AGENDA ITEM 7a

STAFF REPORT

TYPE MEETING:	Regular Board	MEETING DATE:	October 5, 2016		
SUBMITTED BY:	Lisa Coburn-Boyd Environmental Compliance Specialist Bob Kennedy Engineering Manager	CIP./G.F. NO:	D0028-090277	DIV. NO.	2
APPROVED BY:	☒ Rod Posada, Chief, Engineering ☒ German Alvarez, Assistant General Manager ☒ Mark Watton, General Manager				
SUBJECT:	Approval of Water Supply Assessment and Verification Report (August 2016) for the City of Chula Vista University Innovation District Project				

GENERAL MANAGER'S RECOMMENDATION:

That the Otay Water District (District) Board of Directors (Board) approve the Water Supply Assessment and Verification Report (WSA&V Report) dated August 2016 for the City of Chula Vista University Innovation District Project, as required by Senate Bills 610 and 221 (see Exhibit A for Project location).

COMMITTEE ACTION:

Please see Attachment A.

PURPOSE:

To obtain Board approval of the August 2016 WSA&V Report for the City of Chula Vista University Innovation District Project, as required by Senate Bill 610 and Senate Bill 221 (SB 610 and SB 221).

ANALYSIS:

The City of Chula Vista submitted a request to the District for a WSA&V Report, pursuant to SB 610 and SB 221. SB 610 and SB 221 require that, upon the request of the City or County, a water purveyor, such as the District, prepare a water supply

assessment and verification report to be included in the California Environmental Quality Act (CEQA) environmental documentation. SB 610 requires a city or county to evaluate whether water supplies will be sufficient to meet the projected water demand for certain "projects" that are otherwise subject to the requirement of the CEQA. SB 610 provides its own definition of "project" in Water Code Section 10912.

SB 221 requires affirmative written verification from the water purveyor of the public water system that sufficient water supplies are planned to be available for certain residential subdivisions of property. The requirements of SB 610 and SB 221 are addressed by the May 2016 WSA&V Report for this Project. The WSA&V Report was prepared by the District in consultation with Dexter Wilson Engineering, Inc., the San Diego County Water Authority (Water Authority), and the City of Chula Vista (City).

Prior to transmittal to the City, the WSA&V Report must be approved by the Board of Directors. An additional explanation of the intent of SB 610 and SB 221 is provided in Exhibit B, the City of Chula Vista University Innovation District Project WSA&V Report is provided as Exhibit C.

For the City of Chula Vista University Innovation District Project, the City is the responsible land use agency that requested the SB 610 and SB 221 water supply assessment and verification reports from the District. The request for the WSA&V Reports, in compliance with SB 610 and SB 221 requirements, was made by the City because the Project meets or exceeds one or both of the following SB 610 and SB 221 criteria:

- A proposed residential development of more than 500 dwelling units.

- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

- A mixed-use project that includes one or more of the land uses specified in SB 610.

- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

The City of Chula Vista University Innovation District Project is located along the north side of the Otay River Valley within

the Otay Ranch Development. The Project is planned to include a State University site with education buildings, student and faculty housing, commercial, recreation, and open space areas. The Project proposes up to 10,066,200 square feet of development and could include up to 20,000 students, 6,000 faculty/staff members and 8,000 commercial employees. Up to 6,000 students and 1,200 faculty/staff members could be housed onsite.

The expected potable water demands for the City of Chula Vista University Innovation District Project are 840,688 gpd or about 941.7 AFY. This is 11.7 AFY higher than the demand estimate in the District's 2008 Water Resources Master Plan November 2010 Update, which estimated 930.0 AFY for the same parcels. Recycled water is proposed to be used within the Project and the estimated annual average usage is projected to be 159,255 gpd or 178 AFY.

The 11.7 AFY increase is accounted for through the Accelerated Forecasted Growth demand increment of the Water Authority's 2015 Urban Water Management Plan (UWMP). As documented in the Water Authority's 2015 UWMP, the Water Authority is planning to meet future and existing demands, which include the demand increment associated with the accelerated forecasted growth. The Water Authority will assist its member agencies in tracking the environmental documents provided by the agencies that include water supply assessments and verifications reports that utilize the accelerated forecasted growth demand increment to demonstrate supplies for the development. In addition, the next update of the demand forecast for the Water Authority's 2020 UWMP will be based on SANDAG's most recently updated forecast, which will include the Project. Therefore, based on the findings from the District's 2015 UWMP and the Water Authority's 2015 UWMP, this Project will result in no unanticipated demands.

The request for compliance with SB 221 requirements was made by the City because the Project will exceed the SB 221 criteria of a proposed residential development with more than 500 dwelling units.

Pursuant to SB 610 and SB 221, the WSA&V Report incorporates by reference the current Urban Water Management Plans and other water resources planning documents of the District, the Water Authority, and the Metropolitan Water District of Southern California (Metropolitan). The District prepared the WSA&V Report in consultation with Dexter Wilson Engineering, Inc., the Water Authority, and the City, which demonstrates and documents that sufficient water supplies are planned for and are intended

to be made available over a 20-year planning horizon under normal supply conditions, in single and multiple-dry years to meet the projected demand of the City of Chula Vista University Innovation District Project and other planned development projects within the District.

FISCAL IMPACT: ☒ Joe Beachem, Chief Financial Officer

The District has been reimbursed $8,000 for all costs associated with the preparation of the City of Chula Vista University Innovation District Project WSA&V Report. The reimbursement was accomplished via an $8,000 deposit the Project proponents placed with the District.

STRATEGIC GOAL:

The preparation and approval of the WSA&V Report for the City of Chula Vista University Innovation District Project supports the District's Mission statement, "To provide high value water and wastewater services to the customers of the Otay Water District in a professional, effective, and efficient manner" and the General Manager's Vision, "A District that is at the forefront in innovations to provide water services at affordable rates, with a reputation for outstanding customer service."

LEGAL IMPACT:

Approval of a WSA&V Report for the City of Chula Vista University Innovation District Project in form and content satisfactory to the Board of Directors would allow the District to comply with the requirements of Senate Bills 610 and 221.

LC-B/BK:jf
P:\WORKING\WO D0028 City of Chula Vista University Innovation District\Staff Report\BD 10-05-06-16, Staff Report, City of Chula Vista University Innovation District WSA&V Report(LCB-BK).doc

Attachments: Attachment A – Committee Action
Exhibit A – Location Map
Exhibit B – Explanation of the Intent of SB 610 & SB 221
Exhibit C – City of Chula Vista University Innovation District Project WSA&V Report
Exhibit D – Presentation

ATTACHMENT A

SUBJECT/PROJECT:	Approval of Water Supply Assessment and Verification Report (August 2016) for the City of Chula Vista University Innovation District Project
D0028-090277	

COMMITTEE ACTION:

The Engineering, Operations, and Water Resources Committee (Committee) reviewed this item at a meeting held on September 15, 2016, and the following comments were made:

- Staff recommended that the Board approve the Water Supply Assessment and Verification Report (WSA&V Report) dated August 2016 for the City of Chula Vista University Innovation District Project (Project), as required by Senate Bills 610 and 221 (SB 610 & 221).

- Staff provided a PowerPoint presentation to the Committee. See Exhibit D of the staff report.

- Staff stated that the City of Chula Vista submitted a request to the District for a WSA&V Report for the Project pursuant to SB 610 & 221. It was noted that Board approval is required for submittal of the WSA&V Report to the City of Chula Vista.

- The Project's description is provided on page 3 of the PowerPoint presentation. It was noted that the Project's total water demand is 941.7 AFY of potable water and 178 AFY of recycled water. This is 11.7 AFY higher than what was indicated in the 2010 update of the District's 2008 Water Resources Master Plan. However, staff stated that the increase in demand is accounted for through the AFG demand increment of the Water Authority's 2015 Urban Water Management Plan (UWMP).

- Staff stated that the WSA&V Report discusses the development of sufficient and reliable water supplies to

meet the challenge of existing and future water supply demands. The report also documents planned water supply projects and the actions necessary to develop the supplies for a 20-year planning horizon.

- The PowerPoint presentation showed the Water Authority's supplies for years 2020 to 2040, which indicated a total amount of 336,200 acre-feet by the year 2040. See page 5 of the presentation.

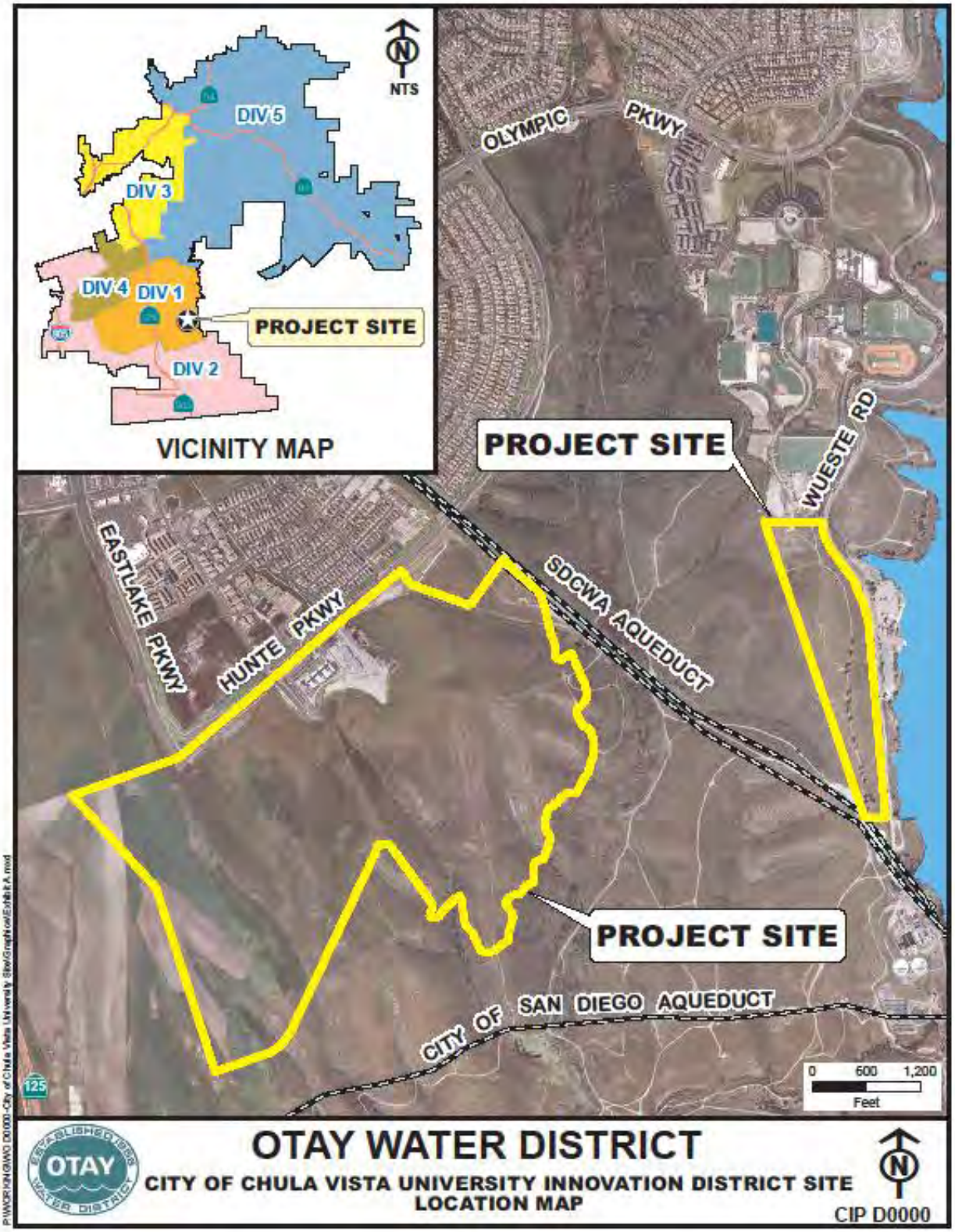
- Page 6 of the PowerPoint presentation provides detail of the Otay Water District's projected balance of supply and demand for years 2020 to 2040. Staff noted that the information was based on data from the District's 2015 Urban Water Management Plan.

- Staff stated that based on the findings from the District's 2015 UWMP and the Water Authority's 2015 UWMP, there are no unanticipated demands for this project.

- Staff noted that the state of the current water supply situation is documented in the University Innovation District WSA&V Report and shows that the District has met the intent of SB 610 and SB 221.

- In response to a question from the Committee, staff stated that the larger University project site is outside of the Lower Otay Reservoir drainage basin and therefore will be able to use recycled water. The smaller project site adjacent to the reservoir is in the same drainage basin as Lower Otay Reservoir where the City of San Diego does not allow recycled water use.

Following the discussion, the Committee supported staffs' recommendation and presentation to the full board as an action item.


NTS
DIV 5
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PROJECT SITE
VICINITY MAP
OLYMPIC PKWY
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WATER DISTRICT
OTAY WATER DISTRICT
CITY OF CHULA VISTA UNIVERSITY INNOVATION DISTRICT SITE
LOCATION MAP
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EXHIBIT A

EXHIBIT B

Background Information

The Otay Water District (District) prepared the updated August 2016 Water Supply Assessment and Verification (WSA&V) Report for the City of Chula Vista University Innovation District Project at the request of the City of Chula Vista (City). The City's WSA&V request letter dated August 31, 2016 was received by the District on August 31, 2016 so the 90-day deadline for the District to provide the Board an approved WSA&V Report to the City ends November 29, 2016.

The City of Chula Vista University Innovation District Project is located within the jurisdictions of the District, the San Diego County Water Authority (Water Authority), and the Metropolitan Water District of Southern California (MWD). See Exhibit A for Project location. To obtain permanent imported water supply service, land areas are required to be within the jurisdictions of the District, Water Authority, and MWD.

The August 2016 WSA&V Report for the City of Chula Vista University Innovation District Project has been prepared by the District in consultation with Dexter Wilson Engineering, Inc., the Water Authority, and the City, pursuant to Public Resources Code Section 21151.9 and California Water Code Sections 10631, 10656, 10910, 10911, 10912, and 10915 referred to as Senate Bill (SB) 610 and Government Code Sections 65867.5, 66455.3, and 66473.7 referred to as SB 221. SB 610 and SB 221 amended state law, effective January 1, 2002, intending to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 requires that the water purveyor of the public water system prepare a water supply assessment to be included in the California Environmental Quality Act (CEQA) environmental documentation and approval process of certain proposed projects. SB 221 requires affirmative written verification from the water purveyor of the public water system that sufficient water supplies are to be available for certain residential subdivision of property. The requirements of SB 610 and SB 221 are addressed in the August 2016 WSA&V Report for the City of Chula Vista University Innovation District Project.

The expected potable water demands for the City of Chula Vista University Innovation District Project are 840,688 gallons per day (gpd) or about 941.7 acre-feet per year (AFY). This is 11.7 AFY higher than the demand estimate in the District's 2010 Water Resources Master Plan Update.

The 11.7 AFY increase in demand is accounted for through the Accelerated Forecasted Growth demand increment of the Water Authority's 2015 Urban Water Management Plan (UWMP). As documented in the Water Authority's 2015 UWMP, the Water Authority is planning to meet future and existing demands, which include the demand increment associated with the accelerated forecasted growth. The Water Authority will assist its member agencies in tracking the environmental documents provided by the agencies that include water supply assessments and verifications reports that utilize the

accelerated forecasted growth demand increment to demonstrate supplies for the development. In addition, the next update of the demand forecast for the Water Authority's 2020 UWMP will be based on SANDAG's most recently updated forecast, which will include the Project. Therefore, based on the findings from the Otay WD's 2015 UWMP and the Water Authority's 2015 UWMP, this Project will result in no unanticipated demands.

The District currently depends on the Water Authority and the MWD for all of its potable water supplies and regional water resource planning. The District's 2015 Urban Water Management Plan (UWMP) relies heavily on the UWMP's and Integrated Water Resources Plans (IRPs) of the Water Authority and MWD for documentation of supplies available to meet projected demands. These plans are developed to manage the uncertainties and variability of multiple supply sources and demands over the long-term through preferred water resources strategy adoption and resource development target approvals for implementation.

MWD, in January 2016, approved the update of their Integrated Water Resources Plan (IRP). The 2015 IRP Update describes an adaptive management approach to mitigate against future water supply uncertainty. The new uncertainties that are significantly affecting California's water resources include:

- The State Water Project (SWP) supplies which are affected by a changing climate and the operational constraints in the ecologically struggling Sacramento-San Joaquin Delta.

- Periodic extended drought conditions.

These uncertainties have rightly caused concern among Southern California water supply agencies regarding the validity of the current water supply documentation.

MWD is currently involved in several proceedings concerning Delta operations to evaluate and address environmental concerns. In addition, at the State level, the Delta Vision and Bay-Delta Conservation Plan processes are defining long-term solutions for the Delta.

The SWP represents approximately 9% of MWD's 2025 Dry Resources Mix, with the supply buffer included. A 22% cutback in SWP supply represents an overall 2% (22% of 9% is 2%) cutback in MWD supplies in 2025. Neither the Water Authority nor MWD has stated that there is insufficient water for future planning in Southern California. Each agency is in the process of reassessing and reallocating their water resources.

Under preferential rights, MWD can allocate water without regard to historic water purchases or dependence on MWD. Therefore, the Water Authority and its member agencies are taking measures to reduce dependence on MWD through development of additional supplies and a water supply portfolio that would not be jeopardized by a preferential rights allocation.

As calculated by MWD, the Water Authority's current preferential right is 18.27% of MWD's supply, while the Water Authority accounted for approximately 22% of MWD's total revenue. So MWD could theoretically cut back the Water Authority's supply and theoretically, the Water Authority should have alternative water supply sources to make up for the difference. In the Water Authority's 2010 UWMP, they had already planned to reduce reliance on MWD supplies. This reduction is planned to be achieved through diversification of their water supply portfolio.

The Water Authority's Drought Management Plan (May 2006) provides the Water Authority and its member agencies with a series of potential actions to engage when faced with a shortage of imported water supplies due to prolonged drought conditions. Such actions help avoid or minimize impacts of shortages and ensure an equitable allocation of supplies throughout the San Diego County region.

