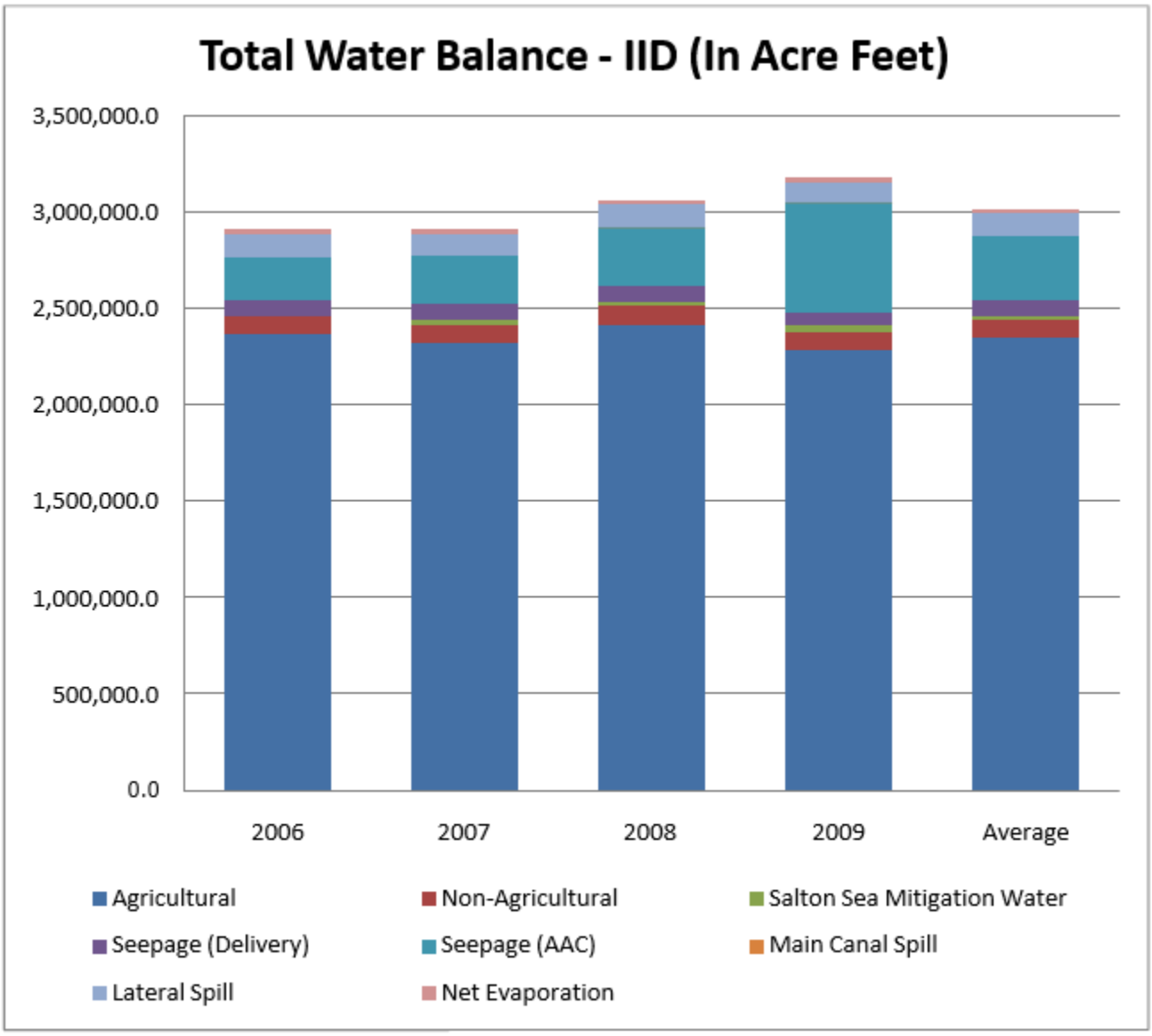

Figure 7-3 Graphical Representation of the Total Water Balance IID Water Use

The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability (10634).

The Safe Drinking Water Act ("SDWA") was amended on August 6, 1998 to include "systems providing water for human consumption that deliver water by constructed conveyances such as irrigation canals." On October 27, 1998 the IID signed a Compliance Agreement with the California Department of Public Health ("CDPH") requiring that all domestic users with service pipes to the IID's canal system must receive an alternate supply of water for drinking and cooking. The alternate supply must be of sufficient quality to achieve an equivalent level of public health protection as provided by the SDWA. On May 19, 2000, CDPH provided written notice that the

IID had met the requirements of the Compliance Agreement and that the IID faced no further enforcement actions. The IID continues to meet the conditions of the Compliance Agreement.

To comply with US Environmental Protection Agency (EPA) requirements and avoid termination of canal water service, residents in the IID service area who do not receive treated water service must obtain alternative water service for drinking and cooking from a state-approved provider. To avoid penalties that could exceed $25,000 a day, IID strictly enforces this rule. The section tracks nearly 4,000 raw water service accounts required by the California Department of Public Health (CDPH) to have alternate drinking water service. The section maintains a small- acreage pipe and drinking water database, and provides an annual compliance update to CDPH.

It is not anticipated that there will be any major raw water quality disruptions. The following describe the water quality concerns that were discussed in the Sanitary Survey completed in 2010:

Source Water General Minerals

The bicarbonate alkalinity of the Colorado River raw water ranges from 160 to 200 mg/L. The hardness ranged from 190 to 240 mg/L. TDS ranged from 720 mg/L to 840 mg/L. The following summarizes the monitoring results for alkalinity, hardness and total dissolved solids (TDS) for samples collected from the IID system since 2003.

Raw Colorado River Water General Tested Mineral Quality (in IID Delivery System)

Sample Location	Date	TDS (mg/L)	Bicarbonate Alkalinity (mg/L)	Hardness as CaCO3 (mg/L)
Drop 1	10/15/04	770	190	350
Drop 1	10/14/05	800	190	360
Drop 1	10/27/06	830	200	380
Drop 1	10/26/07	820	200	350
Drop 1	10/24/08	820	190	360
East High Line	10/15/04	770	190	350
East High Line	10/14/05	800	190	360
East High Line	10/27/06	830	200	350
East High Line	10/26/07	860	240	370
East High Line	10/24/08	850	190	360
Central Main	10/15/04	790	190	350
Central Main	10/14/05	790	190	360
Central Main	10/27/06	780	190	350
Central Main	10/26/07	840	200	370
Central Main	10/24/08	720	190	370
Westside Main	10/15/04	820	190	350
Westside Main	10/14/05	810	190	360
Westside Main	10/27/06	790	190	370
Westside Main	10/26/07	800	200	360
Westside Main	10/24/08	820	190	360

Water Pollution

The City participated in the Sanitary Survey Update 2010. The sanitary survey update provides the most recent information on the potential contaminant sources of the raw water supply. The main concern identified in the Sanitary Survey is the variable Microbial Character of the raw water.

The source water was tested as required by Title 22 California code by the IID. The Results of the bacteria testing showed wide fluctuations in the total coliform, fecal coliform and E.coli. While some results can be attributed to a passing slug of contaminated water or the testing method, it appears that there is some correlation between the season and high concentrations of bacteria. See Figure 7-4 for a graph of the variable total coliforms.

The variable microbial character of the raw water is due in part to:

a. Storm Water Runoff and First Flush Events;
b. Imperial Irrigation District routine inspection and maintenance procedures;
c. Spills into the IID canal system;
d. Drowning deaths in the IID canal system and associated response plans;

e. Failing Septic Systems along the Colorado River;
f. Recreational Activity;
g. Agricultural activity.

