

# IID Water Transportation

## System Overview

**The Imperial Irrigation District** receives an average of 3.1 million acre-feet of water each year from the Colorado River. Imperial Dam, located 20 miles north of Yuma, Arizona, serves as the diversion point for Colorado River water in southeastern California, southwestern Arizona and Mexico. The IID's River Division operates Imperial Dam under the direction of the United States Bureau of Reclamation.

**Via gravity-flow, the All-American Canal** carries agricultural and city water to the Imperial Valley. The AAC begins at Imperial Dam. It first passes through one of three desilting basins, which are used to remove silt and clarify the water. Each desilting basin is 540 feet wide and 770 feet long and has 72 scrapers that are capable of removing 70,000 tons of silt per day. The removed silt is returned to the Colorado River using six sludge return pipes and the California Sluiceway.

**Before the AAC reaches the farmland of Imperial Valley**, it first provides water to the Bard Irrigation District, Yuma Main Canal and the Coachella Canal. Once the AAC reaches the Imperial Valley, it branches off into three large main canals: the East Highline, Central Main and Westside Main. Combined, these canals are 230 miles long. From these main canals, 167 smaller lateral canals transport the water another 1,438 miles. The main canals and smaller lateral canals carry irrigation water to approximately 5,600 delivery gates that serve the 479,000 acres of farmland within IID's water service area. Other important components of the water distribution system are seven regulating and three interceptor system reservoirs. These reservoirs help ensure efficient and correct water delivery and provide storage capacity.

**IID also maintains 1,406 miles of drainage ditches**, which collect surface runoff and subsurface drainage. Subsurface drainage comes from the 32,227 miles of tile drains that underlay Imperial Valley farmland. Most of the drainage water ultimately discharges into either the Alamo River or New River. These rivers flow to the Salton Sea.

**Each October, the Bureau asks IID** to estimate the amount of Colorado River water it will need for the next calendar year (annual water order). Usually the IID's water request is granted; however, sometimes it may be reduced based on river conditions. In addition to the annual water order, a weekly IID water order (called a "master schedule") is submitted to the Bureau every Wednesday by IID's watermaster. The water week (Monday-Sunday) estimate is based on historical water demand and current water demand. Since it takes Colorado River water four days to travel from Hoover Dam to Imperial Dam, the weekly estimate can only be adjusted four and three days in advance of the delivery date.

**Water customers may order water** for the next delivery day until noon of the day before the delivery request. Division

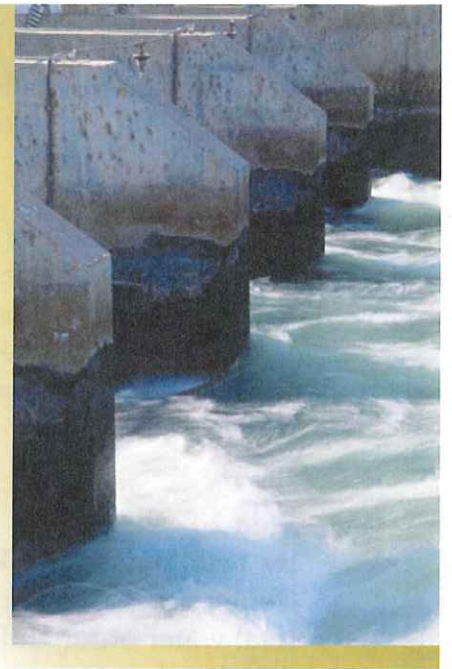
coordinators enter the water orders into a computer system that allows the water orders to be organized, scheduled and documented for billing. Water customers call their local water division offices to order water. Between noon and 1 p.m., the Dispatching Unit, under the direction of the watermaster, takes the water available for the next delivery day and apportions it based

on demand to the water divisions. The watermaster will then use the most current information to adjust the weekly master schedule order for three and four days in the future.

**Once the total water available has been relayed** to the water divisions, division coordinators begin scheduling water orders. When there is not enough water to fill a water order, the order is given a carryover block. This moves the water order to the next day and gives the order a higher priority. After the coordinator finishes selling the available water, delivery demand sheets (run sheets) are printed for zanjeros (a Spanish word meaning "ditch riders"). Zanjeros are responsible for adjusting the smaller laterals and opening/closing delivery gates for the farmers. Laterals are divided into zanjero runs, or sets of canals that are assigned to a single zanjero. Zanjeros must measure and adjust every water delivery and control structure in their area and document the water delivery for customer billing and water management information.

**Once the division coordinator has sold** the available water, orders for each lateral are totaled. The amount of water needed in each lateral for the next water day is relayed to the Dispatching Unit. The water dispatcher compares the location and amount of the day's water orders to the location and amount of the water orders for the next delivery day. A water diversion plan is developed to move the water to the proper place at the proper time. Water control operators work with water dispatchers to operate a remote control system (SCADA) that opens, closes or adjusts lateral gate headings. Following the daily water plan, the dispatcher and operator track and move water to meet irrigation needs. The remote system controls all 230 miles of the main canals; however, most lateral headings are controlled by field personnel, as are the 1,438 miles of lateral infrastructure. Hydrographers (the people responsible for measuring and adjusting laterals for zanjeros) coordinate with the Dispatching Unit to maintain the proper amount of water in the laterals.

**Imperial Valley water delivery** requires 24-hour, 7-day-a-week coordination among staff in numerous areas across the district.



**Imperial Irrigation District**  
Protecting the flow of progress.

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# IID Water Transportation

## Daily administration of water delivery

IID Divisions

### Step 1

Receive water orders from farmers and water users in service area. Input water orders into central computer system. (For optimum next day delivery, divisions must receive water orders by noon).



Water Control

### Step 2

By 12:20 p.m., daily, Water Control Center accesses computer system for total water order and computes divisional water order.

### Step 3

At about 1 p.m., daily, Water Control Center places firm water order for diversion into All-American Canal for following day's deliveries. Every Wednesday, submits weekly water order schedule.



River Division

### Step 4

Receives water orders from all users diverting at Imperial Dam.

### Step 5

At about 1:10 p.m., daily, IID staff at Imperial Dam (River Division) place firm water order for diversion at dam for following day. Every Wednesday, submits final weekly water order schedule from Imperial Dam.



USBR Yuma

### Step 6

Bureau of Reclamation receives water orders from all water users along the Colorado River from Hoover Dam to Mexico.



### Step 12

Division offices (Holtville, Western, Southwest and Northend) prepare schedules for zanjero lateral delivery runs for the next day's water delivery.



### Step 11

Water Control Center informs each division office of water order allotment for next day's delivery.

### Step 10

Water Control Center prepares a water plan for operation of the main canal system (East Highline, Westside Main, Central Main and All-American Canal). Flow changes are managed by water control hydrographers.



### Step 9

River Division confirms water order allotment for next day.

### Step 8

River Division makes required diversion changes into All-American Canal at Imperial Dam once per day at 12 midnight.



### Step 7

Bureau schedules required water releases from dams on Colorado River to meet needs of water users. Bureau confirms water order allotment for next day.