The Otay Water District Board of Directors could acknowledge the ever-present challenge of balancing water supply with demand and the inherent need to possess a flexible and adaptable water supply implementation strategy that can be relied upon during normal and dry weather conditions. The responsible regional water supply agencies have and will continue to adapt their resource plans and strategies to meet climatological, environmental, and legal challenges so that they may continue to provide water supplies to their service areas. The regional water suppliers (i.e., the Water Authority and MWD), along with the District, fully intend to maintain sufficient reliable supplies through the 20-year planning horizon under normal, single, and multiple-dry year conditions to meet projected demand of the City of Chula Vista University Innovation District Project, along with existing and other planned development projects within the District's service area.

If the regional water suppliers determine additional water supplies will be required, or in this case, that water supply portfolios need to be reassessed and redistributed with the intent to serve the existing and future water needs throughout Southern California, the agencies must indicate the status or stage of development of actions identified in the plans they provide. MWD's 2015 IRP update will then cause the Water Authority to update its IRP, which will then provide the District with the necessary water supply documentation. Identification of a potential future action in such plans does not by itself indicate that a decision to approve or to proceed with the action has been made. The District's Board approval of the Approval of Water Supply Assessment and Verification Report (August 2016) for the City of Chula Vista University Innovation District Project WSA&V Report does not in any way guarantee water supply to the Project.

Alternatively, if the WSA&V Report is written to state that water supply is or will be unavailable; the District must include, in the assessment, a plan to acquire additional water supplies. At this time, the District should not state there is insufficient water supply.

At the present time, based on the information available, the District is able to clearly describe the current water supply situation clearly, indicating intent to provide supply through reassessment and reallocation by the regional, as well as, the local water suppliers. In doing so, it is believed that the Board has met the intent of the SB 610 statute, that the land use agencies and the water agencies are coordinating their efforts in planning water supplies for new development.

With District Board approval of the City of Chula Vista University Innovation District Project WSA&V Report, the City of Chula Vista University Innovation District Project proponents can proceed with the draft environmental documentation required for the CEQA review process. The water supply issues will be addressed in these environmental documents, consistent with the WSA&V Report.

The District, as well as others, can comment on the draft EIR with recommendations that water conservation measures and actions be employed on the City of Chula Vista University Innovation District Project.

Some recent actions regarding water supply assessments and verification reports by Otay Water District are as follows:

- The Board approved the water supply assessment report for the Otay Ranch Village 2 Specific Plan Amendment Project on October 2, 2013.

- The Board approved the water supply assessment report for the Otay Ranch University Villages Project on November 6, 2013.

- The Board approved the water supply assessment report for the Otay Ranch Resort Village Project on May 7, 2014.

- The Board approved the water supply assessment report for the Otay Ranch Planning Area 12 Freeway Commercial Project on April 1, 2015.

- The Board approved the water supply assessment report for the Otay 250 Sunroad East Otay Mesa Business Park Specific Plan Amendment Project on July 6, 2016.

Water supplies necessary to serve the demands of the proposed City of Chula Vista University Innovation District Project, along with existing and other projected future users, as well as the actions necessary to develop these supplies, have been identified in the water supply planning documents of the District, the Water Authority, and MWD.

The WSA&V Report includes, among other information, an identification of existing water supply entitlements, water rights, water service contracts, or agreements relevant to the identified water supply needs for the proposed City of Chula Vista University Innovation District Project. The WSA&V Report demonstrates and documents that sufficient water supplies are planned and are intended to be available over a 20-year

planning horizon, under normal conditions and in single and multiple-dry years, to meet the projected demand of the proposed City of Chula Vista University Innovation District Project and the existing and other planned development projects within the District.

Accordingly, after approval of a WSA&V Report for the City of Chula Vista University Innovation District Project by the District's Board of Directors, the WSA&V Report may be used to comply with the requirements of the legislation enacted by Senate Bills 610 and 221 as follows:

Senate Bill (SB) 610 Water Supply Assessment: The District's Board of Directors approved WSA&V Report may be incorporated into the California Environmental Quality Act (CEQA) compliance process for the City of Chula Vista University Innovation District Project as a water supply assessment report consistent with the requirements of the legislation enacted by SB 610. The City of Chula Vista, as lead agency under the CEQA for the City of Chula Vista University Innovation District Project environmental documentation, may cite the approved WSA&V Report as evidence that a sufficient water supply is planned and intended to be available to serve the City of Chula Vista University Innovation District Project.

Senate Bill (SB) 221 Water Supply Verification: The District's Board of Directors approved WSA&V Report may be incorporated into the City of Chula Vista University Innovation District Project as a water supply verification report, consistent with the requirements of the legislation enacted by SB 221. The City, within their process of approving the City of Chula Vista University Innovation District Project, may cite the approved WSA&V Report as verification of intended sufficient water supply to serve the Project.

EXHIBIT C

OTAY WATER DISTRICT

WATER SUPPLY ASSESSMENT AND VERIFICATION REPORT

for the
City of Chula Vista
University Innovation District Project

Prepared by:
Lisa Coburn-Boyd
Environmental Compliance Specialist
and
Bob Kennedy, P.E.
Engineering Manager
Otay Water District
In consultation with
Dexter Wilson Engineering, Inc.
And
San Diego County Water Authority

August 2016

Otay Water District
Water Supply Assessment and Verification Report
August 2016

University Innovation District Project

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Appendix A: University Innovation District Project Vicinity Map
Appendix B: University Innovation District Project Development Plan

Otay Water District
Water Supply Assessment Report
August 2016

University Innovation District Project

Executive Summary

The Otay Water District (Otay WD) prepared this Water Supply Assessment and Verification Report (WSA&V Report) at the request of the City of Chula Vista (City) for the University Innovation District Project. The City is having an environmental impact report (EIR) prepared for the development of this project.

University Innovation District Project Overview and Water Use

The University Innovation District Project is located within the jurisdictions of the Otay WD, the San Diego County Water Authority (Water Authority), and the Metropolitan Water District of Southern California (MWD). To obtain permanent imported water supply service, land areas are required to be within the jurisdictions of the Otay WD, Water Authority, and MWD.

The City is having an EIR prepared for development of the 383.8 acre site (University Innovation District Project). The land use plan proposes a State university to serve approximately 20,000 students. The project is located within the Otay Ranch General Development Plan along the north side of the Otay River Valley.

The expected potable water demand for the University Innovation District Project is 840,688 gallons per day (gpd) or about 941.7 acre feet per year (AFY). This is 11.7 AFY higher than the projected demands in the District's 2008 Water Resources Master Plan updated November 2010 (WRMP Update) which estimated 930.0 AFY for the same parcels. Recycled water is proposed to be used within the project and the estimated annual average usage is projected to be 159,255 gpd, or 178 AFY.

The 11.7 AFY increase in demand is accounted for through the Accelerated Forecasted Growth demand increment of the Water Authority's 2015 UWMP. As documented in the Water Authority's 2015 UWMP, the Water Authority is planning to meet future and existing demands which include the demand increment associated with the accelerated forecasted growth. The Water Authority will assist its member agencies in tracking the environmental documents provided by the agencies that include water supply assessments and verifications reports that utilize the accelerated forecasted growth demand increment to demonstrate

supplies for the development. In addition, the next update of the demand forecast for the Water Authority's 2020 UWMP will be based on SANDAG's most recently updated forecast, which will include the Project. Therefore, based on the findings from the Otay WD's 2015 UWMP and the Water Authority's 2015 UWMP, this project will result in no unanticipated demands.

The Water Authority's 2015 Urban Water Management Plan (UWMP) provides for a comprehensive planning analysis at a regional level and includes water use associated with accelerated forecasted development as part of its municipal and industrial sector demand projections. These housing and commercial units were identified by the San Diego Association of Government (SANDAG) in the course of its regional housing needs assessment, but are not yet included in existing general land use plans of local jurisdictions. The demand associated with accelerated forecasted residential development is intended to account for SANDAG's land-use development currently projected to occur between 2035 and 2050, but has the likely potential to occur on an accelerated schedule. SANDAG estimates that this accelerated forecasted residential and commercial development forecasted could occur within the planning horizon (2020 to 2040) of the 2015 UWMP. This land-use is not included in local jurisdictions' general plans, so their projected demands are incorporated at a regional level. When necessary, this additional demand increment, termed Accelerated Forecasted Growth, can be used by member agencies to meet the demands of development projects not identified in the general land use plans.

Planned Imported Water Supplies from the Water Authority and MWD

The Water Authority and MWD have an established process that ensures supplies are being planned to meet future growth. Any annexations and revisions to established land use plans are captured in the San Diego Association of Governments (SANDAG) updated forecasts for land use planning, demographics, and economic projections. SANDAG serves as the regional, intergovernmental planning agency that develops and provides forecast information. The Water Authority and MWD update their demand forecasts and supply needs based on the most recent SANDAG forecast approximately every five years to coincide with preparation of their UWMP's. Prior to the next forecast update, local jurisdictions with land use authority may require water supply assessment and/or verification reports for proposed land developments that are not within the OTAY WD, Water Authority, or MWD jurisdictions (i.e. pending or proposed annexations) or that have revised land use plans with either lower or higher development intensities than reflected in the existing growth forecasts. Proposed land areas with pending or proposed annexations, or revised land use plans, typically result in creating higher demand and supply requirements than previously anticipated. The OTAY WD, Water Authority, and MWD next demand forecast and supply requirements and associated planning documents would then capture any increase or decrease in demands and required supplies as a result of annexations or revised land use planning decisions.

An important planning document utilized by MWD, the Water Authority and OTAY WD is the Integrated Resources Plan (IRP) which describes an agency's long term water plan. MWD's 2015 IRP offers an adaptive management strategy to protect the region from future supply shortages. This adaptive management strategy has five components: achieve additional conservation savings, develop additional local water supplies, maintain Colorado River Aqueduct supplies, stabilize State Water Project supplies, and maximize the effectiveness of storage and transfer. MWD's 2015 IRP has a plan for identifying and implementing additional resources that expand the ability for MWD to meet future changes and challenges as necessary to ensure future reliability of supplies. The proper management of these resources help to ensure that the southern California region, including San Diego County, will have adequate water supplies to meet long-term future demands.

Another important planning document is the UWMP. The California Urban Water Management Planning Act (Act), which is included in the California Water Code, requires all urban water suppliers within the state to prepare an UWMP and update it every five years. The purpose and importance of the UWMP has evolved since it was first required 25 years ago. State agencies and the public frequently use the document to determine if agencies are planning adequately to reliably meet future demands. As such, UWMPs serve as an important element in documenting supply availability for the purpose of compliance with state laws, Senate Bills 610 and 221, linking water supply sufficiency to large land-use development approval. Agencies must also have a UWMP prepared, pursuant to the Act, in order to be eligible for state funding and drought assistance.

MWD's 2015 UWMP Findings state that MWD has supply capabilities that would be sufficient to meet expected demands from 2020 through 2040. MWD has plans for supply implementation and continued development of a diversified resource mix including programs in the Colorado River Aqueduct, State Water Project, Central Valley Transfers, local resource projects, and in-region storage that enables the region to meet its water supply needs. MWD's 2015 UWMP identifies potential reserve supplies in the supply capability analysis (Tables 2-4, 2-5, and 2-6), which could be available to meet the unanticipated demands such as those related to the University Innovation District Project.

The County Water Authority Act, Section 5 subdivision 11, states that the Water Authority "as far as practicable, shall provide each of its member agencies with adequate supplies of water to meet their expanding and increasing needs."

As part of preparation of a written water supply assessment report, an agency's shortage contingency analysis should be considered in determining sufficiency of supply. Section 11 of the Water Authority's 2015 UWMP Update contain a detailed shortage contingency analysis that addresses a regional catastrophic shortage situation and drought management. The analysis demonstrates that the Water Authority and its member agencies, through the Integrated Contingency Plan, Emergency Storage Project, and Water Shortage and Drought Response Plan are taking actions to prepare for and appropriately handle an interruption of water supplies. The Water Shortage and Drought Response Plan, provides the Water

Authority and its member agencies with a series of potential actions to take when faced with a shortage of imported water supplies from MWD due to prolonged drought or other supply shortfall conditions. The actions will help the region avoid or minimize the impacts of shortages and ensure an equitable allocation of supplies.

Water supply agencies throughout California continue to face climate, environmental, legal, and other challenges that impact water source supply conditions, such as the court rulings regarding the Sacramento-San Joaquin Delta issues and the current ongoing drought impacting the western states. Even with these ever present challenges, the Water Authority and MWD, along with Otay WD fully intend to have sufficient, reliable supplies to serve demands.

Otay Water District Water Supply Development Program

In evaluating the availability of sufficient water supply, the University Innovation District Project will be required to participate in the water supply development program being implemented by the Otay WD. This is intended to be achieved through financial participation in several local and/or regional water supply development projects envisioned by the Otay WD. These water supply projects are in addition to those identified as sustainable supplies in the current Water Authority and MWD UWMP, IRP, Master Plans, and other planning documents, and are in response to the regional water supply issues. These new water supply projects are not currently developed and are in various stages of the planning process. Imported water supplies along with the development of these additional Otay WD water supply development projects supplies are intended to increase water supplies to serve the University Innovation District Project water supply needs and that of other similar development projects. The Otay WD water supply development program includes but is not limited to projects such as the Middle Sweetwater River Basin Groundwater Well project, the Rancho del Rey Groundwater Well project, the North District Recycled Water Supply Concept, and the Rosarito Ocean Desalination Facility project. The Water Authority and MWD's next forecasts and supply planning documents would capture any increase in water supplies resulting from any new water resources developed by the Otay WD.

Findings

The WSA&V Report identifies and describes the processes by which water demand projections for the proposed University Innovation District project will be fully included in the water demand and supply forecasts of the Urban Water Management Plans and other water resources planning documents of the Water Authority and MWD. Water supplies necessary to serve the demands of the proposed project, along with existing and other projected future users, as well as the actions necessary and status to develop these supplies, have been identified in the University Innovation District project WSA&V Report and will be included in the future water supply planning documents of the Water Authority and MWD.

This WSA&V Report includes, among other information, an identification of existing water supply entitlements, water rights, water service contracts, water supply projects, or agreements relevant to the identified water supply needs for the proposed University Innovation District project. The WSA&V Report demonstrates and documents that sufficient water supplies are planned for and are intended to be available over a 20-year planning horizon, under normal conditions and in single and multiple dry years to meet the projected demand of the proposed University Innovation District project and the existing and other planned development projects to be served by the Otay WD.

Accordingly, after approval of a WSA&V Report for the University Innovation District project by the Otay WD Board of Directors (Board), the WSA&V Report may be used to comply with the requirements of the legislation enacted by Senate Bills 610 and 221 as follows:

1. Senate Bill 610 Water Supply Assessment: The Otay WD Board approved WSA&V Report may be incorporated into the California Environmental Quality Act (CEQA) Environmental Impact Report (EIR) compliance process for the University Innovation District project as a water supply assessment report consistent with the requirements of the legislation enacted by SB 610. The City as lead agency under CEQA for the University Innovation District project EIR amendment may cite the approved WSA&V Report as evidence that a sufficient water supply is planned for and is intended to be made available to serve the University Innovation District project.

2. Senate Bill 221 Water Supply Verification: The Otay WD Board approved WSA&V Report may be incorporated into the City's Tentative Map approval process for the University Innovation District project as a water supply verification report, consistent with the requirements of the legislation enacted by SB 221. The City, within their process of approving the University Innovation District project's Tentative Map, may cite the approved WSA&V Report as verification of intended sufficient water supply to serve the University Innovation District project.

Section 1 - Purpose

The City of Chula Vista is having an environmental impact report (EIR) prepared for the development of the 383.8 acre parcel (University Innovation District Project). The project is located within the Otay Ranch General Development Plan along the north side of the Otay River Valley. The City requested that the Otay WD prepare a Water Supply Assessment and Verification (WSA&V) Report for the University Innovation District Project. The University Innovation District Project description is provided in Section 3 of this WSA&V Report.

This WSA&V Report for the University Innovation District project has been prepared by the Otay WD in consultation with Dexter Wilson Engineering, Inc., the Water Authority, and the

City pursuant to Public Resources Code Section 21151.9 and California Water Code Sections 10631, 10656, 10910, 10911, 10912, and 10915 referred to as Senate Bill (SB) 610 and Business and Professions Code Section 11010 and Government Code Sections 65867.5, 66455.3, and 66473.7 referred to as SB 221. SB 610 and SB 221 amended state law, effective January 1, 2002, intending to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 requires that the water purveyor of the public water system prepare a water supply assessment to be included in the CEQA documentation and approval process of certain proposed projects. SB 221 requires affirmative written verification from the water purveyor of the public water system that sufficient water supplies are to be available for certain residential subdivisions of property prior to approval of a tentative map. The requirements of SB 610 and SB 221 are being addressed by this WSA&V Report.

The City also requested, since the requirements of SB 610 and SB 221 are substantially similar, that Otay WD prepare both the water supply assessment and verification concurrently.

This WSA&V Report evaluates water supplies that are planned to be available during normal, single dry year, and multiple dry water years during a 20-year planning horizon to meet existing demands, expected demands of the University Innovation District Project, and reasonably foreseeable planned future water demands to be served by Otay WD. The Otay Water District Board of Directors approved WSA&V Report is planned to be used by the City in its evaluation of the University Innovation District Project under the CEQA approval process procedures.

Section 2 - Findings

The City of Chula Vista is having an EIR prepared for the development of the 383.8 acre parcel (University Innovation District Project). The Otay WD prepared this WSA&V Report at the request of the City for the University Innovation District Project.

The University Innovation District Project is located within the jurisdictions of the Otay WD, the Water Authority, and MWD. To obtain permanent imported water supply service, land areas are required to be within the jurisdictions of the Otay WD, Water Authority, and MWD to utilize imported water supply.

The expected potable water demand for the University Innovation District Project is 840,688 gallons per day (gpd) or about 941.7 acre feet per year (AFY). This is 11.7 AFY higher than the demand estimate in the District's WRMP Update which estimated 930.0 AFY. Recycled water is also proposed to be used on the project and is projected to be an average of 159,255 gpd, or 178 AFY.