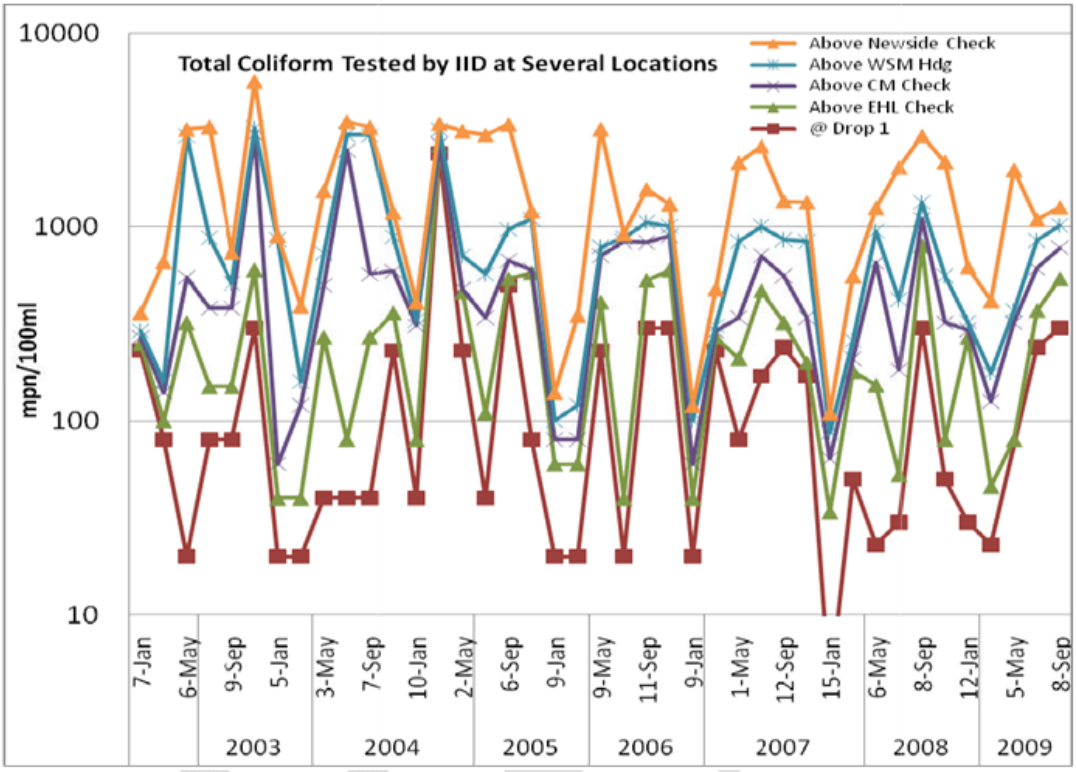

Figure 7-4 Total Coliform Variations in the IID Canal Delivery System

According to the Sanitary Survey Update 2010, it appears that there is some correlation of high total coliform between the various locations. It also appears that the longer the water is in the IID canal system, the higher the Total Coliform counts. It appears that there is an additional coliform source or that the conditions support bacteria growth within the IID canal system.

Temperature is widely recognized as an important controlling factor in influencing bacterial growth. In climates where water temperatures are warm such as the Imperial Valley, bacterial growth may be very rapid. Most bacteria thrive at temperatures at or around that of the human body 98.6°F (37°C), and some, such as Escherichia coli (E. coli), are normal parts of the human intestinal flora. These organisms are mesophilic (moderate-temperature-loving), with an optimum growth temperature between 77°F (25°C) and 104°F (40°C).

The Sanitary Survey included recommendations for the City to reduce the impact of possible contaminants for the next five years. The City plans to implement the recommendations in the survey.

7.2 Reliability by Type of Year

Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) an average water year, (B) a single dry water year, (C) multiple dry water years (10631(c)(1)).

Under the *Law of the River*, IID retains a legal right to annual net consumptive use of 3.1 MAF from the Colorado River. Under the terms of various agreements and laws, the annual Colorado River flows would have to be reduced to less than 5.0 MAF (one-third of historic average) before the water supply to IID would be impacted. Nevertheless, in the face of a large-scale water supply disruption in the western states, IID is potentially subject to some water supply reduction.

Even in drought years with Lower Colorado River flows less than 7.5 MAF, the existing laws and agreements provide security that the IID should receive its Present Perfected Rights of 2.6 MAF and its overall water allocation remains at 3.1 MAF. This protection is based on the following:

- 1885 California water right, based on reasonable and beneficial use of approximately 7 MAF, conveyed to IID on June 22, 1916.

- 1922 Colorado River Compact requires the Upper Basin states to ensure the supply of 7.5 MAF at Lees Ferry for use by the Lower Basin states (actually stated as 75 MAF over 10 years). Thus, it is the responsibility of the Upper Basin states to provide the full Lower Basin allocation; even in drought years and even if the 10-year running average annual water supply of the river is less than 15.0 MAF.

- 1931 Seven-Party Agreement provides a schedule of apportionments and priorities, which the parties requested "The Division of Water Resource to, in all respects, recognize… and recommend to the Secretary of the Interior… for insertion in any and all contracts for water made by him pursuant to the terms of the Boulder Canyon Project Act…Pursuant to the provisions . . . California was apportioned 4.4 million AF per year out of the lower basin allocation of 7.5 million AF per year, plus 50% of any available surplus water."

- 1931 IID agreed to limit its California pre-1914 appropriate water rights in quantity and priority to the apportionments and priorities contained in the Seven-Party Agreement.

- 1968 Colorado River Basin Project Act states that all deliveries to the Central Arizona Project (CAP) and all other post-1968 water deliveries are subordinate to pre-existing

Colorado River water rights in the Lower Basin, regardless of each state's allocations under the 1928 Boulder Canyon
Project Act. Therefore, all post-1968 rights in the Lower Basin, including the CAP's, are effectively junior in priority to California's Colorado River diversions under its 4.4 MAF rights. Post-1968 rights in the Lower Basin are estimated to be 1.8 MAF.

- 1979 Supplemental Decree in Arizona v. California retains IID's present perfected rights to use of the Colorado River water. If water supply shortages occur along the Colorado River, IID's present perfected rights must be satisfied prior to the satisfaction of any nonperfected rights, regardless of state lines and Federal agreements. IID has a present perfected right to 2.6
MAF.

- 2003 QSA/Transfer Agreements slightly modify the guaranteed senior water right of IID within California under the terms of the Seven Party Agreement (senior to CVWD, MWD and San Diego city and county), as follows: IID retains its priority 3(a) right to 3.1 MAF of net consumptive use (including transfers out of the IID service area) at Imperial Dam; however, if IID does not use its full annual apportionment, then MWD can import the balance up to California's 4.4 MAF per year allocation.

- 2007 USBR interim guidelines provide that shortages in Lake Mead storage, and decreasing water levels in the reservoir, will prompt reductions in the deliveries to Arizona and Nevada, but that California deliveries will remain at
4.4 MAF. If California deliveries remain to be 4.4 MAF, then IID deliveries should likewise remain at the agreed right of 3.1 MAF net consumptive use under the terms of the QSA/Transfer Agreements.

Because IID's 2000 Regional UWMP was deemed obsolete and is no longer supported by IID due to the consumptive use limits agreed upon in the QSA, the water supplies available during a normal year are best represented by the post-QSA era (2003 and later). This represents the maximum amount of supply available and is thus the new normal water year. This is the age of limits for IID, where water is not necessarily tightly constrained or scarce, but rather the supply is no longer unlimited due to the agreements with other QSA participants.

Distribution and Priority of Deliveries within IID

See http://www.iid.com/Water/EquitableDistribution for more information.

For the single dry and multiple dry water year assessment, IID's Equitable Distribution Plan (EDP) governs. The EDP was adopted in 2007, along with subsequent regulations, allowing the IID Board to make an annual determination as to Supply/Demand Imbalance (SDI) conditions. On October 26,

2008, IID staff summarized the situation in a board presentation, by noting that a 64% probability existed of demand exceeding supply in the 2009 calendar year, even assuming no overrun were to occur in 2008. Similarly, the Hanemann Brookes Study opined that SDI situations were likely to occur "4 or 5 times out of the next 10 years", and from 2003 through 2008 IID was accounted as overrunning its annual water limit three times. The Equitable Distribution Plan and the Supply/Demand Imbalance are discussed in Item 4 under the single dry and multiple dry year projections.

Future apportionment of municipal, industrial, geothermal, feedlots/dairies, and environmental resources was prescribed in the EDP. The EDP prescribes the amount of water that IID water users receive during periods of supply/demand imbalance (SDI).

The Interim Water Supply Policy, approved on 09/29/09, describes the amount of water available for Non-Agricultural projects and describes the required fees.

Under SDI conditions, industrial and geothermal water users are placed into two categories: (1) For users with existing contracts (as of 2008), water allocated is based on past use, not-to-exceed contracted amount and contract terms; and (2) for contracts after 2008, water allocation is based on anticipated use. The contract terms include not-to-exceed amounts, and considerations for water availability. Future water allocation for dairies and feed lots is based on historical practices. Environmental resources use is based on the amount of mitigation area that has been developed.

IID has established an Equitable Distribution Plan and implementing regulations, together referred to as the Equitable Distribution Program, that are designed to provide for the distribution of water in any year when expected demand for water is likely to exceed expected 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 as follows:

a) Municipal and Commercial 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.
b) Industrial Users – For existing contracts, estimated based on past use, not to exceed contracted amount and contract terms. For new contracts, estimated based on anticipated use, not to exceed contract amount and contract terms, taking into consideration the Interim Water Supply Policy dated 09/29/09.
c) Feedlots and Dairies – Estimated based upon past use and consideration of future changes;
d) Environmental Resources Water – Estimated based upon the amount reasonably necessary to achieve the purposes of the District's commitments, taking past use into account; and

e) Agricultural Lands – Straight Line Apportionment. Subtract the estimated demand for categories a through d above from Available Water Supply, and then divide the remaining supply by the total number of Eligible Agricultural Acres. The amount of water apportioned to acreage that does not comply with Eligible Agricultural Acres will be placed in the District Water Exchange.

As part of the Equitable Distribution Plan, a District Water Exchange is established so that agricultural water users can sell and buy water. This provides flexibility for some agricultural water users to obtain water in addition to their straight line apportionment.