The 11.7 AFY increase in demand is accounted for through the Accelerated Forecasted Growth demand increment of the Water Authority's 2015 UWMP. As documented in the Water Authority's 2015 UWMP, the Water Authority is planning to meet future and existing demands which include the demand increment associated with the accelerated forecasted growth. The Water Authority will assist its member agencies in tracking the environmental documents provided by the agencies that include water supply assessments and verifications reports that utilize the accelerated forecasted growth demand increment to demonstrate supplies for the development. In addition, the next update of the demand forecast for the Water Authority's 2020 UWMP will be based on SANDAG's most recently updated forecast, which will include the Project. Therefore, based on the findings from the Otay WD's 2015 UWMP and the Water Authority's 2015 UWMP, this project will result in no unanticipated demands.

The Water Authority's 2015 UWMP Update provides for a comprehensive planning analysis at a regional level and includes water use associated with accelerated forecasted development as part of its municipal and industrial sector demand projections. These housing and commercial units were identified by the SANDAG in the course of its regional housing needs assessment, but are not yet included in existing general land use plans of local jurisdictions. The demand associated with accelerated forecasted residential development is intended to account for SANDAG's land-use development currently projected to occur between 2035 and 2050, but has the likely potential to occur on an accelerated schedule. SANDAG estimates that this accelerated forecasted residential and commercial development forecasted could occur within the planning horizon (2020 to 2040) of the Water Authority's 2015 UWMP. This land-use is not included in local jurisdictions' general plans, so their projected demands are incorporated at a regional level. When necessary, this additional demand increment, termed Accelerated Forecasted Growth, can be used by member agencies to meet the demands of development projects not identified in the general land use plans.

The Water Authority and MWD have an established process that ensures supplies are being planned to meet future growth. Any annexations and revisions to established land use plans are captured in the San Diego Association of Governments (SANDAG) updated forecasts for land use planning, demographics, and economic projections. SANDAG serves as the regional, intergovernmental planning agency that develops and provides forecast information. The Water Authority and MWD update their demand forecasts and supply needs based on the most recent SANDAG forecast approximately every five years to coincide with preparation of their urban water management plans. Prior to the next forecast update, local jurisdictions may require water supply assessment and/or verification reports for proposed land developments that are not within the Otay WD, Water Authority, or MWD jurisdictions (i.e. pending or proposed annexations) or that have revised land use plans with lower or higher land use intensities than reflected in the existing growth forecasts. Proposed land areas with pending or proposed annexations, or revised land use plans, typically result in creating higher demand and supply requirements than anticipated. The Otay WD, the Water Authority, and MWD next demand forecast and supply requirements and associated planning documents would then

capture any increase or decrease in demands and required supplies as a result of annexations or revised land use planning decisions.

This process is utilized by the Water Authority and MWD to document the water supplies necessary to serve the demands of the University Innovation District project, along with existing and other projected future users, as well as the actions necessary to develop any required water supplies. Through this process the necessary demand and supply information is thus assured to be identified and incorporated within the water supply planning documents of the Water Authority and MWD.

This WSA&V Report includes, among other information, an identification of existing water supply entitlements, water rights, water service contracts, proposed water supply projects, and agreements relevant to the identified water supply needs for the proposed University Innovation District Project. This WSA&V Report incorporates by reference the current Urban Water Management Plans and other water resources planning documents of the Otay WD, the Water Authority, and MWD. The Otay WD prepared this WSA&V Report to assess and document that sufficient water supplies are planned for and are intended to be acquired to meet projected water demands of the University Innovation District Project as well as existing and other reasonably foreseeable planned development projects within the Otay WD for a 20-year planning horizon, in normal supply years and in single dry and multiple dry years.

The Otay Water District 2015 UWMP includes a water conservation component to comply with Senate Bill 7 of the Seventh Extraordinary Session (SBX 7-7), which became effective February 3, 2010. This new law was the water conservation component to the Delta legislation package, and seeks to achieve a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. Specifically, SBX 7-7 from this Extraordinary Session requires each urban retail water supplier to develop urban water use targets to help meet the 20 percent reduction goal by 2020 (20x2020), and an interim water reduction target by 2015.

Otay WD adopted Method 1 to set its 2015 interim and 2020 water use targets. Method 1 requires setting the 2020 water use target to 80 percent of baseline per capita water use target as provided in the State's 20x2020 Water Conservation Plan. The Otay WD 2015 target was 172 gpcd which it met (2015 actual was 124 gpcd) and the 2020 gpcd target (80 percent of baseline) is 153 gpcd. The Otay WD's recent per capita water use has been declining and current water use already meets the 2020 target as calculated using Method 1. This recent decline in per capita water use is largely due to drought water use restrictions, increased water costs, and economic conditions. However, Otay WD's effective water use awareness campaign and enhanced conservation mentality of its customers will likely result in some long-term carryover of these reduced consumption rates.

Based on a normal water supply year, the five-year increments for a 20-year projection indicate projected potable and recycled water supply is being planned for and is intended to be acquired to meet the estimated water demand targets of the Otay WD (42,720 acre-feet (ac-ft)

in 2020 to 57,582 ac-ft in 2040) per the Otay Water District 2015 UWMP. Based on dry year forecasts, the estimated water supply is also being planned for and is intended to be acquired to meet the projected water demand, during single dry and multiple dry year scenarios. On average, the dry-year demands are about 6.64 percent higher than the normal year demands. The Otay WD recycled water supply is assumed to be drought-proof and not subject to reduction during dry periods.

Together, these findings assess, demonstrate, and document that sufficient water supplies are planned for and are intended to be acquired, as well as the actions necessary and status to develop these supplies are and will be further documented, to serve the proposed University Innovation District Project and the existing and other reasonably foreseeable planned development projects within the Otay WD in both normal and single and multiple dry year forecasts for a 20-year planning horizon.

Section 3 - Project Description

The University Innovation District Project is located along the north side of the Otay River Valley within the Otay Ranch Development. Refer to Appendix A for a vicinity map of the proposed University Innovation District Project. The project is proposed to be located on 383.8 acres within the City of Chula Vista Otay Ranch General Development Plan. Although the proposed development is located within the municipal boundaries of the City and subject to the City's land use jurisdiction, the Otay WD is the potable and recycled water purveyor. The University Innovation District Project is within the jurisdictions of the Otay WD, the Water Authority, and MWD.

The University Innovation District Project is planned to include a State university site with education buildings, student housing, faculty housing, commercial, recreation, and open space areas. The project proposes up to 10,066,200 square feet of development and could include up to 20,000 students, 6,000 faculty/staff members, and 8,000 commercial employees. Up to 6,000 students and 1,200 faculty/staff members could be housed onsite. Refer to Appendix B for the proposed development plan of the University Innovation District project.

The City has discretionary authority on land use decisions for the University Innovation District Project and can establish actions and/or permit approval requirements. The projected potable water demands associated with the University Innovation District Project have considered the anticipated City discretionary actions and/or permit approvals and are incorporated into and used in this WSA&V Report. The water demands for the proposed University Innovation District Project are included in the projected water demand estimates provided in Section 5 – Historical and Projected Water Demands.

Section 4 – Otay Water District

The Otay WD is a municipal water district formed in 1956 pursuant to the Municipal Water District Act of 1911 (Water Code §§ 71000 et seq.). The Otay WD joined the Water Authority as a member agency in 1956 to acquire the right to purchase and distribute imported water throughout its service area. The Water Authority is an agency responsible for the wholesale supply of water to its 24 public agency members in San Diego County.

The Otay WD currently meets all its potable demands with imported treated water from the Water Authority. The Water Authority is the agency responsible for the supply of imported water into San Diego County through its membership in MWD. The Water Authority currently obtains about half of its imported supply from MWD, but is in the process of further diversifying its available supplies.

The Otay WD provides water service to residential, commercial, industrial, and agricultural customers, and for environmental and fire protection uses. In addition to providing water throughout its service area, Otay WD also provides sewage collection and treatment services to a portion of its service area known as the Jamacha Basin. The Otay WD also owns and operates the Ralph W. Chapman Water Reclamation Facility (RWCWRF) which has an effective treatment capacity of 1.2 million gallons per day (mgd) or about 1,300 acre feet per year to produce recycled water. On May 18, 2007, an additional source of recycled water supply of at least 6 mgd, or about 6,720 acre feet per year, became available to Otay WD from the City of San Diego's South Bay Water Reclamation Plant (SBWRP).

The Otay WD jurisdictional area is generally located within the south central portion of San Diego County and includes approximately 125 square miles. The Otay WD serves portions of the unincorporated communities of southern El Cajon, La Mesa, Rancho San Diego, Jamul, Spring Valley, Bonita, and Otay Mesa, the eastern portion of the City of Chula Vista and a portion of the City of San Diego on Otay Mesa. The Otay WD jurisdiction boundaries are roughly bounded on the north by the Padre Dam Municipal Water District, on the northwest by the Helix Water District, and on the west by the South Bay Irrigation District (Sweetwater Authority) and the City of San Diego. The southern boundary of Otay WD is the international border with Mexico.

The planning area addressed in the 2008 Otay WD WRMP Update and the Otay WD 2015 UWMP includes both the land within the jurisdictional boundary of the Otay WD and those areas outside of the present Otay WD boundaries considered to be in the Area of Influence of the Otay WD. Figure 3-1 contained within the Otay WD 2015 UWMP shows the jurisdictional boundary of the Otay WD and the Area of Influence. The planning area is approximately 143 square miles, of which approximately 125 square miles are within the Otay WD current boundaries and approximately 18 square miles are in the Area of Influence. The area east of Otay WD is rural and currently not within any water purveyor jurisdiction

and potentially could be served by the Otay WD in the future if the need for imported water becomes necessary, as is the case for the Area of Influence.

The City of Chula Vista, the City of San Diego, and the County of San Diego are the three land use planning agencies within the Otay WD jurisdiction. Data on forecasts for land use planning, demographics, economic projections, population, and the future rate of growth within Otay WD were obtained from the San Diego Association of Governments (SANDAG). SANDAG serves as the regional, intergovernmental planning agency that develops and provides forecast information through the year 2050. Population growth within the Otay WD service area is expected to increase from the 2015 figure of 217,339 to an estimated 285,340 by 2040. Land use information used to develop water demand projections are based upon Specific or Sectional Planning Areas, the Otay Ranch General Development Plan/Sub-regional Plan, East Otay Mesa Specific Plan Area, San Diego County Community Plans, and City of San Diego, City of Chula Vista, and County of San Diego General Plans.

The Otay WD long-term historic growth rate has been approximately 4 percent. The growth rate has significantly slowed due to the current economic conditions and it is expected to slow as the inventory of developable land is diminished.

Climatic conditions within the Otay WD service area are characteristically Mediterranean near the coast, with mild temperatures year round. Inland areas are both hotter in summer and cooler in winter, with summer temperatures often exceeding 90 degrees and winter temperatures occasionally dipping to below freezing. Most of the region's rainfall occurs during the months of December through March. Average annual rainfall is approximately 12.17 inches per year.

Historic climate data were obtained from the Western Regional Climate Center for Station 042706 (El Cajon). This station was selected because its annual temperature variation is representative of most of the Otay WD service area. While there is a station in the City of Chula Vista, the temperature variation at the City of Chula Vista station is more typical of a coastal environment than the conditions in most of the Otay WD service area.

Urban Water Management Plan

In accordance with the California Urban Water Management Planning Act and recent legislation, the Otay WD Board of Directors adopted an UWMP in June 2016 and subsequently submitted the plan to the California Department of Water Resources (DWR). As required by law, the Otay Water District 2015 UWMP includes projected water supplies required to meet future demands through 2040. In accordance with Water Code Section 10910 (c)(2) and Government Code Section 66473.7 (c)(3), information from the Otay WD 2015 UWMP along with supplemental information from the Otay WD WRMP Update have been utilized to prepare this WSA Report and are incorporated herein by reference.

The state Legislature passed Senate Bill 7 as part of the Seventh Extraordinary Session (SBX 7-7) on November 10, 2009, which became effective February 3, 2010. This new law was the water conservation component to the Delta legislation package and seeks to achieve a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. Specifically, SBX 7-7 from this Extraordinary Session requires each urban retail water supplier to develop urban water use targets to help meet the 20 percent reduction goal by 2020 (20x2020), and an interim water reduction target by 2015.

The SBX 7-7 target setting process includes the following: (1) baseline daily per capita water use; (2) urban water use target; (3) interim water use target; (4) compliance daily per capita water use, including technical bases and supporting data for those determinations. In order for an agency to meet its 2020 water use target, each agency can increase its use of recycled water to offset potable water use and also step up its water conservation measures. The required water use targets for 2020 and an interim target for 2015 are determined using one of four target methods – each method has numerous methodologies.

In 2015, urban retail water suppliers were required to report interim compliance followed by actual compliance in 2020. Interim compliance is halfway between the baseline water use and 2020 target. Baseline, target, and compliance-year water use estimates are required to be reported in gallons per capita per day (gpcd).

Failure to meet adopted targets will result in the ineligibility of a water supplier to receive grants or loans administered by the State unless one (1) of two (2) exceptions is met. Exception one (1) states a water supplier may be eligible if they have submitted a schedule, financing plan, and budget to DWR for approval to achieve the per capita water use reductions. Exception two (2) states a water supplier may be eligible if an entire water service area qualifies as a disadvantaged community.

Otay WD adopted Method 1 to set its 2015 interim and 2020 water use targets. Method 1 requires setting the 2020 water use target to 80 percent of baseline per capita water use target as provided in the State's 20x2020 Water Conservation Plan. The Otay WD was well below its required 2015 target of 172 gpcd, with an actual 2015 gpcd of 124. The 2020 gpcd target which is 80 percent of baseline is 153 gpcd.

The Otay WD's recent per capita water use has been declining to the point where current water use already meets the 2020 target for Method 1. This recent decline in per capita water use is largely due to drought water use restrictions, increased water costs, and poor economic conditions. However, Otay WD's effective water use awareness campaign and enhanced conservation mentality of its customers will likely result in some long-term carryover of these reduced consumption rates beyond the current drought period.

Section 5 – Historical and Projected Water Demands

The projected demands for Otay WD are based on Specific or Sectional Planning Areas, the Otay Ranch General Development Plan/Sub-regional Plan, the East Otay Mesa Specific Plan Area, San Diego County Community Plans, and City of San Diego, City of Chula Vista, and County of San Diego General Plans. This land use information is also used by SANDAG as the basis for its most recent forecast data. This land use information was utilized for the preparation of the Otay Water District WRMP Update and Otay Water District 2015 UWMP to develop the forecasted demands and supply requirements.

In 1994, the Water Authority selected the Institute for Water Resources-Municipal and Industrial Needs (MAIN) computer model to forecast municipal and industrial water use for the San Diego region. The MAIN model uses demographic and economic data to project sector-level water demands (i.e. residential and non-residential demands). This econometric model has over a quarter of a century of practical application and is used by many cities and water agencies throughout the United States. The Water Authority's version of the MAIN model was modified to reflect the San Diego region's unique parameters and is known as CWA-MAIN.

The foundation of the water demand forecast is the underlying demographic and economic projections. This was a primary reason why, in 1992, the Water Authority and SANDAG entered into a Memorandum of Agreement (MOA) in which the Water Authority agreed to use the SANDAG current regional growth forecast for water supply planning purposes. In addition, the MOA recognizes that water supply reliability must be a component of San Diego County's regional growth management strategy required by Proposition C, as passed by the San Diego County voters in 1988. The MOA ensures a strong linkage between local general plan land use forecasts and water demand projections and resulting supply needs for the San Diego region.

Consistent with the previous CWA-MAIN modeling efforts, on October 15, 2013, the SANDAG Board of Directors accepted the Series 12: 2050 Regional Growth Forecast. The 2050 Regional Growth Forecast will be used by SANDAG as the foundation for the next Regional Comprehensive Plan update. SANDAG forecasts were used by local governments for planning, including the Water Authority 2015 UWMP update .

The municipal and industrial forecast also included an updated accounting of projected conservation savings based on projected regional implementation of the California Urban Water Conservation Council (CUWCC) Best Management Practices and SANDAG demographic information for the period 2015 through 2040. These savings estimates were then factored into the baseline municipal and industrial demand forecast.

A separate agricultural model, also used in prior modeling efforts, was used to forecast agricultural water demands within the Water Authority service area. This model estimates

agricultural demand to be met by the Water Authority's member agencies based on agricultural acreage projections provided by SANDAG, crop distribution data derived from the Department of Water Resources and the California Avocado Commission, and average crop-type watering requirements based on California Irrigation Management Information System data.

The Water Authority and MWD update their water demand and supply projections within their jurisdictions utilizing the SANDAG most recent growth forecast to project future water demands. This provides for the important strong link between demand and supply projections to the land use plans of the cities and the county. This provides for consistency between the retail and wholesale agencies water demand projections, thereby ensuring that adequate supplies are and will be planned for the Otay WD existing and future water users. Existing land use plans, any revisions to land use plans, and annexations are captured in the SANDAG updated forecasts. The Water Authority and MWD update their demand forecasts based on the SANDAG most recent forecast approximately every five years to coincide with preparation of their urban water management plans. Prior to the next forecast update, local jurisdictions may require water supply assessment and/or verification reports consistent with Senate Bills 610 and 221 for proposed land use developments that either have pending or proposed annexations into the Otay WD, Water Authority, and MWD or that have revised land use plans than originally anticipated. The Water Authority and MWD's next forecasts and supply planning documents would then capture any increase or decrease in demands caused by annexations or revised land use plans.

In evaluating the availability of sufficient water supply, the University Innovation District Project proponents are required to participate in the development of alternative water supply project(s). This can be achieved through payment of the New Water Supply Fee adopted by the Otay WD Board in May 2010. These water supply projects are in addition to those identified as sustainable supplies in the current Water Authority and MWD UWMP, IRP, Master Plans, and other planning documents. These new water supply projects are in response to the regional water supply issues related to the Sacramento-San Joaquin Delta and the current ongoing western states drought conditions. These additional water supply projects are not currently developed and are in various stages of the planning process. A few examples of these alternative water supply projects include the Middle Sweetwater River Basin Groundwater Well project, the Otay WD Desalination project, and the Rancho del Rey Groundwater Well project. The Water Authority and MWD next forecast and supply planning documents would capture any increase in water supplies resulting from verifiable new water resources developed by the Otay WD.

In addition, MWD's 2015 UWMP identified potential reserve supplies in the supply capability analysis (Tables 2-4, 2-5, and 2-6), which could be available to meet any unanticipated demands. The Water Authority and MWD's next forecasts and supply planning documents would capture any increase in necessary supply resources resulting from any new water supply resources.

Demand Methodology

The Otay WD water demand projection methodology in the WRMP Update utilizes a component land use approach. This is done by applying representative values of water use to the acreage of each land use type and then aggregating these individual land use demand projections into an overall total demand for the Otay WD. This is called the water duty method, and the water duty is the amount of water used in gallons per day per acre per year. This approach is used for all the land use types except residential development where a demand per dwelling unit was applied. In addition, commercial and industrial water use categories are further subdivided by type including separate categories for golf courses, schools, jails, prisons, hospitals, etc. where specific water demands are established.

To determine water duties for the various types of land use, the entire water meter database of the Otay WD is utilized and sorted by the appropriate land use types. The metered consumption records are then examined for each of the land uses, and water duties are determined for the various types of residential, commercial, industrial, and institutional land uses. For example the water duty factors for commercial and industrial land uses are estimated using 1,785 and 893 gallons per day per acre (gpd/acre) respectively. Residential water demand is established based on the same data but computed on a per-dwelling unit basis. The focus is to ensure that for each of the residential land use categories (very low, low, medium, and high densities), the demand criteria used is adequately represented based upon actual data. This method is used because residential land uses constitute a substantial percentage of the total developable planning area of the Otay WD.

The WRMP Update calculates potable water demand by taking the gross acreage of a site and applying a potable water reduction factor (PWRF), which is intended to represent the percentage of acreage to be served by potable water and that not served by recycled water for irrigation. For industrial land use, as an example, the PWRF is 0.95 (i.e., 95% of the site is assumed to be served by potable water, 5% of the site is assumed to be irrigated with recycled water, if available). The potable net acreage is then multiplied by the unit demand factor corresponding to its respective land use. This approach is used in the WRMP Update for all the land use types except residential development where a demand per dwelling unit is applied. In addition, commercial and industrial water use categories are further subdivided by type including separate categories for golf courses, schools, jails, prisons, hospitals, etc. where specific water demands are allocated.

Otay Water District Projected Demand

By applying the established water duties to the proposed land uses, the projected water demand for the entire Otay WD planning area at ultimate development is determined. Projected water demands for the intervening years were determined using growth rate projections consistent with data obtained from SANDAG and the experience of the Otay WD.

The historical and projected potable water demands for Otay WD are shown in Table 1.

Table 1
Historical and Projected Potable Water Fiscal Year Demands (acre-feet)

Water Use Sectors	2010	2015	2020	2025	2030	2035	2040
Single Family	17,165	16,228	17,072	19,806	20,752	20,649	23,224
Multi-Family	3,605	3,460	5,557	6,732	7,342	7,585	8,837
Commercial, Industrial & Institutional	4,110	4,953	6,577	7,949	8,653	8,923	10,378
Landscape	3,732	4,079	4,400	4,600	4,700	4,900	5,200
AFG* - University I. D.			11.7	11.7	11.7	11.7	11.7
AFG – PA 12			46	46	46	46	46
AFG – Otay 250			836	836	836	836	836
Near-term Annexations			2,973	2,973	2,973	2,973	2,973
Other	2,563	1,578	470	470	470	470	470
Totals	**31,175**	**30,298**	**37,943**	**43,424**	**45,784**	**46,394**	**51,976**

Source: Otay Water District 2015 UWMP.
*Accelerated Forecasted Growth Increment

University Innovation District Project Projected Water Demand

Using the land use demand projection methodology noted above, the projected potable water demand for the proposed University Innovation District Project is shown in Table 2. The projected potable water demand is 840,688 gpd, or about 941.7 ac-ft/yr. This potable demand is 11.7 AFY more than was projected for these parcels by the Otay WD WRMP. Recycled water demand projections are provided in Table 3. The projected recycled water use for the project is 159,255 gpd, or 178 AFY.

Table 2
University Innovation District Project Projected Potable Water Annual Average Demands

Description	Gross Acreage	Potable Water Factor	Net Potable Acreage/ Capita	Unit Rate	Average Demand
T-1: Future Development	99.8	80%	79.84	1,785 gpd/ac	142,514
T-2: Campus Vista	26.4	80%	21.12	1,785 gpd/ac	37,699
T-3: Campus Commons	29.0	80%	23.20	1,785 gpd/ac	41,412
T-4: Town Center	33.6	80%	26.88	1,785 gpd/ac	47,981
T-5: Urban Core	25.3	80%	20.24	1,785 gpd/ac	36,128
T-6: District Gateway	20.0	80%	16.00	1,785 gpd/ac	28,560
SD: Lake Blocks	5.2	100%	5.20	1,785 gpd/ac	9,282
O-1: Habitat Conservation	41.1	0%	0.00	0	0
O-2: Common Space	39.5	80%	31.60	1,785 gpd/ac	56,406
O-3: Pedestrian Walk	14.5	80%	11.60	1,785 gpd/ac	20,706
ROW: Right of Way	49.3	0%	0.00	0	0
Students in Housing	---	100%	6,000	50 gpd/stdnt	300,000
Faculty in Housing	---	100%	1,200	100 gpd/fclty	120,000
Total	**383.8**				**840,688 gpd**

Table 3
University Innovation District Project Projected Recycled Water Annual Average Demands

Description	Gross Acreage	Recycled Water Factor	Net Recycled Acreage/ Capita	Unit Rate	Average Demand
T-1: Future Development	99.8	20%	20.0	2,155 gpd/ac	43,100
T-2: Campus Vista	26.4	20%	5.3	2,155 gpd/ac	11,422
T-3: Campus Commons	29.0	20%	5.8	2,155 gpd/ac	12,499
T-4: Town Center	33.6	20%	6.7	2,155 gpd/ac	14,439
T-5: Urban Core	25.3	20%	5.1	2,155 gpd/ac	10,990
T-6: District Gateway	20.0	20%	4.0	2,155 gpd/ac	8,620
SD: Lake Blocks	5.2	0%	0	2,155 gpd/ac	0
O-1: Habitat Conservation	41.1	0%	0	0	0
O-2: Common Space	39.5	20%	19.75	2,155 gpd/ac	42,561
O-3: Pedestrian Walk	14.5	20%	7.25	2,155 gpd/ac	15,624
ROW: Right of Way	49.3	0%	0	0	0
Total	**383.8**				**159,255 gpd**

5.1 Demand Management (Water Conservation)

Demand management, or water conservation is a critical part of the Otay Water District 2015 UWMP and its long-term strategy for meeting water supply needs of the Otay WD customers. Water conservation is frequently the lowest cost resource available to any water agency. The goals of the Otay WD water conservation programs are to:

- Reduce the demand for more expensive, imported water.
- Demonstrate continued commitment to the Best Management Practices (BMP).
- Ensure a reliable water supply.

The Otay WD is signatory to the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California, which created the California Urban Water Conservation Council (CUWCC) in 1991 in an effort to reduce California's long-term water demands. Water conservation programs are developed and implemented on the premise that water conservation increases the water supply by reducing the demand on available supply, which is vital to the optimal utilization of a region's water supply resources. The Otay WD participates in many water conservation programs designed and typically operated on a shared cost participation program basis among the Water Authority, MWD, and their member

agencies. The demands shown in Tables 1 and 2 take into account implementation of water conservation measures within Otay WD.

As one of the first signatories to the MOU Regarding Urban Water Conservation in California, the Otay WD has made BMP implementation for water conservation the cornerstone of its conservation programs and a key element in its water resource management strategy. As a member of the Water Authority, Otay WD also benefits from regional programs performed on behalf of its member agencies. The BMP programs implemented by Otay WD and regional BMP programs implemented by the Water Authority that benefit all their member agencies are addressed in the Otay Water District 2015 UWMP. In partnership with the Water Authority, the County of San Diego, City of San Diego, City of Chula Vista, and developers, the Otay WD water conservation efforts are expected to grow and expand. The resulting savings directly relate to additional available water in the San Diego County region for beneficial use within the Water Authority service area, including the Otay WD.

Additional conservation or water use efficiency measures or programs practiced by the Otay WD include the following:

Supervisory Control and Data Acquisition System

The Otay WD implemented and has operated for many years a Supervisory Control and Data Acquisition (SCADA) system to control, monitor, and collect data regarding the operation of the water system. The major facilities that have SCADA capabilities are the water flow control supply sources, transmission network, pumping stations, and water storage reservoirs. The SCADA system allows for many and varied useful functions. Some of these functions provide for operating personnel to monitor the water supply source flow rates, reservoir levels, turn on or off pumping units, etc. The SCADA system aids in the prevention of water reservoir overflow events and increases energy efficiency.

Water Conservation Ordinance

California Water Code Sections 375 et seq. permit public entities which supply water at retail to adopt and enforce a water conservation program to reduce the quantity of water used by the people therein for the purpose of conserving water supplies of such public entity. The Otay Water District Board of Directors established a comprehensive water conservation program pursuant to California Water Code Sections 375 et seq., based upon the need to conserve water supplies and to avoid or minimize the effects of any future shortage. A water shortage could exist based upon the occurrence of one or more of the following conditions:

1. A general water supply shortage due to increased demand or limited supplies.
2. Distribution or storage facilities of the Water Authority or other agencies become inadequate.
3. A major failure of the supply, storage, and distribution facilities of MWD, Water Authority, and/or Otay WD.

The Otay WD water conservation ordinance finds and determines that the conditions prevailing in the San Diego County area require that the available water resources be put to maximum beneficial use to the extent to which they are capable, and that the waste or unreasonable use, or unreasonable method of use, of water be prevented and that the conservation of such water be encouraged with a view to the maximum reasonable and beneficial use thereof in the interests of the people of the Otay WD and for the public welfare.

Otay WD continues to promote water conservation at a variety of events, including those involving developers in its service area. In addition, Otay WD developed and manages a number of its own programs such as the Cash for WaterSmart Plants retrofit program, the Water Smart Irrigation Upgrade Program, and the Commercial Process Improvement Program.

Otay WD is currently engaged in a number of conservation and water use efficiency activities. Listed below are the current programs that are either on-going or were recently concluded:

- Residential Water Surveys: 2,083 completed since 1994
- Large Landscape Surveys: 205 completed since 1990
- Cash for Water Smart Plants Landscape Retrofit Program: over 2,553,938 square feet of turf grass replaced with water wise plants since 2003
- Rotating Nozzles Rebated: 3,170
- Residential Weather-Based Irrigation Controller (WBIC) Incentive Program: 355 distributed or rebated since 2004
- Residential High Efficiency Clothes Washers: 11,364 rebates since 1994
- Residential ULFT/HET Rebate Program: 22,376 rebates provided between 1991-2010, 1,425 since 2010.
- Outreach Efforts to Otay WD Customers - the Otay WD promotes its conservation programs through staffing outreach events, bill inserts, articles in the Otay WD's quarterly customer Pipeline newsletter, direct mailings to Otay WD customers, the Otay WD's webpage and through the Water Authority's marketing efforts.
- School Education Programs- the Otay WD funds school tours of the Water Conservation Garden, co-funds Splash Labs, provides classroom water themed kits, maintains a library of school age appropriate water themed books, DVDs, and videos, and runs both a school poster contest and a water themed photo contest.
- Water efficiency in new construction through Cal Green and the Model Water Efficient Landscape Ordinance
- Focus on Commercial/Institutional/Industrial through Promoting MWD's Save a Buck (Commercial) Program in conjunction with the Otay WD's own Commercial Process Improvement Program

As a signatory to the MOU Regarding Urban Water Conservation in California, the Otay WD is required to submit biannual reports that detail the implementation of current water conservation practices. The Otay WD voluntarily agreed to implement the fourteen water

conservation Best Management Practices beginning in 1992. The Otay WD submits its report to the CUWCC every two years. The Otay WD BMP Reports for 2011-2012 and 2013-2014 are included in the Otay Water District 2015 UWMP.

Section 6 - Existing and Projected Supplies

The Otay WD currently does not have an independent raw or potable water supply source. The Otay WD is a member public agency of the Water Authority. The Water Authority is a member public agency of MWD. The statutory relationships between the Water Authority and its member agencies, and MWD and its member agencies, respectively, establish the scope of the Otay WD entitlement to water from these two agencies.

The Water Authority through two delivery pipelines, referred to as Pipeline No. 4 and the Helix Flume Pipeline, currently supply the Otay WD with 100 percent of its potable water. The Water Authority in turn, currently purchases the majority of its water from MWD. Due to the Otay WD reliance on these two agencies, this WSA&V Report includes referenced documents that contain information on the existing and projected supplies, supply programs, and related projects of the Water Authority and MWD. The Otay WD, Water Authority, and MWD are actively pursuing programs and projects to further diversify their water supply resources.

The description of local recycled water supplies available to the Otay WD is also discussed below.

6.1 Metropolitan Water District of Southern California 2015 Urban Water Management Plan

MWD has prepared its 2015 UWMP which was adopted on May 9, 2016. The 2015 UWMP provides MWD's member agencies, retail water utilities, cities, and counties within its service area with, among other things, a detailed evaluation of the supplies necessary to meet future demands, and an evaluation of reasonable and practical efficient water uses, recycling, and conservation activities. During the preparation of the 2015 UWMP, MWD utilized the previous SANDAG regional growth forecast in calculating regional water demands for the Water Authority service area.

6.1.1 Availability of Sufficient Supplies and Plans for Acquiring Additional Supplies

MWD is a wholesale supplier of water to its member public agencies and obtains its supplies from two primary sources: the Colorado River, via the Colorado River Aqueduct (CRA), which it owns and operates, and Northern California, via the State Water Project (SWP). The

2015 UWMP documents the availability of these existing supplies and additional supplies necessary to meet future demands.

MWD's IRP identifies a mix of resources (imported and local) that, when implemented, will provide 100 percent reliability for full-service demands through the attainment of regional targets set for conservation, local supplies, State Water Project supplies, Colorado River supplies, groundwater banking, and water transfers. The 2015 update to the IRP (2015 IRP Update) describes an adaptive management strategy to protect the region from future supply shortages. This adaptive management strategy has five components: achieve additional conservation savings, develop additional local water supplies, maintain Colorado River Aqueduct supplies, stabilize State Water Project supplies, and maximize the effectiveness of storage and transfer. MWD's 2015 IRP Update has a plan for identifying and implementing additional resources that expand the ability for MWD to meet future changes and challenges as necessary to ensure future reliability of supplies. The proper management of these resources help to ensure that the southern California region, including San Diego County, will have adequate water supplies to meet long-term future demands.

In May 2016, MWD adopted its 2015 UWMP in accordance with state law. The resource targets included in the preceding 2015 IRP Update serve as the foundation for the planning assumptions used in the 2015 UWMP. MWD's 2015 UWMP contains a water supply reliability assessment that includes a detailed evaluation of the supplies necessary to meet demands over a 20-year period in average, single dry year, and multiple dry year periods. As part of this process, MWD also uses the current SANDAG regional growth forecast in calculating regional water demands for the Water Authority's service area.

As stated in MWD's 2015 UWMP, the plan may be used as a source document for meeting the requirements of SB 610 and SB 221 until the next scheduled update is completed in 5 years (2020). The 2015 UWMP includes a "Justifications for Supply Projections" in Appendix A.3, that provides detailed documentation of the planning, legal, financial, and regulatory basis for including each source of supply in the plan. A copy of MWD's 2015 UWMP can be found on the internet at the following site address:
http://www.mwdh2o.com/PDF_About_Your_Water/2015_UWMP.pdf

The UWMP updates for both MWD and the Water Authority included the increase in demand projections included in SANDAG's Series 13 Update and from the projections from Otay Water District WRMP Update.

Water supply agencies throughout California continue to face climate, environmental, legal, and other challenges that impact water source supply conditions, such as the court rulings regarding the Sacramento-San Joaquin Delta and the current western states drought conditions. Challenges such as these essentially always will be present. The regional water supply agencies, the Water Authority and MWD, along with Otay WD nevertheless fully intend to have sufficient, reliable supplies to serve demands.

6.1.2 MWD Capital Investment Plan

MWD prepares a Capital Investment Plan as part of its annual budget approval process. The cost, purpose, justification, status, progress, etc. of MWD's infrastructure projects to deliver existing and future supplies are documented in the Capital Investment Plan. The financing of these projects is addressed as part of the annual budget approval process.

MWD's Capital Investment Plan includes a series of projects identified from MWD studies of projected water needs, which, when considered along with operational demands on aging facilities and new water quality regulations, identify the capital projects needed to maintain infrastructure reliability and water quality standards, improve efficiency, and provide future cost savings. All projects within the Capital Investment Plan are evaluated against an objective set of criteria to ensure they are aligned with the MWD's goals of supply reliability and quality.

6.2 San Diego County Water Authority Regional Water Supplies

The Water Authority has adopted plans and is taking specific actions to develop adequate water supplies to help meet existing and future water demands within the San Diego region. This section contains details on the supplies being developed by the Water Authority. A summary of recent actions pertaining to development of these supplies includes:

- In accordance with the Urban Water Management Planning Act, the Water Authority adopted their 2015 UWMP in June 2016. The updated Water Authority 2015 UWMP identifies a diverse mix of local and imported water supplies to meet future demands. A copy of the updated Water Authority 2015 UWMP can be found on the internet at: http://www.sdcwa.org/sites/default/files/files/water-management/water_resources/2015%20UWMP%20Final%2006222016.pdf

- As part of the October 2003 Quantification Settlement Agreement (QSA), the Water Authority was assigned MWD's rights to 77,700 acre feet per year of conserved water from the All-American Canal (AAC) and Coachella Canal (CC) lining projects. Deliveries of this conserved water from the CC reached the region in 2007 and deliveries from the AAC reached the region in 2010. Expected supplies from the canal lining projects are considered verifiable Water Authority supplies.

- Deliveries of conserved agricultural water from the Imperial Irrigation District (IID) to San Diego County have increased annually since 2003, with 70,000 acre feet per year of deliveries in Fiscal Year (FY) 2010. The quantities will increase annually to 200,000

acre feet per year by 2021, and then remain fixed for the duration of the transfer agreement.