Consumptive use is not the same as delivery. Exhibit B of the Colorado River Water Delivery Agreement dated October 2003 (CRWDA), particularly column 13, summarizes the "IID Net Consumptive Use Amount", which is indicative of future supplies as measured at Imperial Dam. Agricultural water demands will decrease in an amount equivalent to the water conservation attributable to on-farm efficiency measures (setting aside outside factors such as annual rainfall, differences attributable to the intensity of farming within IID such as acreage in production, double cropping, and market conditions, etc.) and IID system conservation and efficiency measures, so while IID's total volume in this column is declining, so too are its agricultural demands. However, as a consequence of reducing the agricultural water demand through increased on-farm and system efficiency, less water is available for years when agricultural demand may be higher than normal, such as in years of low rainfall or due to cropping choices made by Imperial Valley growers. Such intermittent spikes in higher agricultural demand means less water is available for non-agricultural development.

Similarly, reductions attributable to system conservation efforts and the All-American Canal Lining Project are a result of the implementation of conservation measures, so there is no net decline in the water available for IID's water users as a result of water conservation and transfer projects.

The variability in IID's historical net consumptive use, which can be seen in Figure 7-5 is representative of the historic variability in agricultural deliveries, since IID's MCI deliveries are relatively small and fairly consistent. Historic variations in agricultural water demand actually exceed, but are similar in magnitude, to the 408,000 AF per year of transfers called for in the QSA/Transfer Agreements. For example, agricultural water demands for 1970-2003 varied from a low of 2.555 MAF per year to a high of 3.172 MAF per year – a variation of 617,000 AF. The greatest variation for one year to the next was 326,000 AF, while several 2-year variations are in excess of 300,000 AF. Under the terms of the QSA/Transfer Agreements, IID has a variable demand and a fixed supply which can lead to the supply/ imbalances described above (overruns and under-runs); however, with implementation the Equitable Distribution Plan, these variations are expected to be much less.

7.2.1 Types of Years

Table 7-1 shows the summary of volumes available for a given year type.

"**Average Water Year**" means the average year of net consumptive use as compared to the consumptive use right.

"**Single-Dry Water Year**" in this plan signifies a year that the net consumptive use exceeded the consumptive use right.

"**Multiple-Dry Water Years**" in this plan signifies a stretch of three years that the net consumptive use exceeded the consumptive use right.

Table 7-1 Retail: Basis of Water Year Data			
Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available	% of Average Supply
Average Year			100%
Single-Dry Year			
Multiple-Dry Years 1st Year			
Multiple-Dry Years 2nd Year			
Multiple-Dry Years 3rd Year			
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
NOTES:			

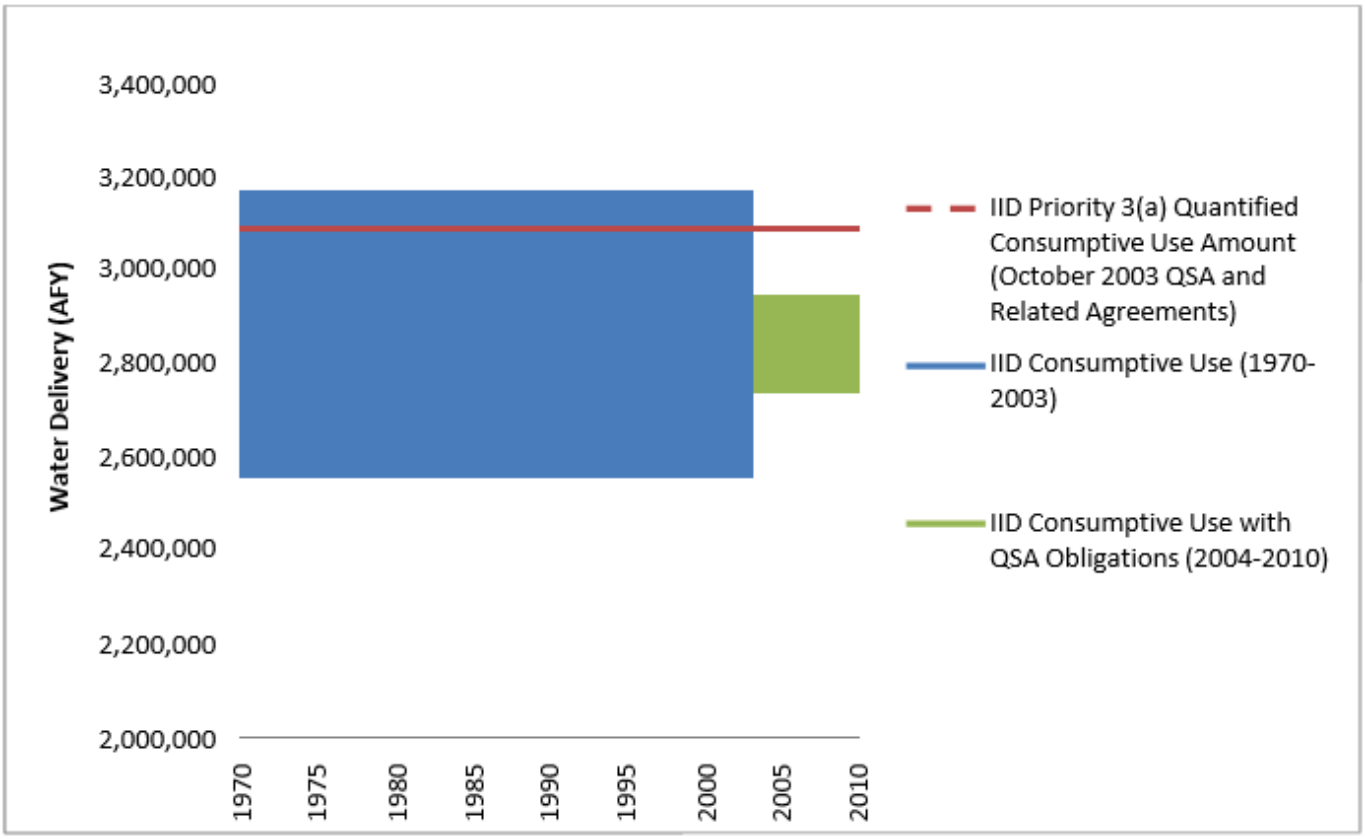

Figure 7-5 IID Consumptive Use (at Imperial Dam) versus IID Priority 3(a) per the QSA Consumptive Use Right (1970-2010)

7.2.2 Agencies with Multiple Sources of Water

CRWDA:Federal QSA Exhibit B: IID Quantification and Transfers, as of 2008 (KAF at Imperial Dam) [1]											
Col 1	2	3	4	5			8	9	10	11	12
	IID Priority 3a										
	IID Priority 3a Quant	IID Reductions									IID Net Consumptive Use Amount (Col 2 - Col 11)
Year		1988 MWD Transfer[2]	SDCWA Transfer	AAC Lining	Salton Sea Mitigation SDCWA Transfer	Intra-Priority 3 CVWD Transfer	MWD Transfer w\Salton Sea Restoration	Conditional ISG Backfill	Misc. PPRs	IID Total Reduction (E Cols 3 - 10)[3]	
2003	3,100	105.1	10	0	5	0	0	0	11.5	131.6	2,968.40
2004	3,100	101.9	20	0	10	0	0	0	11.5	143.4	2,956.60
2005	3,100	101.9	30	0	15	0	0	0	11.5	158.4	2,941.60
2006	3,100	101.1	40	0	20	0	0	9	11.5	181.6	2,918.40
2007	3,100	105	50	0	25	0	0	0	11.5	191.5	2,908.50
2008	3,100	105	50	67.7	25	4	20	0	11.5	283.2	2,816.80
2009	3,100	105	60	67.7	30	8	40	0	11.5	322.2	2,777.80
2010	3,100	105	70	67.7	35	12	60	0	11.5	361.2	2,738.80
2011	3,100	105	80	67.7	40	16	80	0	11.5	400.2	2,699.80
2012	3,100	105	90	67.7	45	21	100	0	11.5	440.2	2,659.80
2013	3,100	105	100	67.7	70	26	100	0	11.5	480.2	2,619.80
2014	3,100	105	100	67.7	90	31	100	0	11.5	505.2	2,594.80
2015	3,100	105	100	67.7	110	36	100	0	11.5	530.2	2,569.80
2016	3,100	105	100	67.7	130	41	100	0	11.5	555.2	2,544.80
2017	3,100	105	100	67.7	150	45	91	0	11.5	570.2	2,529.80
2018	3,100	105	130	67.7	0	63	0	0	11.5	377.2	2,722.80
2019	3,100	105	160	67.7	0	68	0	0	11.5	412.2	2,687.80
2020	3,100	105	193	67.7	0	73	0	0	11.5	450.2	2,649.80
2021	3,100	105	205	67.7	0	78	0	0	11.5	467.2	2,632.80
2022	3,100	105	203	67.7	0	83	0	0	11.5	470.2	2,629.80
2023	3,100	105	200	67.7	0	88	0	0	11.5	472.2	2,627.80
2024	3,100	105	200	67.7	0	93	0	0	11.5	477.2	2,622.80
2025	3,100	105	200	67.7	0	98	0	0	11.5	482.2	2,617.80
2026	3,100	105	200	67.7	0	103	0	0	11.5	487.2	2,612.80
2027	3,100	105	200	67.7	0	103	0	0	11.5	487.2	2,612.80
2028	3,100	105	200	67.7	0	103	0	0	11.5	487.2	2,612.80
'29-37	3,100	105	200	67.7	0	103	0	0	11.5	487.2	2,612.80
'38-47[4]	3,100	105	200	67.7	0	103	0	0	11.5	487.2	2,612.80
'48-77[5]	3,100	105	200	67.7	0	100	0	0	11.5	484.2	2,615.80

Notes:

1. Information conveyed in this figure is from the United State Bureau of Reclamation's Exhibit B of the Colorado River Water Delivery Agreement (CRWDA); however, IID has adjusted the 1988 MWD Transfer values for 2003 through 2006 to reflect actual values and the values for 2007 - 2077 to reflect the new IID/MWD agreement. IID Total Reduction and IID Net Consumptive Use Amount have been recalculated to reflect these changes.
2. By IID and MWD agreement, the 1988 IID/MWD transfer has been fixed at 105 KAFY, starting in 2007.
3. Reductions include conservation for 1988 IID/MWD Agreement Transfer, IID/SDCWA Transfer, AAC Lining (amount may vary); SDCWA Transfer Mitigation, additional MWD Transfer w/Salton Sea Restoration (amount may vary), and Misc. PPRs and allow for Conditional Interim Surplus Agreement Backfill (amount may vary). Amounts in this table are independent of increases and reductions as allowed under the Inadvertent Overrun and Payback Policy. NOTE: Shaded columns represent amounts that might vary.

4. Assumes SDCWA does not elect termination in year 35.

5. Assumes SDCWA and IID mutually consent to renewal term of 30 years.

Source: QSA CRWDA Exhibit B

7.3 Supply and Demand Assessment

Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier (10635(a)).

As shown on Table 7-2, there is no foreseeable water shortage in the City of Brawley for the next 20 years. The City of Brawley uses surface water supplied by the Colorado River that can supply the City with sufficient water to meet all projected demand. Thus the City is not affected by climatic related supply shortages. California experienced a prolonged drought from 1987 through 1992 and 2007 to 2009 and in 2010 below normal runoff. The Governor declared a statewide drought and proclaimed a state of emergency in nine counties on June 4, 2008 and a statewide emergency due to the drought on February 27, 2009. The droughts, however, did not affect the City's water supply.

Table 7-2 Retail: Normal Year Supply and Demand Comparison

	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	2,007	2,027	2,047	2,067	0
Demand totals *(autofill from Table 4-3)*	1,431	1,445	1,459	1,474	0
Difference	576	582	588	593	0
NOTES:					

Supply and Demand Comparison Provisions

The City's projected average use over the next 20 years is shown on Table 7-3 and Table 7-4. The projections are based on the Urban Water Targets as determined in this document.

The total demand totals through 2035 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 currently able to produce 16,800 acre feet of water per year.

The City forecasts no supply shortage at any point in the future. 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 7-3 Retail: Single Dry Year Supply and Demand Comparison

	2020	2025	2030	2035	2040 (Opt)
Supply totals					
Demand totals					
Difference	0	0	0	0	0
NOTES:					

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Second year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Third year	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fourth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fifth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
NOTES:						

7.4 Regional Supply Reliability

An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions (10620(f)).

Chapter 8 – Water Shortage Contingency Planning

8.1 Stages of Action

Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage (10632(a)(1)).

Stages of water shortage contingency plan is summarized on Table 8-1 below.

Table 8-1 Retail
Stages of Water Shortage Contingency Plan

Stage	Complete Both	
	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition (*Narrative description)*
Add additional rows as needed		
SECOND	32%	water supply is colorado river source
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
Current mandated % from state drought requirements		

If the water supplies are reduced by 50 percent for a single year, the City will make an allotment on a per capita basis per connection and customer type.

8.2 Prohibitions on End Uses

Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning (10632(a)(4)).

The City has adopted the resolution found in Appendix XX, Restrictions during a Declared Water-Shortage Emergency. The following restrictions shall be effective during a declared Water-Shortage Emergency:

1. There shall be no water used for irrigation or landscaping purposes.
2. There shall be no private or commercial car washing.
3. No restaurant, hotel, cafe, cafeteria or other public place where food is sold, served or offered for sale, shall serve drinking water to any customer unless requested.
4. Use of potable water for construction, compaction, dust control, street or parking lot sweeping, building wash down shall be prohibited.
5. Use of potable water for sewer system maintenance or fire protection training shall be prohibited without prior approval by the Mayor;
6. Use of potable water for any purpose in excess of the amount allocated shall be prohibited.
7. Other restrictions and prohibitions may become necessary during a declared Water Shortage Emergency, to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply (10632(a)(5)).

Restrictions and prohibitions on end uses for each stages of water shortages are summarized on Table 8-2.

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
Add additional rows as needed			
	Landscape - Restrict or prohibit runoff from landscape irrigation	yes	Yes
	Landscape - Limit landscape irrigation to specific times	no	No
	Landscape - Limit landscape irrigation to specific days	no	No
	Landscape - Prohibit certain types of landscape irrigation	no	No
	Landscape - Prohibit all landscape irrigation	no	No
	Landscape - Other landscape restriction or prohibition	no	No
	CII - Lodging establishment must offer opt out of linen service	no	No
	CII - Restaurants may only serve water upon request	yes	No
	CII - Commercial kitchens required to use pre-rinse spray valves	no	No
	CII - Other CII restriction or prohibition	No	No
	Water Features - Restrict water use for decorative water features, such as fountains	yes	Yes
	Pools and Spas - Require covers for pools and spas	no	No
	Pools - Allow filling of swimming pools only when an appropriate cover is in place.	no	No
	Other water feature or swimming pool restriction	yes	Yes
	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	yes	Yes
	Other - Require automatic shut of hoses	yes	Yes
	Other - Prohibit use of potable water for construction and dust control	yes	Yes
	Other - Prohibit use of potable water for washing hard surfaces	yes	Yes
	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	yes	Yes
	Other		
NOTES:			

8.2.1 Landscape Irrigation

8.2.2 Commercial, Industrial, and Institutional (CII)

8.2.3 Water Features and Swimming Pools

8.2.4 Defining Water Features

Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code (10632(b)).

8.2.5 Other

8.3 Penalties, Charges, Other Enforcement of Prohibitions

Penalties or charges for excessive use, where applicable (10632(a)(6)).

Any customer violating the regulations and restrictions on water use set forth in the “No Waste" Ordinance shall receive a written warning for the first such violation. Upon a second violation, the customer shall receive a written warning and the City may cause a flow-restrictor to be installed in the service. If a flow-restrictor is placed, the violator shall pay the cost of the installation and removal. Any willful violation occurring subsequent to the issuance of the second written warning shall constitute a misdemeanor and may be referred to the Office of the City Attorney for prosecution. If water service is disconnected, it shall be restored only upon payment of the turn-on charge fixed by the City Council.

There shall be rate increases starting with a 25% rate increase at Stage II; 50% at Stage III, and a 100% increase at Stage IV. See Appendix D, *Establishment of Rate Increases during a Water Shortage* for more information.

8.4 Consumption Reduction Methods

Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply (10632(a)(5)).

8.4.1 Categories of Consumption Reduction Methods

Table 8-3 shows the summary water shortage contingency plan to reduce consumption at different stages of water shortage.

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*
Add additional rows as needed		
	Expand Public Information Campaign	website
	Improve Customer Billing	electronic
	Increase Frequency of Meter Reading	once a month
	Offer Water Use Surveys	yes
	Provide Rebates on Plumbing Fixtures and Devices	no
	Provide Rebates for Landscape Irrigation Efficiency	no
	Provide Rebates for Turf Replacement	no
	Decrease Line Flushing	yes
	Reduce System Water Loss	yes
	Increase Water Waste Patrols	yes
	Moratorium or Net Zero Demand Increase on New Connections	no
	Implement or Modify Drought Rate Structure or Surcharge	no
	Other	
NOTES:		

8.5 Determining Water Shortage Reductions

A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis 10632(a)(9).

Under normal water supply conditions, potable water production figures are recorded daily. Totals are reported weekly to the Water Treatment Facility Supervisor. Totals are reported monthly to the Water Department Manager and incorporated into the water supply report.

During a Stage I or Stage II water shortage, daily production figures are reported to the Supervisor. The Supervisor compares the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports are forwarded to the Water Department Manager and the Water Shortage Response Team. Monthly reports are sent to the City Council. If reduction goals are not met, the Manager will notify the City Council so that corrective action can be taken.