- Development of seawater desalination in San Diego County assists the region in diversifying its water resources; reduces dependence on imported supplies; and provides a new drought-proof, locally treated water supply. The Carlsbad Desalination Project is a fully operational seawater desalination plant and conveyance pipeline developed by Poseidon, a private investor–owned company that develops water and wastewater infrastructure. The Carlsbad Desalination Project, located at the Encina Power Station in Carlsbad, began commercial operation on December 23, 2015, and can provide a highly reliable local supply of up to 56,000 AF/YR for the region. Of the total Carlsbad Desalination Plant production, Vallecitos Water District has a direct connection and a contract to receive 4,083 AFY. Carlsbad MWD has agreed to a take or pay of 2,500 AFY but a direct connection has not been built.

Through implementation of the Water Authority and member agency planned supply projects, along with reliable imported water supplies from MWD, the region anticipates having adequate supplies to meet existing and future water demands.

To ensure sufficient supplies to meet projected growth in the San Diego region, the Water Authority uses the SANDAG most recent regional growth forecast in calculating regional water demands. The SANDAG regional growth forecast is based on the plans and policies of the land-use jurisdictions with San Diego County. The existing and future demands of the member agencies are included in the Water Authority's projections.

6.2.1 Availability of Sufficient Supplies and Plans for Acquiring Additional Supplies

The Water Authority currently obtains imported supplies from MWD, conserved water from the AAC and CC lining projects, an increasing amount of conserved agricultural water from IID, and desalinated seawater from the Carlsbad desalination plant. Of the twenty-seven member agencies that purchase water supplies from MWD, the Water Authority is MWD's largest customer.

Section 135 of MWD's Act defines the preferential right to water for each of its member agencies. Currently, the Water Authority pays about 22 percent of MWD's total revenue, but has preferential rights to only 18.27 percent of MWD's water supply. Under preferential rights, MWD could allocate water without regard to historic water purchases or dependence on MWD. The Water Authority and its member agencies are taking measures to reduce dependence on MWD through development of additional supplies and a water supply portfolio that would not be jeopardized by a preferential rights allocation. MWD has stated, consistent with Section 4202 of its Administrative Code that it is prepared to provide the Water Authority's service area with adequate supplies of water to meet expanding and

increasing needs in the years ahead. When and as additional water resources are required to meet increasing needs, MWD stated it will be prepared to deliver such supplies. In Section ES-5 of their 2015 UWMP, MWD states that MWD has supply capacities that would be sufficient to meet expected demands from 2020 through 2040. MWD has plans for supply implementation and continued development of a diversified resource mix including programs in the Colorado River Aqueduct, State Water Project, Central Valley Transfers, local resource projects, and in-region storage that enables the region to meet its water supply needs.

The Water Authority has made large investments in MWD's facilities and will continue to include imported supplies from MWD in the future resource mix. As discussed in the Water Authority's 2015 UWMP, the Water Authority and its member agencies are planning to diversify the San Diego regions supply portfolio and reduce purchases from MWD.

As part of the Water Authority's diversification efforts, the Water Authority is now taking delivery of conserved agricultural water from IID, water saved from the AAC and CC lining projects and desalinated seawater from the Carlsbad desalination plant. Table 4 summarizes the Water Authority's supply sources with detailed information included in the sections to follow. Deliveries from MWD are also included in Table 4, which is further discussed in Section 6.1 above. The Water Authority's member agencies provided the verifiable local supply targets for groundwater, recycled water, potable reuse and surface water, which are discussed in more detail in Section 5 of the Water Authority's 2015 UWMP.

Table 4
Projected Verifiable Water Supplies – Water Authority Service Area
Normal Year (acre feet)[1]

Water Supply Sources	2020	2025	2030	2035	2040
Water Authority Supplies					
MWD Supplies	136,002	181,840	207,413	224,863	248,565
Water Authority/IID Transfer	190,000	200,000	200,000	200,000	200,000
AAC and CC Lining Projects	80,200	80,200	80,200	80,200	80,200
Regional Seawater Desalination	50,000	50,000	50,000	50,000	50,000
Member Agency Supplies					
Surface Water	51,580	51,480	51,380	51,280	51,180
Water Recycling	40,459	43,674	45,758	46,118	46,858
Seawater Desalination	6,000	6,000	6,000	6,000	6,000
Brackish GW Recovery	12,100	12,500	12,500	12,500	12,500
Groundwater	17,940	19,130	20,170	20,170	20,170
Potable Reuse	3,300	3,300	3,300	3,300	3,300
Total Projected Supplies	**587,581**	**648,124**	**676,721**	**694,431**	**718,773**

Source: Water Authority 2015 Urban Water Management Plan – Table 9-1.
[1]Normal water year demands based on 1960-2013 hydrology.

Section 5.6.1 of the Water Authority's 2015 UWMP also includes a discussion on the local supply target for seawater desalination. Seawater desalination supplies represent a significant local resource in the Water Authority's service area.

The Carlsbad Desalination Project (Project) is a fully-permitted seawater desalination plant and conveyance pipeline designed to provide a highly reliable local supply of up to 56,000 acre-feet (AF) per year for the region. In 2020, the Project would account for approximately 8% of the total projected regional supply and 30% of all locally generated water in San Diego County. The project became operational in late 2015 and it more than doubles the amount of local supplies developed in the region since 1991. The desalination plant itself was fully financed, built, and is being operated by Poseidon. The Water Authority purchases water from the plant under a water purchase agreement. The new pipeline connecting the desalination plant with the Water Authority's Second Aqueduct is owned and operated by the Water Authority, but Poseidon had the responsibility for design and construction through a separate Design-Build Agreement. The Water Authority was responsible for aqueduct improvements, including the relining and rehabilitation of Pipeline 3 to accept desalinated water under higher operating pressures, modifications to the San Marcos Vent that allows the flow of water between Pipelines 3 and 4, and improvements at the Twin Oaks Valley Water Treatment Plant necessary to integrate desalinated water into the Water Authority's system for optimal distribution to member agencies.

The Water Authority's existing and planned supplies from the IID transfer, canal lining, and desalination projects are considered "drought-proof" supplies and should be available at the yields shown in Table 4 in normal water year supply and demand assessment. Single dry year and multiple dry year scenarios are discussed in more detail in Section 9 of the Water Authority's 2015 UWMP.

As part of preparation of a written water supply assessment and/or verification report, an agency's shortage contingency analysis should be considered in determining sufficiency of supply. Section 11 of the Water Authority's 2015 UWMP contains a detailed shortage contingency analysis that addresses a regional catastrophic shortage situation and drought management. The analysis demonstrates that the Water Authority and its member agencies, through the Emergency Response Plan, Emergency Storage Project, and Drought Management Plan (DMP) are taking actions to prepare for and appropriately handle an interruption of water supplies. The DMP, adopted in May 2006, provides the Water Authority and its member agencies with a series of potential actions to take when faced with a shortage of imported water supplies from MWD due to prolonged drought or other supply shortfall conditions. The actions will help the region avoid or minimize the impacts of shortages and ensure an equitable allocation of supplies throughout the San Diego region.

6.2.1.1 Water Authority-Imperial Irrigation District Water Conservation and Transfer Agreement

The QSA was signed in October 2003, and resolves long-standing disputes regarding priority and use of Colorado River water and creates a baseline for implementing water transfers. With approval of the QSA, the Water Authority and IID were able to implement their Water Conservation and Transfer Agreement. This agreement not only provides reliability for the San Diego region, but also assists California in reducing its use of Colorado River water to its legal allocation.

On April 29, 1998, the Water Authority signed a historic agreement with IID for the long-term transfer of conserved Colorado River water to San Diego County. The Water Authority-IID Water Conservation and Transfer Agreement (Transfer Agreement) is the largest agriculture-to-urban water transfer in United States history. Colorado River water will be conserved by Imperial Valley farmers who voluntarily participate in the program and then transferred to the Water Authority for use in San Diego County.

Implementation Status

On October 10, 2003, the Water Authority and IID executed an amendment to the original 1998 Transfer Agreement. This amendment modified certain aspects of the Transfer Agreement to be consistent with the terms and conditions of the QSA and related agreements. It also modified other aspects of the agreement to lessen the environmental impacts of the transfer of conserved water. The amendment was expressly contingent on the approval and implementation of the QSA, which was also executed on October 10, 2003. Section 6.2.1, "Colorado River," contains details on the QSA.

On November 5, 2003, IID filed a complaint in Imperial County Superior Court seeking validation of 13 contracts associated with the Transfer Agreement and the QSA. Imperial County and various private parties filed additional suits in Superior Court, alleging violations of the California Environmental Quality Act (CEQA), the California Water Code, and other laws related to the approval of the QSA, the water transfer, and related agreements. The lawsuits were coordinated for trial. The IID, Coachella Valley Water District, MWD, the Water Authority, and state are defending these suits and coordinating to seek validation of the contracts. In January 2010, a California Superior Court judge ruled that the QSA and 11 related agreements were invalid, because one of the agreements created an open-ended financial obligation for the state, in violation of California's constitution. The QSA parties appealed this decision and on July 2013, a Sacramento Superior Court judge entered a final judgment validating the QSA and rejecting all of the remaining legal challenges. The judge affirmed all of the contested actions, including the adequacy of the environmental documents prepared by the IID. In May 2015, the state Court of Appeal issued a ruling that dismissed all remaining appeals.

Expected Supply

Deliveries into San Diego County from the transfer began in 2003 with an initial transfer of 10,000 acre feet per year. The Water Authority received increasing amounts of transfer water each year, according to a water delivery schedule contained in the transfer agreement. In 2012, the Water Authority will receive 90,000 acre feet per year. The quantities will increase annually to 200,000 acre feet per year by 2021 then remain fixed for the duration of the transfer agreement. The initial term of the Transfer Agreement is 45 years, with a provision that either agency may extend the agreement for an additional 30-year term.

During dry years, when water availability is low, the conserved water will be transferred under IID's Colorado River rights, which are among the most senior in the Lower Colorado River Basin. Without the protection of these rights, the Water Authority could suffer delivery cutbacks. In recognition for the value of such reliability, the 1998 contract required the Water Authority to pay a premium on transfer water under defined regional shortage circumstances. The shortage premium period duration is the period of consecutive days during which any of the following exist: 1) a Water Authority shortage; 2) a shortage condition for the Lower Colorado River as declared by the Secretary; and 3) a Critical Year. Under terms of the October 2003 amendment, the shortage premium will not be included in the cost formula until Agreement Year 16.

Transportation

The Water Authority entered into a water exchange agreement with MWD on October 10, 2003, to transport the Water Authority–IID transfer water from the Colorado River to San Diego County. Under the exchange agreement, MWD takes delivery of the transfer water through its Colorado River Aqueduct. In exchange, MWD delivers to the Water Authority a like quantity and quality of water. The Water Authority pays MWD's applicable wheeling rate for each acre-feet of exchange water delivered. Under the terms of the water exchange agreement, MWD will make delivery of the transfer water for 35 years, unless the Water Authority and MWD elect to extend the agreement another 10 years for a total of 45 years.

Cost/Financing

The costs associated with the transfer are financed through the Water Authority's rates and charges. In the agreement between the Water Authority and IID, the price for the transfer water started at $258 per acre-feet and increased by a set amount for the first seven years. In December 2009, the Water Authority and IID executed a fifth amendment to the water transfer agreement that sets the price per acre-feet for transfer water for calendar years 2010 through 2015, beginning at $405 per acre-feet in 2010 and increasing to $624 per acre-feet in 2015. For calendar years 2016 through 2034, the unit price will be adjusted using an agreed-upon index. The amendment also required the Water Authority to pay IID $6 million at the end of calendar year 2009 and another $50 million on or before October 1, 2010, provided that a transfer stoppage is not in effect as a result of a court order in the QSA coordinated cases. Beginning in

2035, either the Water Authority or IID can, if certain criteria are met, elect a market rate price through a formula described in the water transfer agreement.

The October 2003 exchange agreement between MWD and the Water Authority set the initial cost to transport the conserved water at $253 per acre-feet. Thereafter, the price is set to be equal to the charge or charges set by MWD's Board of Directors pursuant to applicable laws and regulation, and generally applicable to the conveyance of water by MWD on behalf of its member agencies. The transportation charge in 2010 was $314 per acre-feet.

The Water Authority is providing $10 million to help offset potential socioeconomic impacts associated with temporary land fallowing. IID will credit the Water Authority for these funds during years 16 through 45. In 2007, the Water Authority prepaid IID an additional $10 million for future deliveries of water. IID will credit the Water Authority for this up-front payment during years 16 through 30.

As part of implementation of the QSA and water transfer, the Water Authority also entered into an environmental cost sharing agreement. Under this agreement the Water Authority is contributing a total of $64 million to fund environmental mitigation projects and the Salton Sea Restoration Fund.

Written Contracts or Other Proof

The supply and costs associated with the transfer are based primarily on the following documents:

Agreement for Transfer of Conserved Water by and between IID and the Water Authority (April 29, 1998). This Agreement provides for a market-based transaction in which the Water Authority would pay IID a unit price for agricultural water conserved by IID and transferred to the Water Authority.

Revised Fourth Amendment to Agreement between IID and the Water Authority for Transfer of Conserved Water (October 10, 2003). Consistent with the executed Quantification Settlement Agreement (QSA) and related agreements, the amendments restructure the agreement and modify it to minimize the environmental impacts of the transfer of conserved water to the Water Authority.

Amended and Restated Agreement between MWD and Water Authority for the Exchange of Water (October 10, 2003). This agreement was executed pursuant to the QSA and provides for delivery of the transfer water to the Water Authority.

Environmental Cost Sharing, Funding, and Habitat Conservation Plan Development Agreement among IID, Coachella Valley Water District (CVWD), and Water Authority (October 10, 2003). This Agreement provides for the specified allocation of QSA-related environmental review,

mitigation, and litigation costs for the term of the QSA, and for development of a Habitat Conservation Plan.

Quantification Settlement Agreement Joint Powers Authority Creation and Funding Agreement (October 10, 2003). The purpose of this agreement is to create and fund the QSA Joint Powers Authority and to establish the limits of the funding obligation of CVWD, IID, and Water Authority for environmental mitigation and Salton Sea restoration pursuant to SB 654 (Machado).

Fifth Amendment to Agreement Between Imperial Irrigation District and San Diego County Water Authority for Transfer of Conserved Water (December 21, 2009). This agreement implements a settlement between the Water Authority and IID regarding the base contract price of transferred water.

Federal, State, and Local Permits/Approvals

Federal Endangered Species Act Permit. The U.S. Fish and Wildlife Service (USFWS) issued a Biological Opinion on January 12, 2001, that provides incidental take authorization and certain measures required to offset species impacts on the Colorado River regarding such actions.

State Water Resources Control Board (SWRCB) Petition. SWRCB adopted Water Rights Order 2002-0016 concerning IID and Water Authority's amended joint petition for approval of a long-term transfer of conserved water from IID to the Water Authority and to change the point of diversion, place of use, and purpose of use under Permit 7643.

Environmental Impact Report (EIR) for Conservation and Transfer Agreement. As lead agency, IID certified the Final EIR for the Conservation and Transfer Agreement on June 28, 2002.

U. S. Fish and Wildlife Service Draft Biological Opinion and Incidental Take Statement on the Bureau of Reclamation's Voluntary Fish and Wildlife Conservation Measures and Associated Conservation Agreements with the California Water Agencies (12/18/02). The U. S. Fish and Wildlife Service issued the biological opinion/incidental take statement for water transfer activities involving the Bureau of Reclamation and associated with IID/other California water agencies' actions on listed species in the Imperial Valley and Salton Sea (per the June 28, 2002 EIR).

Addendum to EIR for Conservation and Transfer Agreement. IID as lead agency and Water Authority as responsible agency approved addendum to EIR in October 2003.

Environmental Impact Statement (EIS) for Conservation and Transfer Agreement. Bureau of Reclamation issued a Record of Decision on the EIS in October 2003.

CA Department of Fish and Game California Endangered Species Act Incidental Take Permit #2081-2003-024-006). The California Department of Fish and Game issued this permit

(10/22/04) for potential take effects on state-listed/fully protected species associated with IID/other California water agencies' actions on listed species in the Imperial Valley and Salton Sea (per the June 28, 2002 EIR).

California Endangered Species Act (CESA) Permit. A CESA permit was issued by California Department of Fish and Game (CDFG) on April 4, 2005, providing incidental take authorization for potential species impacts on the Colorado River.

6.2.1.2 All-American Canal and Coachella Canal Lining Projects

As part of the QSA and related contracts, the Water Authority was assigned MWD's rights to 77,700 acre-feet per year of conserved water from projects that will line the All-American Canal (AAC) and Coachella Canal (CC). The projects will reduce the loss of water that currently occurs through seepage, and the conserved water will be delivered to the Water Authority. This conserved water will provide the San Diego region with an additional 8.5 million acre-feet over the 110-year life of the agreement.

Implementation Status

The CC lining project began in November 2004 and was completed in 2006. Deliveries of conserved water to the Water Authority began in 2007. The project constructed a 37-mile parallel canal adjacent to the CC. The AAC lining project was begun in 2005 and was completed in 2010. The lining project constructed a concrete-lined canal parallel to 24 miles of the existing AAC from Pilot Knob to Drop 3.

In July 2005, a lawsuit (*CDEM v United States*, Case No. CV-S-05-0870-KJD-PAL) was filed in the U. S. District Court for the District of Nevada on behalf of U.S. and Mexican groups challenging the lining of the AAC. The lawsuit, which names the Secretary of the Interior as a defendant, claims that seepage water from the canal belongs to water users in Mexico. California water agencies note that the seepage water is actually part of California's Colorado River allocation and not part of Mexico's allocation. The plaintiffs also allege a failure by the United States to comply with environmental laws. Federal officials have stated that they intend to vigorously defend the case.