During a Stage III or Stage IV water shortage, the procedure listed above will be followed, with the addition of a daily production report to the Manager. During emergency shortages, production figures are reported to the Supervisor hourly and to the Manager and the Water Shortage Response Team daily. Daily reports will also be provided to the City Council and the Imperial County Office of Emergency Services.

All surplus revenues that the City collects are currently used to fund the Rate Stabilization Fund, conservation, recycling, and other capital improvements. The City estimated projected ranges of water sales by shortage stage to best understand the impact each level of shortage will have on projected revenues and expenditures by each shortage stage.

8.6 Revenue and Expenditure Impacts

An analysis of the impacts of each of the actions and conditions described in subdivisions (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments (10632(a)(7)).

Mechanism to Determine Reductions in Water Use

Under normal water supply conditions, potable water production figures are recorded daily. Totals are reported weekly to the Water Treatment Facility Supervisor. Totals are reported monthly to the Water Department Manager and incorporated into the water supply report.

During a Stage I or Stage II water shortage, daily production figures are reported to the Supervisor. The Supervisor compares the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports are forwarded to the Water Department Manager and the Water Shortage Response Team. Monthly reports are sent to the City Council. If reduction goals are not met, the Manager will notify the City Council so that corrective action can be taken.

During a Stage III or Stage IV water shortage, the procedure listed above will be followed, with the addition of a daily production report to the Manager. During emergency shortages, production figures are reported to the Supervisor hourly and to the Manager and the Water Shortage Response Team daily. Daily reports will also be provided to the City Council and the Imperial County Office of Emergency Services.

All surplus revenues that the City collects are currently used to fund the Rate Stabilization Fund, conservation, recycling, and other capital improvements. The City estimated projected ranges of water sales by shortage stage to best understand the impact each level of shortage will have on projected revenues and expenditures by each shortage stage.

8.7 Resolution or Ordinance

A draft water shortage contingency resolution or ordinance (10632(a)(8)).

A draft water shortage contingency resolution follows. This will be adopted at the public hearing for the UWMP.

Draft Resolution to Declare a Water Shortage Emergency

CITY OF BRAWLEY
IMPERIAL COUNTY,
CALIFORNIA Date
The City Council of Brawley does hereby resolve as follows:

PURSUANT to California Water Code Section 350 et seq., the Council has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared.

WHEREAS, the Council finds, determines and declares as follows:

(a) The City is the water purveyor for the property owners and inhabitants of Brawley;

(b) The demand for water service is not expected to lessen.

(c) When the potable water supply available to the City falls at or below the Stage II triggering levels described in the most current Urban Water Management Plan, the City will declare a water shortage emergency. The water supply would not be adequate to meet the ordinary demands and requirements of water consumers and there may be insufficient water for human consumption, sanitation, fire protection, and environmental requirements. This condition is likely to exist until groundwater contamination is remedied and/or water system damage resulting from a disaster is repaired and normal water service is restored.

NOW, THEREFORE, BE IT RESOLVED that the City Council of Brawley hereby directs the Mayor to find, determine, declare and conclude that a water shortage emergency condition exists that threatens the adequacy of water supply, until the City's water supply is deemed adequate and potable. After the declaration of a water shortage emergency, the Mayor is directed to determine the appropriate Rationing Stage and implement the City's Water Shortage Emergency Response.

FURTHERMORE, the Council shall periodically conduct proceedings to determine additional restrictions and regulations which may be necessary to safeguard the adequacy and quality of the water supply for domestic, sanitation, fire protection, and environmental requirements.

Moratorium on New Connections during a Water Shortage

CITY OF BRAWLEY
IMPERIAL COUNTY,
CALIFORNIA Date
The City Council of Brawley does hereby resolve as follows:

The Municipal Code of the City of Brawley is hereby amended to read as follows:

XX-5 MORATORIUM ON SERVICE COMMITMENTS AND CONNECTIONS

2. When the City declares a water shortage emergency, the following regulations shall become effective immediately and shall continue in full force and effect to prohibit the following while it remains in full force and effect:

    a. The City shall not issue oral or written commitments to provide new or expanded water service, including will-serve letters.
    b. The City shall not sell meters for water service connections, despite the prior issuance of will-serve letters or other oral or written service commitments, unless building permits have been issued.
    c. The City shall not provide new or expanded water service connections, despite the prior issuance of will-serve letters or other oral or written service commitments and meters, unless building permits have been issued.
    d. The City shall not provide water for use on any new plantings installed after the declaration of a Water Shortage Emergency.
    e. The City shall not annex territory located outside the City's service boundary.

3. The following uses are exempt from the moratorium and upon application to the City shall receive necessary water service commitments and connections to receive water from the City:

    a. Uses, including but not limited to, commercial, industrial, single and multifamily residential, for which a building permit has been issued by the City on or before the declaration of a Water Shortage Emergency.
    b. Uses, including but not limited to, commercial, industrial, single and multifamily residential, for which a retail meter had been purchased from the City before the declaration of a Water Shortage Emergency, as evidenced by a written receipt and for which a building permit has been issued and remains in full force and effect.

c. Publicly owned and operated facilities, including but not limited to schools, fire stations, police stations, and hospitals and other facilities as necessary to protect the public health, safety and welfare.

8.8 Catastrophic Supply Interruption

Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster (10632(a)(3)).

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 Imperial 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.

Imperial Irrigation District Emergency Preparedness Plan

During or immediately after any water supply emergency, IID staff implements the Emergency Preparedness Plan. The Emergency Preparedness Plan includes required actions and procedures by

IID staff to respond to events that impair water operation of canals, laterals, drains, dams, and other facilities. These responses are not normal operation and maintenance activities. Generally, any occurrence that requires an immediate response is classified as an extreme event or emergency.

The Emergency Preparedness Plan defines the role each responsible employee will play during an emergency. Water Department staff conducts emergency and/or disaster response planning in the Water Control Center. Coordination of staffs with other departments will take place in the General Manager's conference room. All- American Canal River Division staff planning will be centered in the Imperial Dam Control House. Other staffs meet and coordinate actions at designated areas.

Established actions and procedures exist for extreme events and emergencies that endanger operation of the water system. Possible emergencies/extreme events that endanger operation of the water system could include: earthquakes, storms, rain, run- off from desert washes, flooding, facility or structure damage, power outages, fire, vehicles in canals, equipment theft/vandalism, or other disaster. The Imperial Irrigation District's water delivery and drainage systems do not totally shut down during an emergency.

The Imperial Irrigation District has conducted Emergency Preparedness Exercises in the past. Emergency preparedness exercises will be updated with the development of new emergency preparedness exercises. Water Department staffs trained and participated with the U. S. Department of the Interior Bureau of Reclamation's Tabletop Exercise for emergency preparedness.

The cities in the Imperial Unit have a ten-day storage holding capacity requirement. The Imperial County Office of Emergency Services requires this storage holding capacity for cities (Imperial Irrigation District, 1998, p.22).

IID is considered a special district in the eyes of the state and the federal government. A special district has to meet the same requirements as a local city pertaining to emergency preparedness and emergency management. As such, IID is required to go through the appropriate channels regarding mutual aid.

In the event of a natural and or man-made disaster, IID would open its Emergency Operations Center located at headquarters in Imperial, California. IID would then notify the Operational Area, which is the Imperial County Office of Emergency Services located in Heber at the Imperial County Fire Department Station # 2. If the event called for mutual aid IID, the EOC would request assistance from the OA. If the OA was unable to fulfill this request it would go to the next highest level, which would be the Regional Emergency Operations Center, located in Los Alamitos.

In the event the REOC was unable to fill the request it would go to the State Operations Center located in Sacramento. The SOC would fill the request or ask for federal assistance from the Federal Emergency Management Agency a subsection of the Federal Department of Homeland Security.

Water Shortage Stages and Triggering Mechanisms

As the water purveyor, the City of Brawley must provide the minimum health and safety water needs of the community at all times. The water shortage response is designed to provide a minimum of 50% of normal supply during a severe or extended water shortage. The rationing program triggering levels shown below were established to ensure that this goal is met.

Rationing stages may be triggered by groundwater contamination, power failure, earthquake or other natural disaster.

The City's only potable water source is the Colorado River. Specific criteria for triggering the City's rationing stages are shown on the table below.

Water Shortage Stages and Triggering Mechanisms				
Percent Reduction of Supply	**Stage I Up to 15%**	**Stage II 15 - 25%**	**Stage III 25 - 35%**	**Stage IV 35 - 50% >**
Water Supply Condition				
Supply	Projected supply insufficient to provide 80% of normal demand, Or	Projected supply insufficient to provide 75% of normal demand, Or	Projected supply insufficient to provide 65% of normal demand, Or	Projected supply insufficient to provide 50% of normal demand, Or
Water Quality	Contamination of 10% of water supply (exceeds primary drinking water standards)	Contamination of 20% of water supply (exceeds primary drinking water standards)	Contamination of 30% of water supply (exceeds primary drinking water standards)	Contamination of 40% of water supply (exceeds primary drinking water standards)

Water Allotment Methods

The City has established the following allocation method for each customer type. See the city ordinance for sample water shortage rationing allocation method.

- Single Family Hybrid of Per-capita and Percentage Reduction
- Multifamily Hybrid of Per-capita and Percentage Reduction
- Commercial Percentage Reduction
- Industrial Percentage Reduction
- Gov't/Institutional Percentage Reduction
- Recreational Percentage Reduction - vary by efficiency

Water Shortage Rationing Allocation Method

Single-family account allocations may be determined as follows: assuming 4 persons or less per home, an account would receive 11 HCF per month (68 gpcd) plus 55% of their historic use, not to exceed an upper limit. The upper limit on additional water may be 30 HCF per year (i.e., 132 HCF + 50% historic ≤ 162 HCF a year). Appeals would be available for additional people. For each additional person at a home the allotment is increased by 4 HCF per billing period (49 gcd).

Multi-residential account allocations may be determined as follows: assuming 3 persons or less per unit, accounts receive 6 HCF per unit per month (49 gcd), plus 40% of their historic use, not to exceed an upper limit. The upper limit on additional water may be 10 HCF per year per unit (i.e., 72 HCF + 40% historic ≤ 82 HCF a year). Appeals would be available for additional people. For each additional person, the allotment increases by 4 HCF per billing period (49 gcd).

Increased allocations for residential accounts would be limited to the following:

- Greater number of residents than assumed by plan.
- Medical conditions requiring additional water.

Commercial, Industrial and Institutional would receive a percentage reduction from historical use. The historical use period used to determine the baseline amount may vary based on specific factors. Appeals would be available for increased business, census or other factors. New Customers Per-capita (no allocation for new landscaping during a water shortage.)

Based on current and projected customer demand, the city ordinance shown in Appendix XX indicates the water allocated to each customer type by priority and rationing stage during a declared water shortage.

Individual customer allotments are based on a five-year period. This gives the City a more accurate view of the usual water needs of each customer and provides additional flexibility in determining allotments and reviewing appeals. However, no allotment may be greater than the amount used in the most recent year of the five- year base period.

The Water Department Manager shall classify each customer and calculate each customer's allotment according to the Sample Water Rationing Allocation Method. The allotment shall reflect seasonal patterns. Each customer shall be notified of their classification and allotment by mail before the effective date of the Water Shortage Emergency. New customers will be notified at the time the application for service is made. In a disaster, prior notice of allotment may not be possible; notice will be provided by other means. Any customer may appeal the Water Department Manager's classification on the basis of use or the allotment on the basis of incorrect calculation.

Rationing Stages and Reduction Goals

The City has developed a four stage rationing plan to invoke during declared water shortages. The rationing plan includes voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage.

Water Rationing Stages and Reduction Goals			
Shortage Condition	**Stage**	**Reduction Goal**	**Type of Rationing Program**
Up to 15%	I	15%	Voluntary
15 – 25%	II	25%	Mandatory
25 - 35%	III	35%	Mandatory
35 - 50%	IV	50% or >	Mandatory

Mandatory Prohibitions on Water Use

The Brawley "No Waste" Ordinance prohibits certain types of water uses during water shortage emergencies. The following are the stages at which water use prohibitions become active:

Priority by Use

Priorities for use of available potable water during shortages were based on input from the City Emergency Response Team, citizen groups, and legal requirements set forth in the California Water Code, Sections 350-358. Water allocations are established for all customers according to the following ranking system:

- Minimum health and safety allocations for interior residential needs (includes single family, multi-family, hospitals and convalescent facilities, retirement and mobile home communities, and student housing, and firefighting and public safety)
- Commercial, industrial, institutional/governmental operations (where water is used for manufacturing and for minimum health and safety allocations for employees and visitors), to maintain jobs and economic base of the community (not for landscape uses)
- Existing landscaping
- New customers, proposed projects without permits when shortage declared.

Health and Safety Requirements

Based on commonly accepted estimates of interior residential water use in the United States, the table below indicates per capita health and safety water requirements. In Stage I shortages, customers may adjust either interior or outdoor water use (or both), in order to meet the voluntary water reduction goal.

However, under Stage II, Stage III and Stage IV mandatory rationing programs, the City has established a health and safety allotment of 50 gpcd (which translates to 24 HCF per person per year), because that amount of water is sufficient for essential interior water with no habit or plumbing fixture changes. If customers wish to change water use habits or plumbing fixtures, 50 gpcd is sufficient to provide for limited non- essential (i.e. outdoor) uses.

Stage IV mandatory rationing, which is likely to be declared only as the result of a prolonged water shortage or as a result of a disaster, would require that customers make changes in their interior water use habits (for instance, not flushing toilets unless "necessary" or taking less frequent showers).

Per Capita Health and Safety Water Quantity Calculations						
	Non-Conserving		**Habit Changes** [1]		**Conserving Fixtures** [2]	
Toilets	4 flushes x 3.5 gpf	14	3 flush x 3.5 gpf	10.5	4 flush x 1.6 gpf	6.4
Shower	5 min x 3.0 gpm	15	4 min x 3.0 gpm	12	5 min x 2.0	10
Washer	12.0 gpcd	12	11.0 gpcd	11	10.0 gpcd	10
Kitchen	4 gpcd	4	4 gpcd	3	4 gpcd	3
other	4 gpcd	4	4 gpcd	4	4 gpcd	4
Gallons per person per day		49		40.5		33.4
CCF per person per year		24		20		16

1 Reduced shower use results from shorter length of shower and reduced flow. Reduced washer use results from fuller loads.

2 Fixtures include ULF 1.6 gpf toilets, 2.0 gpm showerheads, faucet aerators and efficient clothes washers.

8.9 Minimum Supply Next Three Years

An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply (10632(a)(2)).

Table 8-4 shows the minimum supply for the next three year. The supply is limited by piping and delivery structure. The minimum supply is estimated to be 7,044MG in 2016. Estimates for 2017 and 2018 are same. The water supply available to the city is determined by the water treatment plant capacity and raw water influent piping, which is currently 16,800 acre feet per year. Multiple dry water years do not affect the City's water supply.

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	7,044	7,044	7,044

limited by piping and delivery structures

Chapter 9 – Demand Management Measures

9.1 Demand Management Measures for Wholesale Agencies

Provide a description of the (wholesale) supplier's water demand management measures. This description shall include all of the following: The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures: (ii) Metering. (iv) Public education and outreach. (vi) Water conservation program coordination and staffing support. (vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented. (10631(f)(1)(B)).

For an urban wholesale water supplier, as defined in Section 10608.12, (provide) a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs (10631(f)(2)).

The City of Brawley is not a wholesale agency.

9.2 Demand Management Measures for Retail Agencies

(A)… The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20. (B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures: (i) Water waste prevention ordinances. (ii) Metering. (iii) Conservation pricing. (iv) Public education and outreach. (v) Programs to assess and manage distribution system real loss. (vi) Water conservation program coordination and staffing support. (vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented (10631(f)(1)(A&B))..

The City's demand management measures shall be discuss here and in following paragraphs.

9.2.1 Water waste prevention ordinances

Water Use Reduction Plan

The City has enacted the Model Water Efficient Landscape Ordinance for the requirements found in state legislation under Assembly Bill 1881 that apply to commercial, industrial and tenant occupied residential property that require landscaping greater than 2,500 square feet and homeowner landscaping greater than 5,000 square feet. While for the most part water conservation guidelines only apply to large landscaping projects, the City encourages its application to smaller scale projects in order to conserve water.

The following policies are part of the City's General Plan, in the Resource Management Element:

Water Conservation

RME Objective 4.1: Promote city-wide water conservation to reduce the projected demand for water service and associated treatment.

RME Policy 4.1.1: Protect groundwater resources from depletion and sources of pollution. RME Policy 4.1.2: Conserve imported water by requiring water conservation techniques and water conserving appliances, in rehabilitated and new projects.

RME Policy 4.1.3: Require all new developments to install low-flow showers and toilets. Consider implementing a low-flow replacement program for showers and toilets in existing facilities.

RME Policy 4.1.4: Encourage the replacement of existing water fixtures, toilets, and landscaping with water-conserving counterparts.

RME Policy 4.1.5: Encourage the Imperial Irrigation District to promote water conservation practices and safety in agricultural activities.

RME Policy 4.1.6: Implement programs to educate adults and children about the importance of water conservation and methods to reduce water use.

RME Policy 4.1.7: Support the development and usage of waste water recycling production and use wherever possible and economically feasible.

RME Policy 4.1.8: Require water meters on all new construction and development and consider implementing a program to install meters on all existing water services.
The assessment of the current and proposed measures to help achieve the water use reduction requirements are analyzed and discussed in the Demand Management Measures Section.