Expected Supply

The AAC lining project makes 67,700 acre-feet of Colorado River water per year available for allocation to the Water Authority and San Luis Rey Indian water rights settlement parties. The CC lining project makes 26,000 acre-feet of Colorado River water each year available for allocation. The 2003 Allocation Agreement provides for 16,000 acre-feet per year of conserved canal lining water to be allocated to the San Luis Rey Indian Water Rights Settlement Parties. The remaining amount, 77,700 acre-feet per year, is to be available to the Water Authority, with up to an additional 4,850 acre-feet per year available to the Water

Authority depending on environmental requirements from the CC lining project. For planning purposes, the Water Authority assumes that 2,500 acre-feet of the 4,850 acre-feet will be available each year for delivery, for a total of 80,200 acre-feet per year of that supply. According to the Allocation Agreement, IID has call rights to a portion (5,000 acre-feet per year) of the conserved water upon termination of the QSA for the remainder of the 110 years of the Allocation Agreement and upon satisfying certain conditions. The term of the QSA is for up to 75 years.

Transportation

The October 2003 Exchange Agreement between the Water Authority and MWD provides for the delivery of the conserved water from the canal lining projects. The Water Authority pays MWD's applicable wheeling rate for each acre-foot of exchange water delivered. In the Agreement, MWD will deliver the canal lining water for the term of the Allocation Agreement (110 years).

Cost/Financing

Under California Water Code Section 12560 et seq., the Water Authority received $200 million in state funds for construction of the canal lining projects. In addition, $20 million was made available from Proposition 50 and $36 million from Proposition 84. The Water Authority was responsible for additional expenses above the funds provided by the state.

The rate to be paid to transport the canal lining water will be equal to the charge or charges set by MWD's Board of Directors pursuant to applicable law and regulation and generally applicable to the conveyance of water by MWD on behalf of its member agencies.

In accordance with the Allocation Agreement, the Water Authority is responsible for a portion of the net additional Operation, Maintenance, and Repair (OM&R) costs for the lined canals. Any costs associated with the lining projects as proposed are to be financed through the Water Authority's rates and charges.

Written Contracts or Other Proof

The expected supply and costs associated with the lining projects are based primarily on the following documents:

U.S. Public Law 100-675 (1988). Authorized the Department of the Interior to reduce seepage from the existing earthen AAC and CC. The law provides that conserved water will be made available to specified California contracting water agencies according to established priorities.

California Department of Water Resources - MWD Funding Agreement (2001). Reimburse MWD for project work necessary to construct the lining of the CC in an amount not to exceed $74 million. Modified by First Amendment (2004) to replace MWD with the Authority.

Modified by Second Amendment (2004) to increase funding amount to $83.65 million, with addition of funds from Proposition 50.

California Department of Water Resources - IID Funding Agreement (2001). Reimburse IID for project work necessary to construct a lined AAC in an amount not to exceed $126 million.

MWD - CVWD Assignment and Delegation of Design Obligations Agreement (2002). Assigns design of the CC lining project to CVWD.

MWD - CVWD Financial Arrangements Agreement for Design Obligations (2002). Obligates MWD to advance funds to CVWD to cover costs for CC lining project design and CVWD to invoice MWD to permit the Department of Water Resources to be billed for work completed.

Allocation Agreement among the United States of America, The MWD Water District of Southern California, Coachella Valley Water District, Imperial Irrigation District, San Diego County Water Authority, the La Jolla, Pala, Pauma, Rincon, and San Pasqual Bands of Mission Indians, the San Luis Rey River Indian Water Authority, the City of Escondido, and Vista Irrigation District (October 10, 2003). This agreement includes assignment of MWD's rights and interest in delivery of 77,700 acre-feet of Colorado River water previously intended to be delivered to MWD to the Water Authority. Allocates water from the AAC and CC lining projects for at least 110 years to the Water Authority, the San Luis Rey Indian Water Rights Settlement Parties, and IID, if it exercises its call rights.

Amended and Restated Agreement between MWD and Water Authority for the Exchange of Water (October 10, 2003). This agreement was executed pursuant to the QSA and provides for delivery of the conserved canal lining water to the Water Authority.

Agreement between MWD and Water Authority regarding Assignment of Agreements related to the AAC and CC Lining Projects. This agreement was executed in April 2004 and assigns MWD's rights to the Water Authority for agreements that had been executed to facilitate funding and construction of the AAC and CC lining projects:

Assignment and Delegation of Construction Obligations for the Coachella Canal Lining Project under the Department of Water Resources Funding Agreement No. 4600001474 from the San Diego County Water Authority to the Coachella Valley Water District, dated September 8, 2004.

Agreement Regarding the Financial Arrangements between the San Diego County Water Authority and Coachella Valley Water District for the Construction Obligations for the Coachella Canal Lining Project, dated September 8, 2004.

Agreement No. 04-XX-30-W0429 Among the United States Bureau of Reclamation, the Coachella Valley Water District, and the San Diego County Water Authority for the Construction of the Coachella Canal Lining Project Pursuant to Title II of Public Law 100-675, dated October 19, 2004.

California Water Code Section 12560 et seq. This Water Code Section provides for $200 million to be appropriated to the Department of Water Resources to help fund the canal lining projects in furtherance of implementing California's Colorado River Water Use Plan.

California Water Code Section 79567. This Water Code Section identifies $20 million as available for appropriation by the California Legislature from the Water Security, Clean Drinking Water, Coastal, and Beach Protection Fund of 2002 (Proposition 50) to DWR for grants for canal lining and related projects necessary to reduce Colorado River water use. According to the Allocation Agreement, it is the intention of the agencies that those funds will be available for use by the Water Authority, IID, or CVWD for the AAC and CC lining projects.

California Public Resources Code Section 75050(b) (1). This section identifies up to $36 million as available for water conservation projects that implement the Allocation Agreement as defined in the Quantification Settlement Agreement.

Federal, State, and Local Permits/Approvals

AAC Lining Project Final EIS/EIR (March 1994). A final EIR/EIS analyzing the potential impacts of lining the AAC was completed by the Bureau of Reclamation (Reclamation) in March 1994. A Record of Decision was signed by Reclamation in July 1994, implementing the preferred alternative for lining the AAC. A re-examination and analysis of these environmental compliance documents by Reclamation in November 1999 determined that these documents continued to meet the requirements of the NEPA and the CEQA and would be valid in the future.

CC Lining Project Final EIS/EIR (April 2001). The final EIR/EIS for the CC lining project was completed in 2001. Reclamation signed the Record of Decision in April 2002. An amended Record of Decision has also been signed to take into account revisions to the project description.

Mitigation, Monitoring, and Reporting Program for Coachella Canal Lining Project, SCH #1990020408; prepared by Coachella Valley Water District, May 16, 2001.

Environmental Commitment Plan for the Coachella Canal Lining Project, approved by the US Bureau of Reclamation (Boulder City, NV) on March 4, 2003.

Environmental Commitment Plan and Addendum to the All-American Canal Lining Project EIS/EIR California State Clearinghouse Number SCH 90010472 (June 2004, prepared by IID).

Addendum to Final EIS/EIR and Amendment to Environmental Commitment Plan for the All-American Canal Lining Project (approved June 27, 2006, by IID Board of Directors).

6.2.1.3 Carlsbad Seawater Desalination Project

Development of seawater desalination in San Diego County has assisted the region in diversifying its water resources, reduce dependence on imported supplies, and provide a new drought-proof, locally treated water supply. The Carlsbad Desalination Project is a fully-permitted seawater desalination plant and conveyance pipeline developed by Poseidon, a private investor–owned company that develops water and wastewater infrastructure. The project, located at the Encina Power Station in Carlsbad, has been in development since 1998 and was incorporated into the Water Authority's 2003 Water Facilities Master Plan and the 2015 UWMP. The Carlsbad Desalination Project has obtained all required permits and environmental clearances and starting in late 2015 provides a highly reliable local supply of 48,000 to 56,000 acre-feet per year for the region.

Implementation Status

The Project has obtained all required permits and environmental clearances, including the following:

- National Pollutant Discharge Elimination System (NPDES) Discharge Permit (Regional Water Quality Control Board)
- Conditional Drinking Water Permit (California Department of Health Services)
- State Lands Commission Lease (State Lands Commission)
- Coastal Development Permit (California Coastal Commission)

IDE Technologies, a worldwide leader in the design, construction, and operation of desalination plants, is the desalination process contractor for the Project.

On July 22, 2010, the Board approved a Term Sheet between the Water Authority and Poseidon Resources that outlined the key terms and conditions that would be detailed and incorporated in a comprehensive Water Purchase Agreement (WPA). Beginning in October 2011 and under the direction of the Board's Carlsbad Desalination Project Advisory Group, staff began developing and negotiating with Poseidon a WPA consistent with the July 22, 2010 Board approved Term Sheet. The July 2010 Term Sheet also identified specific conditions precedent to Board consideration of the WPA.

On November 29, 2012, the Water Authority Board adopted a resolution approving the Design-Build Agreement between the Water Authority and Poseidon. The Design-Build Agreement established the commercial and technical terms for implementation of the desalination product pipeline improvements. These improvements consisted of an approximate 10-mile long, 54-inch diameter conveyance pipeline connecting the Desalination Plant to the Water Authority's Second Aqueduct. The pipeline was generally be constructed within improved streets in commercial and industrial areas in the cities of Carlsbad, Vista, and San Marcos. The Water Authority owns the Project Water Pipeline Improvements and has

assumed operational control of all pipeline improvements. This system was placed into service in late 2015.

Expected Supply

The Project provides a highly reliable local supply of 48,000 to 56,000 acre-feet per year of supply for the region, available in both normal and dry hydrologic conditions. In 2020, the Project would account for approximately 10% of the total projected regional supply and 30% of all locally generated water in San Diego County. The project more than doubles the amount of local supplies developed in the region since 1991.

Transportation

On November 29, 2012, the Water Authority Board adopted a resolution approving the Design-Build Agreement between the Water Authority and Poseidon. The Design-Build Agreement establishes the commercial and technical terms for implementation of the desalination product pipeline improvements. These improvements consisted of an approximate 10-mile long, 54-inch diameter conveyance pipeline connecting the Desalination Plant to the Water Authority's Second Aqueduct. The pipeline was generally constructed within improved streets in commercial and industrial areas in the cities of Carlsbad, Vista, and San Marcos. The Water Authority owns the Project Water Pipeline Improvements and has assumed operational control of all pipeline improvements.

The Water Authority was responsible for aqueduct improvements, including the relining and rehabilitation of Pipeline 3 to accept desalinated water under higher operating pressures, modifications to the San Marcos Vent that allows the flow of water between Pipelines 3 and 4, and improvements at the Twin Oaks Valley Water Treatment Plant necessary to integrate desalinated water into the Water Authority's system for optimal distribution to member agencies.

Cost/Financing

The plant and the offsite pipeline is being financed through tax exempt government bonds issued for the Water Authority by the California Pollution Control Financing Authority (CPCFA). On November 29, 2012, the Water Authority Board adopted a resolution approving agreements to accomplish tax exempt project financing through the CPCFA. Based on current electricity cost estimates, the Water Purchase Agreement sets the price of the water from the Carlsbad Desalination Project at $2,131 to $2,367 per acre foot in 2016. The Water Authority's water purchase costs would be financed through Water Authority rates and charges. Poseidon is financing the capital cost of the Project with a combination of private equity and tax-exempt Private Activity Bonds.

Written Contracts or Other Proof

The expected supply and costs associated with the Carlsbad Desalination Project are based primarily on the following documents:

Development Agreement between City of Carlsbad and Poseidon (October 2009). A Development Agreement between Carlsbad and Poseidon was executed on October 5, 2009

Agreement of Term Sheet between the Water Authority and Poseidon Resources (July 2010). The Water Authority approved the Term Sheet at its July 2010 Board Meeting. The Term Sheet outlines the terms and conditions of a future Water Purchase Agreement with Poseidon and allocates the resources to prepare the draft Water Purchase Agreement.

Federal, State, and Local Permits/Approvals

Carlsbad Desalination Project Final EIR
The City of Carlsbad, acting as lead agency for Carlsbad Seawater Desalination Plant and appurtenant facilities proposed by Poseidon (the "Project") prepared an Environmental Impact Report for the Project in compliance with the California Environmental Quality Act ("CEQA"), which the City of Carlsbad certified on June 13, 2006.
http://www.sdcwa.org/rwfmp-peir

Regional Water Facilities Master Plan EIR
On November 20, 2003, the Water Authority Board of Directors adopted Resolution No. 2003-34 certifying the Final Program Environmental Impact Report (State Clearinghouse No. 2003021052) for the Water Authority's Regional Water Facilities Master Plan Project (the "Master Plan EIR"), which evaluated, among other things, potential growth inducing impacts associated with new water supplies to the region including, but not limited to, up to 150 million gallons per day ("MGD") of new supplies from seawater desalination. This certification included a 50 MGD plant located in the City of Carlsbad.
The environmental documents and permits are found at the following links:
http://www.sdcwa.org/rwfmp-peir

Sub regional Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP)
On December 8, 2010, the Board adopted Resolution No. 2010-18 certifying a Final environmental Impact Report/Environmental Impact Statement for the San Diego County Water Authority Subregional Natural Community Conservation Plan/Habitat Conservation Plan (State Clearinghouse No. 2003121012) (the "Habitat Conservation Plan EIR/EIS"), which Plan was implemented on December 28, 201.
The environmental documents and permits are found at the following links:
http://www.sdcwa.org/nccp-hcp

Twin Oaks Valley Water Treatment Plant EIR
On September 8, 2005, the Board adopted Resolution No. 2005-31 certifying a Final Environmental Impact Report for the Twin Oaks Valley Water Treatment Plant Project (State Clearinghouse No. 20040071034) (the "Twin Oaks EIR"), which project was constructed as a 100 MGD submerged membrane water treatment facility, including treated water holding tanks and distribution pipelines and other facilities, consistent with the conditions and mitigation measures included in the Twin Oaks EIR.
http://www.sdcwa.org/twin-oaks-valley-treatment-plant-final-eir

Drinking Water Permit (October 2006). The California Department of Health Services approved the Conditional Drinking Water Permit on October 19, 2006.

6.2.2 Water Authority Capital Improvement Program and Financial Information

The Water Authority's Capital Improvement Program (CIP) can trace its beginnings to a report approved by the Board in 1989 entitled, The Water Distribution Plan, and a Capital Improvement Program through the Year 2010. The Water Distribution Plan included ten projects designed to increase the capacity of the aqueduct system, increase the yield from existing water treatment plants, obtain additional supplies from MWD, and increase the reliability and flexibility of the aqueduct system. Since that time the Water Authority has made numerous additions to the list of projects included in its CIP as the region's infrastructure needs and water supply outlook have changed.

The current list of projects included in the CIP is based on the results of planning studies, including the 2010 UWMP and the 2013 Regional Water Facilities Master Plan. These CIP projects, which are most recently described in the Water Authority's Adopted Multi-Year Budget, include projects valued at $3.50 billion. These CIP projects are designed to meet projected water supply and delivery needs of the member agencies through 2035. The projects include a mix of new facilities that will add capacity to existing conveyance, storage, and treatment facilities, as well as repair and replace aging infrastructure:

- Asset Management – The primary components of the asset management projects include relining and replacing existing pipelines and updating and replacing metering facilities.
- New Facilities – These projects will expand the capacity of the aqueduct system, complete the projects required under the Quantification Settlement Agreement (QSA), and evaluate new supply opportunities.
- Emergency Storage Project – Projects remaining to be completed under the ongoing ESP include the San Vicente Dam Raise, the Lake Hodges projects, and a new pump station to extend ESP supplies to the northern reaches of the Water Authority service area.

- Other Projects – This category includes out-of-region groundwater storage, increased local water treatment plant capacity, and projects that mitigate environmental impacts of the CIP.

The Water Authority Board of Directors is provided a semi-annual and annual report on the status of development of the CIP projects. As described in the Water Authority's biennial budget, a combination of long and short term debt and cash (pay-as-you-go) will provide funding for capital improvements. Additional information is included in the Water Authority's biennial budget, which also contains selected financial information and summarizes the Water Authority's investment policy.

6.3 Otay Water District

The Otay Water District WRMP Update and the 2015 UWMP contain comparisons of projected supply and demands through the year 2040. Projected potable water resources to meet planned demands as documented were planned to be supplied entirely with imported water received from the Water Authority. Recycled water resources to meet projected demands are planned to be supplied from local wastewater treatment plants. The Otay WD currently has no local supply of raw water, potable water, or groundwater resources.

The development and/or acquisition of potential groundwater, recycled water market expansion, and seawater desalination supplies by the Otay WD have evolved and are planned to occur in response to the regional water supply issues. These water supply projects are in addition to those identified as sustainable supplies in the current Water Authority and MWD UWMP, IRP, Master Plans, and other planning documents. These new additional water supply projects are not currently developed and are in various stages of the planning process. These local and regional water supply projects will allow for less reliance upon imported water and are considered a new water supply resource for the Otay WD.

The supply forecasts contained within this WSA Report do consider development and/or acquisition of potential groundwater, recycled water market expansion, and seawater desalination supplies by the Otay WD.

6.3.1 Availability of Sufficient Supplies and Plans for Acquiring Additional Supplies

The availability of sufficient potable water supplies and plans for acquiring additional potable water supplies to serve existing and future demands of the Otay WD is founded upon the preceding discussions regarding MWD's and the Water Authority's water supply resources and water supplies to be acquired by the Otay WD. Historic imported water deliveries from the Water Authority to Otay WD and recycled water deliveries from the Otay WD Ralph W. Chapman Water Reclamation Facility (RWCWRF) are shown in Table 5. Since the year 2000

through mid-May 2007, recycled water demand has exceeded the recycled water supply capability typically in the summer months. The RWCWRF is limited to a maximum production of about 1,300 acre-feet per year. The recycled water supply shortfall had been met by supplementing with potable water into the recycled water storage system as needed by adding potable water supplied by the Water Authority. On May 18, 2007 an additional source of recycled water supply from the City of San Diego's South Bay Water Reclamation Plant (SBWRP) became available. The supply of recycled water from the SBWRP is a result of completing construction and the operation of the transmission, storage, and pump station systems necessary to link the SBWRP recycled water supply source to the existing Otay WD recycled water system.

Table 5
Otay Water District
Historic Imported and Local Water Supplies

Calendar Year	Imported Water (acre-feet)	Recycled Water (acre-feet)	Total (acre-feet)
1980	12,558	0	12,558
1985	14,529	0	14,529
1990	23,200	0	23,200
1995	20,922	614	21,536
2000	29,901	948	30,849
2005	37,678	1,227	38,905
2010	29,270	4,090	33,270
2015	26,494	3,777	30,271

Source: Otay Water District operational records.