Water conservation in both urban development and agricultural activity will be promoted by the City. New development and rehabilitation projects will be required to make maximum use of water conservation techniques and the use of drought resistant plant species in ornamental landscaping will be encouraged. In addition, the City will consider using reclaimed water to replace the use of imported water for landscape irrigation; work with the County, Imperial Irrigation District, and local farmers to develop and implement conservation strategies for agricultural production; and support the Imperial Irrigation District in its efforts to maintain local water supplies and underground or cover irrigation canals for safety and conservation purposes.

Implementation of the Water Conservation Bill of 2009 Requirements

Demand management measures and
California Urban Water Conservation Council BMP names

CUWCC BMP Organization and Names (2009 MOU)				UWMP DMMs	
Type	Category	BMP #	BMP name	DMM #	DMM name
Foundational	Operations Practices	1.1.1	Conservation Coordinator	L	Water conservation coordinator
		1.1.2	Water Waste Prevention	M	Water waste prohibition
		1.1.3	Wholesale Agency Assistance Programs	J	Wholesale agency programs
		1.2	Water Loss Control	C	System water audits, leak detection, and repair
		1.3	Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections	D	Metering with commodity rates for all new connections and retrofit of existing connections
		1.4	Retail Conservation Pricing	K	Conservation pricing
	Education Programs	2.1	Public Information Programs	G	Public information programs
		2.2	School Education Programs	H	School education programs
Programmatic	Residential	3.1	Residential assistance program	A	Water survey programs for single-family residential and multifamily residential customers[1]
				B	Residential plumbing retrofit
		3.2	Landscape water survey	A	Water survey programs for single-family residential and multifamily residential customers[1]
		3.3	High-Efficiency Clothes Washing Machine Financial Incentive Programs	F	High-efficiency washing machine rebate programs
		3.4	WaterSense Specification (WSS) toilets	N	Residential ultra-low-flush toilet replacement programs
	Commercial, Industrial, and Institutional	4	Commercial, Industrial, and Institutional	I	Conservation programs for commercial, industrial, and institutional accounts
	Landscape	5	Landscape	E	Large landscape conservation programs and incentives

[1] Components of DMM A (Water survey programs for single-family residential and multifamily residential customers) applies to both BMP 3.1 (Residential assistance program) and BMP 3.2 (Landscape water survey)

The following are proposed policies and programs to help the City achieve the water use reductions per the Water Conservation Bill of 2009 requirements.

It is recommended that the City become a member of the California Urban Water Conservation Council (CUWCC). The following are current and new demand management measures (DMM):

DMM 1 – Residential Surveys

A Residential Assistance Checklist will be developed and started by the end of Fiscal Year 2012 to customers who report high water bills. It will include on-site interior and exterior detection, a landscape water survey, and a provision of low flow showerheads, aerators and information as appropriate. The City shall advise customers whenever it appears possible that leaks exist on the customer's side of the meter.

The City will provide site-specific leak detection assistance that may include, but is not limited to, the following: a water conservation survey, water efficiency suggestions, and/or inspection. The City will recommend showerheads and faucet-aerators that meet the current water efficiency standard as stipulated in the WaterSense Specifications (WSS) as needed.

The City will perform site-specific landscape water surveys that will include, but are not limited to, the following: check irrigation system and timers for maintenance and repairs needed; estimate or measure landscaped area; develop customer irrigation schedule based on precipitation rate, local climate, irrigation system performance, and landscape conditions; review the scheduling with customer; provide information packet to customer; and provide customer with evaluation results and water savings recommendations.

The City will provide reports, disaggregated by single-family and multi-family units, identifying: the number of residential assistance/leak detection survey visits completed; number of WSS showerheads distributed.

DMM 2 – Residential Plumbing Retrofit

California Civil Code Section 1101.4 and 1101.5 requires that after January 1, 2014, all noncompliant plumbing fixtures in any single-family, multi-family residential real property and any commercial residential real property be replaced with water-conserving plumbing fixtures when a permit is taken out for building additions, alterations. Also, State law requires that after January 1, 2017, noncompliant plumbing fixtures in any single-family residential property be replaced with water-conserving plumbing fixtures, and shall be verified at the time of sale or transfer.

The City's building department will verify that these codes are being enforced when a building permit is issued.

DMM 3 – System Water Audits, Leak Detection and Repair

The City will quantify the current volume of apparent and real water loss. The City will complete the standard water audit and balance using the AWWA Water Loss software to determine their current volume of apparent and real water loss and the cost impact of these losses on utility operations at no less than annual intervals.

The City may use up to four years to develop a validated data set for all entries of their water audit and balance. Data validation shall follow the methods suggested by the AWWA Software to improve the accuracy of the quantities for real and apparent losses.

The City will use the AWWA's 3rd Edition M36 Publication, *Water Audits and Loss Control Programs* (2009) for specific methods to reduce system losses.

The City will seek training in the AWWA water audit method and component analysis process (offered by CUWCC or AWWA) during the first four years of implementation, and complete a component analysis of real losses by the end of the fourth year, and update this analysis no less frequently than every four years.

The City will repair all reported leaks and breaks to the extent cost effective. By the end of the second year, The City shall establish and maintain a record- keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair. By the end of the fourth year, The City shall include estimated leakage volume from report to repair, and cost of repair (including pavement restoration costs and paid-out damage claims, if any).

DMM 4 – Metering with Commodity Rates for New Connections and Retrofit of Existing Customers

A water meter is defined as a devise that measures the actual volume of water delivered to an account in conformance with the guidelines of the American Water Works Association. Implementation shall consist of at least the following actions:

The City ordinances currently require meters for all service connections. The Resource Management Element (RME) Policy 4.1.8 requires water meters on all new construction and development.

Meters older than 10 years are inspected and replaced if necessary. The City reads the meters and bills customers based on volume of water used every month. The customers are billed based on the volume of water used, the size of the meter and the type of connection. The City keeps records of

the historical usage, meter size and type of connection. The City recently installed residential meters throughout the city. All residential accounts now have meters; there are some existing commercial accounts, parks and public spaces that are unmetered. The City plans to install meters for these accounts within three years.

The City will keep records of when each meter was installed, repaired, tested or replaced. The meter retrofits and volumetric rates are expected to result in a 20% reduction in demand for retrofitted accounts.

DMM 5 – Large Landscape Conservation Programs and Incentives

Water demand during the summer months is much higher than during the winter. Much of the summer demand placed on the City's water distribution system is for irrigation. Water conservation in both urban development and agricultural activity will be promoted by the City. New development and rehabilitation projects will be required to make maximum use of water conservation techniques and the use of drought resistant plant species in ornamental landscaping will be encouraged. In addition, the City will consider using reclaimed water to replace the use of imported water for landscape irrigation.

Landscaping located in commercial, industrial, and multifamily residential developments shall include a water efficient irrigation system in accordance with specifications provided by the department of public works. Prior to the issuance of a building permit, a landscape documentation package is submitted by the developer for review and approval that includes a water conservation concept statement, calculation of the maximum applied water and estimated water use, irrigation design plan and landscape irrigation audit schedule. The City will provide a statement designating those portions of the landscape to be used for such purposes and specifying water needed for the water use budget, which may not exceed 100% of ETo on an annual basis.

The City shall preserve water use records and budgets for customers with dedicated landscape irrigation accounts for at least four years.

a) Number of dedicated irrigation meter accounts.
b) Number of dedicated irrigation meter accounts with water budgets.
c) Aggregate water use for dedicated non-recreational landscape accounts with budgets.
d) Aggregate acreage assigned water budgets and average ET for dedicated non-recreational landscape accounts with budgets.
e) Number of Accounts 20% over-budget.
f) Number of accounts 20% over-budget offered technical assistance.
g) Number of accounts 20% over-budget accepting technical assistance

h) Aggregate acreage of recreational areas assigned water budgets and average ET for dedicated recreational landscape accounts with budgets.

The California Irrigation Management Information System (CIMIS) provides real time weather information to assist in irrigation scheduling. Although CIMIS was initially designed to help agricultural growers and turf managers administering parks, golf courses and other landscapes to develop water budgets for determining when to irrigate and how much water to apply, the user base has expanded over the years. In addition to those mentioned above, current CIMIS data users include local water agencies, fire fighters, air control board, pest control managers, university researchers, school teachers and students, construction engineers, consultants, hydrologists, state and federal agencies, utilities, lawyers, weather agencies, and many more.

There are a number of active CIMIS stations in the Imperial Valley, including in Seeley and Westmorland. These stations can provide evapotranspiration (ETo) information for the purpose of developing landscape water budgets and irrigation scheduling. It is estimated that this DMM will result in a 15%-20% reduction in demand for landscape irrigation.

DMM 6 – High Efficiency Washing Machine Rebate Program

A rebate program for incentives to purchase high-efficiency clothes washing machines (HECWs) is not cost effective at this time.