6.3.1.1 Imported and Regional Supplies

The availability of sufficient imported and regional potable water supplies to serve existing and planned uses within Otay WD is demonstrated in the above discussion on MWD and the Water Authority's water supply reliability. The County Water Authority Act, Section 5 subdivision 11, states that the Water Authority "as far as practicable, shall provide each of its member agencies with adequate supplies of water to meet their expanding and increasing needs." The Water Authority provides between 75 to 95 percent of the total supplies used by its 24 member agencies, depending on local weather and supply conditions.

Potable Water System Facilities

The Otay WD continues to pursue diversification of its water supply resources to increase reliability and flexibility. The Otay WD also continues to plan, design, and construct potable

water system facilities to obtain these supplies and to distribute potable water to meet customer demands. The Otay WD has successfully negotiated two water supply diversification agreements that enhance reliability and flexibility, which are briefly described as follows.

- The Otay WD entered into an agreement with the City of San Diego, known as the Otay Water Treatment Plant (WTP) Agreement. The Otay WTP Agreement provides for raw water purchase from the Water Authority and treatment by the City of San Diego at their Otay WTP for delivery to Otay WD. The supply system link to implement the Otay WTP Agreement to access the regions raw water supply system and the local water treatment plant became fully operational in August 2005. This supply link consists of the typical storage, transmission, pumping, flow measurement, and appurtenances to receive and transport the treated water to the Otay WD system. The City of San Diego obligation to supply 10 mgd of treated water under the Otay WTP Agreement is contingent upon there being available 10 mgd of surplus treatment capacity in the Otay WTP until such time as Otay WD pays the City of San Diego to expand the Otay WTP to meet the Otay WD future needs. In the event that the City of San Diego's surplus is projected to be less than 10 mgd the City of San Diego will consider and not unreasonably refuse the expansion of the Otay WTP to meet the Otay WD future needs. The Otay WTP existing rated capacity is 40 mgd with an actual effective capacity of approximately 34 mgd. The City of San Diego's typical demand for treated water from the Otay WTP is approximately 20 mgd. It is at the City of San Diego's discretion to utilize either imported raw water delivered by the Water Authority Pipeline No. 3 or local water stored in Lower Otay Reservoir for treatment to supply the Otay WD demand.

- The Otay WD entered into an agreement with the Water Authority, known as the East County Regional Treated Water Improvement Program (ECRTWIP Agreement). The ECRTWIP Agreement provides for transmission of raw water to the Helix WD R. M. Levy WTP for treatment and delivery to Otay WD. The supply system link to implement the ECRTWIP Agreement is complete allowing access to the regions raw water supply system and the local water treatment plant. This supply link consists of the typical transmission, pumping, storage, flow control, and appurtenances to receive and transport the potable water from the R. M. Levy WTP to Otay WD. The Otay WD is required to take a minimum of 10,000 acre-feet per year of treated water from the R.M. Levy WTP supplied from the regions raw water system.

Cost and Financing

The capital improvement costs associated with water supply and delivery are financed through the Otay WD water meter capacity fee and user rate structures. The Otay WD potable water sales revenue are used to pay for the wholesale cost of the treated water supply and the operating and maintenance expenses of the potable water system facilities.

Written Agreements, Contracts, or Other Proof

The supply and cost associated with deliveries of treated water from the Otay WTP and the R.M. Levy WTP is based on the following documents.

Agreement for the Purchase of Treated Water from the Otay Water Treatment Plant between the City of San Diego and the Otay Water District. The Otay WD entered into an agreement dated January 11, 1999 with the City of San Diego that provides for 10 mgd of surplus treated water to the Otay WD from the existing Otay WTP capacity. The agreement allows for the purchase of treated water on an as available basis from the Otay WTP. The Otay WD pays the Water Authority at the prevailing raw water rate for raw water and pays the City of San Diego at a rate equal to the actual cost of treatment to potable water standards.

Agreement between the San Diego County Water Authority and Otay Water District Regarding Implementation of the East County Regional Treated Water Improvement Program. The ECRTWIP Agreement requires the purchase of at least 10,000 acre-feet per year of potable water from the Helix WD R.M. Levy WTP at the prevailing Water Authority treated water rate. The ECRTWIP Agreement is dated April 27, 2006.

Agreement between the San Diego County Water Authority and Otay Water District for Design, Construction, Operation, and Maintenance of the Otay 14 Flow Control Facility Modification. The Otay WD entered into the Otay 14 Flow Control Facility Modification Agreement dated January 24, 2007 with the Water Authority to increase the physical capacity of the Otay 14 Flow Control Facility. The Water Authority and Otay WD shared the capital cost to expand its capacity from 8 mgd to 16 mgd.

Federal, State, and Local Permits/Approvals

The Otay WD acquired all the permits for the construction of the pipeline and pump station associated with the Otay WTP supply source and for the 640-1 and 640-2 water storage reservoirs project associated with the ECRTWIP Agreement through the typical planning, environmental approval, design, and construction processes.

The transmission main project constructed about 26,000 feet of a 36-inch diameter steel pipeline from the Otay 14 Flow Control Facility to the 640-1 and 640-2 Reservoirs project. The Otay 14 Flow Control Facility modification increased the capacity of the existing systems from 8 mgd to 16 mgd. CEQA documentation is complete for both projects. Construction of both of these projects was completed October 2010.

The City of San Diego and the Helix Water District are required to meet all applicable federal, state, and local health and water quality requirements for the potable water produced at the Otay WTP and the R.M. Levy WTP respectively.

6.3.1.2 Recycled Water Supplies

Wastewater collection, treatment, and disposal services provided by the Otay WD is limited to a relatively small area within what is known as the Jamacha Basin, located within the Middle Sweetwater River Basin watershed upstream of the Sweetwater Reservoir and downstream of Loveland Reservoir. Water recycling is defined as the treatment and disinfection of municipal wastewater to provide a water supply suitable for non-potable reuse. The Otay WD owns and operates the Ralph W. Chapman Water Reclamation Facility, which produces recycled water treated to a tertiary level for landscape irrigation purposes. The recycled water market area of the Otay WD is located primarily within the eastern area of the City of Chula Vista and on the Otay Mesa. The Otay WD distributes recycled water to a substantial market area that includes but is not limited to the U.S. Olympic Training Center, the Eastlake Golf Course, Otay Ranch, and other development projects.

The Otay WD projects that annual average demands for recycled water will increase to 6,500 acre-feet per year by 2040. About 1,300 acre-feet per year of supply is generated by the RWCWRF, with the remainder planned to be supplied to Otay WD by the City of San Diego's SBWRP.

<u>North District Recycled Water Concept</u>

The Otay WD is a recognized leader in the use of recycled water for irrigation and other commercial uses. The Otay WD continues to investigate all viable opportunities to expand the successful recycled water program into areas that are not currently served. One of these areas is in the portion of the service area designated as the North District, located within the Middle Sweetwater River Basin watershed upstream of the Sweetwater River. The close proximity of the recycled water markets in the North District to the Otay WD source of recycled water, the RWCWRF, means that the distribution system to serve this area could be constructed relatively cost effectively. This makes the North District a logical location for the expansion of the Otay WD recycled water system and market area.

The purpose of the North District Recycled Water System Development Project, Phase I Concept Study, was to identify the feasibility of using recycled water in the North District and to investigate and assess any limitations or constraints to its use. The Phase I study components of the North District Recycled Water Concept encompassed the preparation of six technical memorandums including the project definition, a discussion of the regulatory process, a discussion of the protection of the watershed that would be affected by recycled water use in the North District, identification of stakeholders, public outreach, and an implementation plan.

Several opportunities that could be realized with the implementation of the use of recycled water in the North District were identified. These include a reduction of demand on the potable water system and maximizing recycled water resources which in turn minimizes treated wastewater discharges to the local ocean outfall. Other opportunities are a possible

partnership with Sweetwater Authority to monitor any benefits and impacts of increased recycled water use in the watershed and stakeholder outreach to resolve any water quality concerns and to retain consumer confidence. Also identified were two major constraints associated with the North District Recycled Water System Development Project. One constraint is the water quality objectives for the Middle Sweetwater Basin that will affect the effluent limitations for the recycled water produced at the RWCWRF. The effluent limit of concern was total nitrogen. The RWCWRF underwent an upgrade in 2012 to enhance nitrogen removal through the treatment process. The other major constraint is the cost of the infrastructure needed to convey and store recycled water in the North District. These costs are estimated to be in the range of $14 to $15 million dollars.

There are two additional phases proposed for the North District Recycled Water System Development Project. Phase II would include further investigation of the issues identified in Phase I as requiring further study. These include stakeholder outreach, regulatory issues, and facility planning. The third phase of the effort would include the facility planning, permitting, environmental compliance, design, and construction of the improvements necessary for delivery of recycled water to the North District markets.

The estimated amount of imported water saved at full implementation of the North District Recycled Water System Development Project is 1,200 acre-feet per year. This saved imported water could then be used to offset new potable water demands.

Recycled Water System Facilities

The Otay WD has constructed recycled water storage, pumping, transmission, and distribution facilities and will continue to construct these facilities to meet projected recycled water market demands. The Supply Link project consisting of a transmission main, storage reservoir, and a pump station to receive and transport the recycled water from the City of San Diego's SBWRP was completed in 2007 and recycled water deliveries began on May 18, 2007.

Cost and Financing

The capital improvement costs associated with the recycled water supply and distribution systems are financed through the Otay WD water meter capacity fee and user rate structures. The Otay WD recycled water sales revenue, along with MWD and the Water Authority's recycled water sales incentive programs are used to help offset the costs for the wholesale purchase and production of the recycled water supply, the operating and maintenance expenses, and the capital costs of the recycled water system facilities.

Written Agreements, Contracts, or Other Proof

The supply and cost associated with deliveries of recycled water from the SBWRP is based on the following document.

Agreement between the Otay Water District and the City of San Diego for Purchase of Reclaimed Water from the South Bay Water Reclamation Plant. The agreement provides for the purchase of at least 6,721 acre-feet per year of recycled water from the SBWRP at an initial price of $350 per acre-foot. The Otay Water District Board of Directors approved the final agreement on June 4, 2003 and the San Diego City Council approved the final agreement on October 20, 2003. Effective January 1, 2016, the City of San Diego raised the cost of recycled water 116% to $754 per acre-foot.

Federal, State, and Local Permits/Approvals

The Otay WD has in place an agreement with MWD for their recycled water sales incentive program for supplies from the RWCWRF and the SBWRP. Also, the Otay WD has in place an agreement with the Water Authority for their recycled water sales incentive program for supplies from the RWCWRF and the SBWRP. The Water Authority sales incentive agreement was approved by Water Authority on July 26, 2007 and by Otay WD on August 1, 2007. All permits for the construction of the recycled water facilities to receive, store, and pump the SBWRP supply have been acquired through the typical planning, environmental approval, design, and construction processes.

The California Regional Water Quality Control Board San Diego Region (RWQCB) "Master Reclamation Permit for Otay Water District Ralph W. Chapman Reclamation Facility" was adopted on May 9, 2007 (Order No. R9-2007-0038). This order establishes master reclamation requirements for the production, distribution, and use of recycled water in the Otay WD service area. The order includes the use of tertiary treated water produced and received from the City of San Diego's SBWRP. Recycled water received from and produced by the SBWRP is regulated by Regional Board Order No. 2000-203 and addenda. The City of San Diego is required to meet all applicable federal, state, and local health and water quality requirements for the recycled water produced at the SBWRP and delivered to Otay WD in conformance with Order No. 2000-203.

6.3.1.3 Potential Groundwater Supplies

The Otay Water District WRMP Update, 2015 UWMP, and the 2015 Integrated Water Resources Plan Update all contain a description of the development of potential groundwater supplies. Over the past several years, Otay WD has studied numerous potential groundwater supply options that have shown, through groundwater monitoring well activities, poor quality water and/or insufficient yield from the basins at a cost effective level. The Otay WD has developed capital improvement program projects to continue the quest to develop potential groundwater resources. Local Otay WD groundwater supply development is currently considered as a viable water supply resource to meet projected demands.

The development and/or acquisition of potential groundwater supply projects by the Otay WD have been on hold in response to the regional water supply issues related to water source supply conditions. Local ground water supply projects will allow for less reliance upon

imported water, achieve a level of independence of the regional wholesale water agencies, and diversify the Otay WD water supply portfolio consistent with the Otay Water District 2015 IRP Update.

In recognition of the need to develop sufficient alternative water supplies, the Otay WD has taken the appropriate next steps towards development of production groundwater well projects.

There are three groundwater well projects that the Otay WD is actively pursuing to develop as new local water supplies. They are known as the Middle Sweetwater River Basin Groundwater Well, the Otay Mesa Lot 7 Groundwater Well, and the Rancho del Rey Groundwater Well projects.

Middle Sweetwater River Basin Groundwater Well

The Middle Sweetwater River Basin Groundwater Well is an additional water supply project that was thoroughly studied and documented in the 1990s. The Middle Sweetwater River Basin is located within the Sweetwater River watershed and that reach of the river extends from Sweetwater Reservoir to the upstream Loveland Reservoir. The next step in development of the Middle Sweetwater River Basin Groundwater Well is the implementation of a pilot well project. The ultimate objective of the Otay WD is to develop a groundwater well production system within the Middle Sweetwater River Basin capable of producing a sustainable yield of potable water as a local supply.

The purpose of the Middle Sweetwater River Basin Groundwater Well Pilot project is to identify the feasibility of developing a groundwater resource production system and then determine and assess any limitations or constraints that may arise. The Middle Sweetwater River Basin Groundwater Well Pilot Project will accomplish six primary goals:

- Update project setting
- Update applicable project alternatives analysis
- Prepare groundwater well pilot project implementation plan
- Construct and test pilot monitoring and extraction wells
- Provide recommendations regarding costs and feasibility to develop a groundwater well production system within the Middle Sweetwater River Basin capable of producing a sustainable yield of potable water
- Prepare groundwater well production project implementation plan and scope of work

The groundwater conjunctive use concept is described as the extraction of the quantity of water from the groundwater basin that was placed there by customers of the Otay Water District, Helix Water District, and Padre Dam Municipal Water District by means of their use of imported treated water that contributed to the overall volume of groundwater within the basin. An estimated quantity was developed to be approximately 12.5 percent of the total consumption of the Otay WD customers within that basin, as measured by water meters. In

the 1994-1995 period, the quantity of water that was returned to the groundwater basin by Otay WD customers was estimated to be 810 acre-feet per year. Currently, that 12.5 percent quantity could be on the order of 1,000 acre-feet per year. A future scope of work will need to addresses this concept while considering further development of the groundwater basin as an additional supply resource. If it is deemed that a Middle Sweetwater River Basin Groundwater Well Production Project is viable then the consultant will develop and provide a groundwater well production project implementation plan, cost estimate, and related scope of work.

Further development of the groundwater basin to enhance the total groundwater production could be accomplished by the Otay WD by means of additional extraction of water from the basin that is placed there by means of either injection and/or spreading basins using imported untreated water as the resource supply. The existing La Mesa Sweetwater Extension Pipeline, owned by the Water Authority, once converted to an untreated water delivery system, could be the conveyance system to transport untreated water for groundwater recharge in support of this conjunctive use concept. These two distinct water resource supply conjunctive use concepts will be addressed so they may coexist and to allow for their development as separate phases.

The scope of work to complete Middle Sweetwater River Basin Groundwater Well Pilot Project consists of many major tasks and is to address the groundwater supply concepts outlined above. It is anticipated that the cost for the entire scope of work, will be on the order of $2,000,000, which includes a contingency and may take up to one and a half years to complete.

The primary desired outcome of the Middle Sweetwater River Basin Groundwater Well Pilot Project is for the engineering consultant to determine and make recommendations if it is financially prudent and physically feasible to develop a Phase I groundwater well production system within the Middle Sweetwater River Basin capable of producing a sustainable yield of up to 1,500 ac-ft/yr of potable water for the Otay WD. If it is deemed that a Middle Sweetwater River Basin Groundwater Well Production Project is viable then the consultant will develop and provide a groundwater well production project implementation plan and related scope of work.

Otay Mesa Lot 7 Groundwater Well

In early 2001 the Otay WD was approached by a landowner representative about possible interest in purchasing an existing well or alternatively, acquiring groundwater supplied from the well located on Otay Mesa. The landowner, National Enterprises, Inc., reportedly stated that the well could produce 3,200 acre-feet per year with little or no treatment required prior to introducing the water into the Otay WD potable water system or alternatively, the recycled water system. In March 2001 authorization to proceed with testing of the Otay Mesa Lot 7 Groundwater Well was obtained and the Otay WD proceeded with the investigation of this potential groundwater supply opportunity.

The May 2001 Geoscience Support Services, Inc. completed for the Otay WD the preparation of a report entitled, "Otay Mesa Lot 7 Well Investigation," to assess the Otay Mesa Lot 7 Well. The scope of work included a geohydrologic evaluation of the well, analyses of the water quality samples, management and review of the well video log, and documentation of well pump testing. The primary findings, as documented in the report, formed the basis of the following recommendations:

- For the existing well to be use as a potable water supply resource, a sanitary seal must be installed in accordance with the DDW guidelines.
- Drawdown in the well must be limited to avoid the possibility of collapsing the casing.
- Recover from drawdown from pumping is slow and extraction would need to be terminated for up to 2 days to allow for groundwater level recovery.
- The well water would need to be treated and/or blended with potable water prior to introduction into the potable water distribution system.

The existing Otay Mesa Lot 7 Well, based upon the above findings, was determined not to be a reliable municipal supply of potable water and that better water quality and quantity perhaps could be discovered deeper or at an alternative location within the San Diego Formation.

The Otay WD may still continue to pursue the Otay Mesa groundwater well opportunity with due consideration of the recommendations of the existing report. Based on the recommendations of the investigation report, a groundwater well production facility at Otay Mesa Lot 7 could realistically extract approximately 300 acre-feet per year.