The City has 5,111 single-family residential water connections, and 175 multi- family connections. Assuming that there are four families per multi-family connection, there are 4*175 + 5,111 = 5,811 equivalent dwelling units with washing machines. Assuming that 10% of the population already use HECWs, there are approximately 5,230 standard washing machines that can be upgraded. Assuming that 10% of the machines are replaced with HECWs and a $100 rebate, the cost to the City will be 52 * $100, or $5,200. Assuming that the HECWs use an average of 15 gallons less water per load and there are 6 loads of wash per week per family, the benefit would be an overall saving of 243,000 gallons of water (0.7 Acre-Feet) per year. The cost to the participants was assumed to be $1,000 per unit, with a $100 rebate, or $900. The average cost of a regular washer was assumed to be $400, for a difference of $500 cost to the consumer. The total costs to the consumers are therefore $500*52= $26,000. The overall savings in water fees would be approximately 243 * $1.59 = $386.00

DMM 7 – Public Information Programs

The City will implement a public information program to promote water conservation and water conservation-related benefits. The program will include, when possible, but is not limited to, providing

speakers to employees, community groups and the media; using paid and public service advertising; using bill inserts; providing information on customers' bills showing use for the last billing period compared to the same period the year before; providing public information to promote water conservation measures; and coordinating with other government agencies, industry groups, public interest groups, and the media. The program shall include, when possible, social marketing elements which are designed to change attitudes to influence behavior. This includes seeking input from the public to shape the water conservation message; training stakeholders outside the utility staff in water conservation priorities and techniques; and developing partnerships with stakeholders who carry the conservation message to their target markets.

DMM 8 – School Education Programs

The City's Resource Management Element (RME), found in the City's General Plan RME includes Policy 4.1.6: To implement programs to educate adults and children about the importance of water conservation and methods to reduce water use.

The City will implement the school education program to promote water conservation and water conservation-related benefits. Programs will include working with school districts and private schools in the service area to provide instructional assistance, educational materials, and classroom presentations that identify urban, agricultural, and environmental issues and conditions in the local watershed. Educational materials shall meet the state education framework requirements and grade-appropriate materials shall be distributed. When mutually agreeable and beneficial, a lead regional agency will operate all or part of the education program. Implementation will commence on July 1, 2012.

The City shall maintain an active school education program to educate students in the agency's service area about water conservation and efficient water use.

The school information program shall consist of some of the following:

1) Curriculum materials developed and/or provided by the City (including confirmation that materials meet state education framework requirements and are grade-level appropriate).
2) Materials distributed to K-6 students. When possible, school education programs will reach grades 7-12 as well.
3) Description of materials used to meet minimum requirement.
4) Annual budget for school education program.
5) Description of all other water supplier education programs (Lists follow in Section

DMM 9 – Commercial, Industrial and Institutional Programs

Measures to achieve the water savings goal for Commercial, industrial, and institutional (CII) accounts for the City has been mainly focused on landscaping water savings, since landscaping irrigation makes up one of the highest demands during the summer; see DMM 5. The City is actively seeking funds for a regional recycled water treatment plant for industrial use.

DMM 10 – Wholesale Assistance

The City will continue to work with the Imperial Irrigation District to participate in regional DMM efforts through the Integrated Regional Water Management Plan (IRWMP), informational groups and projects, and determination of the most cost- effective DMMs.

DMM 11 – Conservation Pricing

For conservation pricing, the City uses meters for each type of water connection, billed on a monthly basis. The City has recently installed residential meters. Some commercial accounts are still billed on a flat rate. The City is in the planning process to complete the remaining commercial water meters.

The City's goal is to recover the maximum amount of water sales revenue from volumetric rates that is consistent with utility costs, financial stability, revenue sufficiency, and customer equity. In addition to volumetric rate(s), conservation pricing also includes the following other charges:

1) Service connection charges designed to recover the separable costs of adding new customers to the water distribution system.

2) Monthly meter/service charges to recover costs unrelated to the volume of water delivered or new service connections and to ensure system revenue sufficiency.

3) Special rates and charges for temporary service, fire protection service, and other irregular services provided by the City.

4) The City charges a flat rate plus water usage rate structure. The current flat rate is $36.29, with a water commodity charge of $1.59 per 1,000 gallons.

The City's total annual revenue from the volumetric rate divided by the total annual revenue of volumetric rate plus the total annual revenue from the fixed service charge was approximately 58% in 2010.

Let V stand for the total annual revenue from the volumetric rate(s) and M stand for total annual revenue from customer meter/service (fixed) charges, then the rate structure should be at least 70% for conservation pricing:

$$\frac{V}{V+M} > 70\%$$

The City should review its current water rate structure for conservation pricing. The flat rate should be reduced, while the volumetric rate is increased to encourage water residential water efficiency. It is recommended that a rate study be completed.

DMM 12 – Conservation Coordinator

The City will designate a person as the City's responsible conservation coordinator for program management, tracking, planning, and reporting on the DMM implementation. This may be a regional position.

DMM 13 – Water Waste Prohibition

The City enacted a No Waste Resolution prohibiting wasteful use of water is a part of the UWMP shown in **Appendix C**. The Resolution is titled "PROHIBITING WASTEFUL USE OF WATER REGULATIONS AND RESTRICTIONS ON WATER USE".

DMM 14 – Residential High Efficiency Toilet (HET) Replacement Programs

The City's General Plan (Resource Management Element) requires that all new developments to install low-flow showers and toilets. Consider implementing a low-flow replacement program for showers and toilets in existing facilities.

The City also encourages the replacement of existing water fixtures, toilets, and landscaping with water-conserving counterparts.

The City requires compliance with state regulations for water efficient devices in new construction, per the Uniform Building Code. Retailers in California are generally required to provide only high

water efficiency toilets and appliances. Also, the State of California has enacted legislation to require retrofit for houses for sale or during rehabilitation.

9.3 Implementation over the Past Five Years

Provide a description of the supplier's water demand management measures. This description shall include all of the following: (1)(A) … a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years (10631(f)(1)(A)).

9.4 Planned Implementation to Achieve Water Use Targets

Provide a description of the supplier's water demand management measures. This description shall include all of the following: (1)(A) … a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years (10631(f)(1)(A)).

9.5 Members of the California Urban Water Conservation Council

For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivision (f) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum (10631(i)).

Chapter 10 – Plan Adoption, Submittal, and Implementation

10.1 Inclusion of All 2015 Data

10.2 Notice of Public Hearing

10.2.1 Notice to Cities and Counties

Every urban water supplier required to prepare a plan shall… at least 60 days prior to the public hearing on the plan … notify any city or county within which the supplier provides waters supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan (10621(b)).

…The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area…(10642).

Table 10-1 shows the summary of notification to cities and counties.

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Brawley	☑	☑
Other?	☐	☐
	☐	☐
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Imperial County	☐	☐
	☐	☐
	☐	☐
State of California if required		

10.2.2 Notice to the Public

…Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection…Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code… (10642).

10.3 Public Hearing and Adoption

…Prior to adopting a plan, the urban water supplier shall hold a public hearing thereon (10642).

In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following: (1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part. (2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part. (3) Adopt a method, pursuant to subdivision (b) of Section 10608.20 for determining its urban water use target (10608.26(a)).

10.3.1 Adoption

…After the hearing, the plan shall be adopted as prepared or as modified after the hearing (10642).

10.4 Plan Submittal

An urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016 (10621(d)).

An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption (10644(a)(1)).

The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan (10635(b)).

A copy of the 2015 UWMP will be provided to each city in the Imperial Valley that is required to submit an UWMP, the County of Imperial, and the Imperial Irrigation District no later than 60 days after submission to DWR.

10.4.1 Submitting a UWMP to DWR

The City of Brawley will submit the UWMP to DWR, more information will be included in this section at a later date.

10.4.2 Electronic Data Submittal

The City of Brawley will submit the UWMP to DWR, more information will be included in this section at a later date.

10.4.3 Submitting a UWMP to the California State Library

The City of Brawley will submit the UWMP to CA state library following plan adoption, more information will be included in this section at a later date.

10.4.4 Submitting a UWMP to Cities and Counties

The City of Brawley will share the UWMP with the appropriate nearby cities and counties, more information will be included in this section at a later date.

10.5 Public Availability

Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours. (10645).

Within 30 days of submitting the UWMP to DWR, the adopted UWMP has been or will be available for public review during normal business hours. The plan is available for review at City Hall located at:

City Council Chambers
383 Main Street
Brawley, CA 92227

10.6 Amending an Adopted UWMP

The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640) (10621(c)).

Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption (10644(a)(1)).

If changes are necessary to the UWMP after adoption by the city, the City will hold another public hearing to readopt the plan.

After the hearing, the plan shall be adopted as prepared or as modified after the hearing (10642). An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan (10643).

The city will implement the UWMP after adoption. Procedures to implement will include annual reviews of progress on the Demand Management Measures, use of the UWMP in developing a revised Water Master Plan and in the planning process of new development within the City.

An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption (10644(a)).

Within 30 days of adoption, the adopted UWMP will be submitted to DWR and the California State Library. Brawley does not supply water to another city or nor to any area of Imperial County.