Rancho del Rey Groundwater Well

In 1991, the McMillin Development Company drilled the Rancho del Rey Groundwater Well to augment grading water supplies for their Rancho del Rey development projects. Although the well was considered a "good producer," little was known regarding its water quality and sustainable yield because the water was used solely for earthwork (i.e. dust control and soil compaction). The well was drilled to 865 feet, with a finished depth of 830 feet and produced approximately 400 acre-feet per year of low quality water for four years until its use was discontinued in April 1995 when the well was no longer needed. McMillin notified the Otay WD of its intent to sell off the groundwater well asset.

In 1997, the Otay WD purchased an existing 7-inch well and the surrounding property on Rancho del Rey Parkway from the McMillin Company with the intent to develop it as a source of potable water. Treatment was required to remove salts and boron, among other constituents, using reverse osmosis membranes and ion exchange.

In 2000, having received proposals for the design and construction of a reverse osmosis treatment facility that far exceeded the allocated budget, the Board of Directors instructed staff to suspend the project until such time as it became economically viable.

In January 2010, citing the rising cost of imported water and the Otay WD's interest in securing its own water source for long-term supply reliability, the Board authorized Phase 1 for drilling and development of the Rancho del Rey Well.

On March 3, 2010, the Board adopted the Mitigated Negative Declaration for this project and a Notice of Determination was filed with the County of San Diego on March 5, 2010. In September 2010, a new 12-inch production well was drilled to a depth of 900 feet through the groundwater formation and into fractured bedrock. Testing showed the long-term yield of the new well to be 450 gpm, higher than previous studies had estimated. Separation Processes, Inc. (SPI), a highly qualified membrane treatment firm, was hired to conduct a detailed economic feasibility study to confirm that the annualized unit cost of the new water source was economically competitive with other sources. The economic study estimated the unit cost of water to be $1, 500 to $2,000 per acre-feet for an alternative that utilizes a seawater membrane for treating both salts and boron. When compared with the current imported treated water rate from the Water Authority, and with the knowledge that this rate will continually increase as MWD and the Water Authority raise their rates, the Rancho del Rey Well project appears to be economically viable.

The Otay WD is continuing to pursue the Rancho del Rey groundwater well opportunity with due consideration of the recommendations of the existing reports and plans to develop a groundwater well production facility to extract approximately 500 acre-feet per year. For water planning purposes, production of groundwater from the Rancho del Rey well is considered “additional planned” for local supplies.

6.3.1.4 Otay Water District Desalination Project

The Otay WD is currently investigating the feasibility of purchasing desalinated water from a seawater reverse osmosis plant that is planned to be located in Rosarito, Mexico, known as the Otay Mesa Desalinated Water Conveyance System (Desalination) project. The treatment facility is intended to be designed, constructed, and operated in Mexico by a third party. The Otay WD’s draft Desalination Feasibility Study, prepared in 2008, discusses the likely issues to be considered in terms of water treatment and monitoring, potential conveyance options within the United States from the international border to potential delivery points, and environmental, institutional, and permitting considerations for the Otay WD to import the Desalination project product water as a new local water supply resource.

While the treatment facility for the Desalination project will not be designed or operated by the Otay WD , it is important that the Otay WD maintain involvement with the planning, design, and construction of the facility to ensure that the implemented processes provide a product water of acceptable quality for distribution and use within the Otay WD’s system as well as in other regional agencies’ systems that may use the product water, i.e. City of San Diego, the Water Authority, etc. A seawater reverse osmosis treatment plant removes constituents of concern from the seawater, producing a water quality that far exceeds

established United States and California drinking water regulations for most parameters, however, a two-pass treatment system may be required to meet acceptable concentrations of boron and chlorides, similar to the levels seen within the existing Otay WD supply sources. The Desalination Feasibility Study addresses product water quality that is considered acceptable for public health and distribution.

The Otay WD, or any other potential participating agencies, will be required to get approval from the DDW in order to use the desalinated seawater as a water source. Several alternative approaches are identified for getting this approval. These alternatives vary in their cost and their likelihood of meeting DDW approval.

The Rosarito Desalination Facility Conveyance and Disinfection System Project report addresses two supply targets for the desalinated water (i.e. local and regional). The local alternative assumes that only Otay WD would participate and receive desalinated water, while the regional alternative assumes that other regional and/or local agencies would also participate in the Rosarito project.

On November 3, 2010, the Otay WD authorized the General Manager to enter into an agreement with AECOM for the engineering design, environmental documentation, and the permitting for the construction of the conveyance pipeline, pump station, and disinfection facility to be constructed within the Otay WD. The supply target is assumed to be 50 mgd while the ultimate capacity of the plant will be 100 mgd.

The Otay WD is proceeding with negotiations among the parties.

6.3.2 Otay Water District Capital Improvement Program

The Otay WD plans, designs, constructs, and operates water system facilities to acquire sufficient supplies and to meet projected ultimate demands placed upon the potable and recycled water systems. In addition, the Otay WD forecasts needs and plans for water supply requirements to meet projected demands at ultimate build out. The necessary water facilities and water supply projects are implemented and constructed when development activities proceed and require service to achieve timely and adequate cost effective water service.

New water facilities that are required to accommodate the forecasted growth within the entire Otay WD service area are defined and described within the Otay Water District WRMP Update. These facilities are incorporated into the annual Otay WD Six Year Capital Improvement Program (CIP) for implementation when required to support development activities. As major development plans are formulated and proceed through the land use jurisdictional agency approval processes, Otay WD prepares water system requirements specifically for the proposed development project consistent with the Otay WD WRMP Update. These requirements document, define, and describe all the potable water and recycled water system facilities to be constructed to provide an acceptable and adequate level of service to the proposed land uses, as

well as the financial responsibility of the facilities required for service. The Otay WD funds the facilities identified as CIP projects. Established water meter capacity fees and user rates are collected to fund the CIP project facilities. The developer funds all other required water system facilities to provide water service to their project.

Section 7 – Conclusion: Availability of Sufficient Supplies

The University Innovation District Project is currently located within the jurisdictions of the Otay WD, Water Authority, and MWD. To obtain permanent imported water supply service, land areas are required to be within the jurisdictions of the Otay WD, Water Authority, and MWD to utilize imported water supply.

The Water Authority and MWD have an established process that ensures supplies are being planned to meet future growth. Any annexations and revisions to established land use plans are captured in the SANDAG updated forecasts for land use planning, demographics, and economic projections. SANDAG serves as the regional, intergovernmental planning agency that develops and provides forecast information. The Water Authority and MWD update their demand forecasts and supply needs based on the most recent SANDAG forecast approximately every five years to coincide with preparation of their urban water management plans. Prior to the next forecast update, local jurisdictions with land use authority may require water supply assessment and/or verification reports for proposed land developments that are not within the Otay WD, Water Authority, or MWD jurisdictions (i.e. pending or proposed annexations) or that have revised land use plans with either lower or higher development intensities than reflected in the existing growth forecasts. Proposed land areas with pending or proposed annexations, or revised land use plans, typically result in creating higher demand and supply requirements than previously anticipated. The Otay WD, Water Authority, and MWD next demand forecast and supply requirements and associated planning documents would then capture any increase or decrease in demands and required supplies as a result of annexations or revised land use planning decisions.

MWD's IRP identifies a mix of resources (imported and local) that, when implemented, will provide 100 percent reliability for full-service demands through the attainment of regional targets set for conservation, local supplies, State Water Project supplies, Colorado River supplies, groundwater banking, and water transfers. The 2015 IRP Update describes an adaptive management strategy to protect the region from future supply shortages. This adaptive management strategy has five components: achieve additional conservation savings, develop additional local water supplies, maintain Colorado River Aqueduct supplies, stabilize State Water Project supplies, and maximize the effectiveness of storage and transfer. MWD's 2015 IRP has a plan for identifying and implementing additional resources that expand the ability for MWD to meet future changes and challenges as necessary to ensure future reliability of supplies. The proper management of these resources help to ensure that the

southern California region, including San Diego County, will have adequate water supplies to meet long-term future demands.

MWD adopted its 2015 UWMP, in accordance with state law, on May 9, 2016. The resource targets included in the preceding 2015 IRP Update serve as the foundation for the planning assumptions used in the 2015 UWMP. MWD's 2015 UWMP contains a water supply reliability assessment that includes a detailed evaluation of the supplies necessary to meet demands over a 20-year period in average, single dry year, and multiple dry year periods. As part of this process, MWD also uses the current SANDAG regional growth forecast in calculating regional water demands for the Water Authority's service area.

As stated in MWD's 2015 UWMP, the plan may be used as a source document for meeting the requirements of SB 610 and SB 221 until the next scheduled update is completed in 5 years (2020). The 2015 UWMP includes a "Justifications for Supply Projections" in Appendix A.3, that provides detailed documentation of the planning, legal, financial, and regulatory basis for including each source of supply in the plan.

In the Findings Section of the Executive Summary (Page ES-5) of their 2015 UWMP, MWD states that MWD has supply capacities that would be sufficient to meet expected demands from 2020 through 2040 under the single dry-year and multiple dry-year conditions. MWD has plans for supply implementation and continued development of a diversified resource mix including programs in the Colorado River Aqueduct, State Water Project, Central Valley Transfers, local resource projects, and in-region storage that enables the region to meet its water supply needs. MWD's 2015 UWMP identifies potential reserve supplies in the supply capability analysis (Tables 2-4, 2-5 and 2-6), which could be available to meet the unanticipated demands.

The County Water Authority Act, Section 5 subdivision 11, states that the Water Authority "as far as practicable, shall provide each of its member agencies with adequate supplies of water to meet their expanding and increasing needs."

As part of preparation of a written water supply assessment report, an agency's shortage contingency analysis should be considered in determining sufficiency of supply. Section 11 of the Water Authority's 2015 Updated UWMP contains a detailed shortage contingency analysis that addresses a regional catastrophic shortage situation and drought management. The analysis demonstrates that the Water Authority and its member agencies, through the Emergency Response Plan, Emergency Storage Project, Carlsbad Desalination Project, and Drought Management Plan (DMP) are taking actions to prepare for and appropriately handle an interruption of water supplies. The DMP, adopted in May 2006, provides the Water Authority and its member agencies with a series of potential actions to take when faced with a shortage of imported water supplies from MWD due to prolonged drought or other supply shortfall conditions. The actions will help the region avoid or minimize the impacts of shortages and ensure an equitable allocation of supplies.

The WSA&V Report identifies and describes the processes by which water demand projections for the proposed University Innovation District Project will be fully included in the water demand and supply forecasts of the Urban Water Management Plans and other water resources planning documents of the Water Authority and MWD. Water supplies necessary to serve the demands of the proposed University Innovation District Project, along with existing and other projected future users, as well as the actions necessary and status to develop these supplies, have been identified in the University Innovation District Project WSA&V Report and will be included in the future water supply planning documents of the Water Authority and MWD.

This WSA&V Report includes, among other information, an identification of existing water supply entitlements, water rights, water service contracts, water supply projects, or agreements relevant to the identified water supply needs for the proposed University Innovation District Project. This WSA Report assesses, demonstrates, and documents that sufficient water supplies are planned for and are intended to be available over a 20-year planning horizon, under normal conditions and in single and multiple dry years to meet the projected demand of the proposed University Innovation District Project and the existing and other planned development projects to be served by the Otay WD.

Table 6 presents the forecasted balance of water demands and required supplies for the Otay WD service area under average or normal year conditions. The total actual demand for FY 2015 was 30,271 acre feet. The demand for FY 2015 is 2,999 acre feet lower than the demand in FY 2010 of 33,270 acre feet. The drop in demand is a result of the unit price of water, the conservation efforts of users as a result of the prolonged drought, and the economy.

Table 6 presents the forecasted balance of water demands and supplies for the Otay WD service area under single dry year conditions. Table 7 presents the forecasted balance of water demands and supplies for the Otay WD service area under multiple dry year conditions for the three year period ending in 2019. The multiple dry year conditions for periods ending in 2025, 2030, and 2035 are provided in the Otay Water District 2015 UWMP. The projected potable demand and supply requirements shown the Tables 6 and 7 are from the Otay WD 2015 UWMP. Hot, dry weather may generate urban water demands that are about 6.4 percent greater than normal. This percentage was utilized to generate the dry year demands shown in Table 7. The recycled water supplies are assumed to experience no reduction in a dry year.

Table 6
Projected Balance of Water Demands and Supplies Normal Year Conditions (acre feet)

Description	FY 2020	FY 2025	FY 2030	FY 2035	FY 2040
Demands					
Otay WD Demands	47,328	54,771	57,965	59,279	65,913
Active Conservation Savings	(2,111)	(1,844)	(1,585)	(1,538)	(1,587)
Accelerated Forecast Growth (AFG) – Planning Area 12	46	46	46	46	46
AFG – Otay Sunroad EOM SPA	836	836	836	836	836
AFG University Innovation District	11.7	11.7	11.7	11.7	11.7
Passive Conservation Savings	(2,497)	(4,497)	(5,489)	(6,040)	(6,744)
Total Demand	43,613.7	49,323.7	51,784.7	52,594.7	58,475.7
Supplies					
Water Authority Supply	37,943.7	43,423.7	45,784.7	46,394.7	51,975.7
Recycled Water Supply	5,670	5,900	6,000	6,200	6,500
Total Supply	43,613.7	49,323.7	51,784.7	52,594.7	58,475.7
Supply Surplus/(Deficit)	**0**	**0**	**0**	**0**	**0**

Table 7 presents the forecasted balance of water demands and supplies for the Otay WD service area under single dry year and multiple dry year conditions from the Otay Water District 2015 UWMP.

Table 7
Projected Balance of Water Demands and Supplies
Single Dry and Multiple Dry Year Conditions (acre feet)

	Normal Year	Single Dry Year	Multiple Dry Years		
	FY 2011	FY 2017	FY 2017	FY 2018	FY 2019
Demands					
Otay WD Demands	37,176	38,749	38,844	40,378	42,430
Total Demand	37,176	38,749	38,844	40,378	42,430
Supplies					
Water Authority Supply	33,268	33,877	33,972	35,240	37,026
Recycled Water Supply	3,908	4,872	4,872	5,138	5,404
Total Supply	37,176	34,639	38,844	40,378	42,430
Supply Surplus/(Deficit)	**0**	**0**	**0**	**0**	**0**
District Demand totals with SBX7-7 conservation target achievement plus single dry year increase as shown. The Water Authority could implement its DMP. In this instances, the Water Authority may have to allocate supply shortages based on it equitable allocation methodology in its DMP.					

Dry year demands assumed to generate a 7% increase in demand over normal conditions for a single dry year. For multiple dry years an 8% increase in demand over normal conditions is projected in the first year, 14% in the second year and 21% increase is projected in the third year in addition to new demand growth.

In evaluating the availability of sufficient water supply, the University Innovation District Project development proponents will be required to participate in the development of alternative water supply project(s). This can be achieved through payment of the New Water Supply Fee adopted by the Otay WD Board in May 2010. These water supply projects are in addition to those identified as sustainable supplies in the current Water Authority and MWD UWMP, IRP, Master Plans, and other planning documents. These new water supply projects are in response to the regional water supply issues related to climatological, environmental, legal, and other challenges that impact water source supply conditions, such as the court rulings regarding the Sacramento-San Joaquin Delta and the current ongoing western states drought conditions. These new additional water supply projects are not currently developed and are in various stages of the planning process. The Otay WD water supply development program includes but is not limited to projects such as the Middle Sweetwater River Basin Groundwater Well project, the North District Recycled Water Supply Concept, the Otay WD Desalination project, and the Rancho del Rey Groundwater Well project. The Water Authority and MWD's next forecasts and supply planning documents would capture any increase in water supplies resulting from any new water resources developed by the Otay WD.

The Otay WD acknowledges the ever-present challenge of balancing water supply with demand and the inherent need to possess a flexible and adaptable water supply implementation strategy that can be relied upon during normal and dry weather conditions. The responsible regional water supply agencies have and will continue to adapt their resource plans and strategies to meet climate, environmental, and legal challenges so that they may continue to provide water supplies to their service areas. The regional water suppliers along with Otay WD fully intend to maintain sufficient reliable supplies through the 20-year planning horizon under normal, single, and multiple dry year conditions to meet projected demand of the University Innovation District Project, along with existing and other planned development projects within the Otay WD service area.

This WSA&V Report assesses, demonstrates, and documents that sufficient water supplies are planned for and are intended to be acquired, as well as the actions necessary and status to develop these supplies, to meet projected water demands of the University Innovation District Project as well as existing and other reasonably foreseeable planned development projects within the Otay WD for a 20-year planning horizon, in normal and in single and multiple dry years.

Source Documents

University Innovation District Project SB 610 and SB 221 Compliance request letter received August 31, 2016.

CH2M and Otay Water District, "Otay Water District 2015 Urban Water Management Plan Update", May 2016.

City of Chula Vista, "Otay Ranch General Development Plan/Sub-regional Plan, The Otay Ranch Joint Planning Project," October 1993 amended June 1996.

Otay Water District, "2008 Water Resources Master Plan Update," dated November 2010.

Atkins and Otay Water District, "Otay Water District 2010 Urban Water Management Plan," June 2011.

Camp Dresser & McKee, Inc., "Otay Water District Integrated Water Resources Plan," March 2007.

Carollo and Otay Water District, 2015 Integrated Water Resources Plan Update, June 2015.

San Diego County Water Authority, "Final 2015 Urban Water Management Plan, June, 2016.

MWD Water District of Southern California, "2015 Urban Water Management Plan," June 2016.

Camp Dresser & McKee, Inc., "Rosarito Desalination Facility Conveyance and Disinfection System Project," June 21, 2010.

PBS&J, "Draft Otay Water District North District Recycled Water System Development Project, Phase I Concept Study," December 2008.

NBS Lowry, "Middle Sweetwater River System Study Water Resources Audit," June 1991.

Michael R. Welch, "Middle Sweetwater River System Study Alternatives Evaluation," May 1993.

Michael R. Welch, "Middle Sweetwater River Basin Conjunctive Use Alternatives," September 1994.

Geoscience Support Services, Inc., "Otay Mesa Lot 7 Well Investigation," May 2001.

Boyle Engineering Corporation, "Groundwater Treatment Feasibility Study Ranch del Rey Well Site," September 1996.

Agreement for the Purchase of Treated Water from the Otay Water Treatment Plant between the City of San Diego and the Otay Water District.

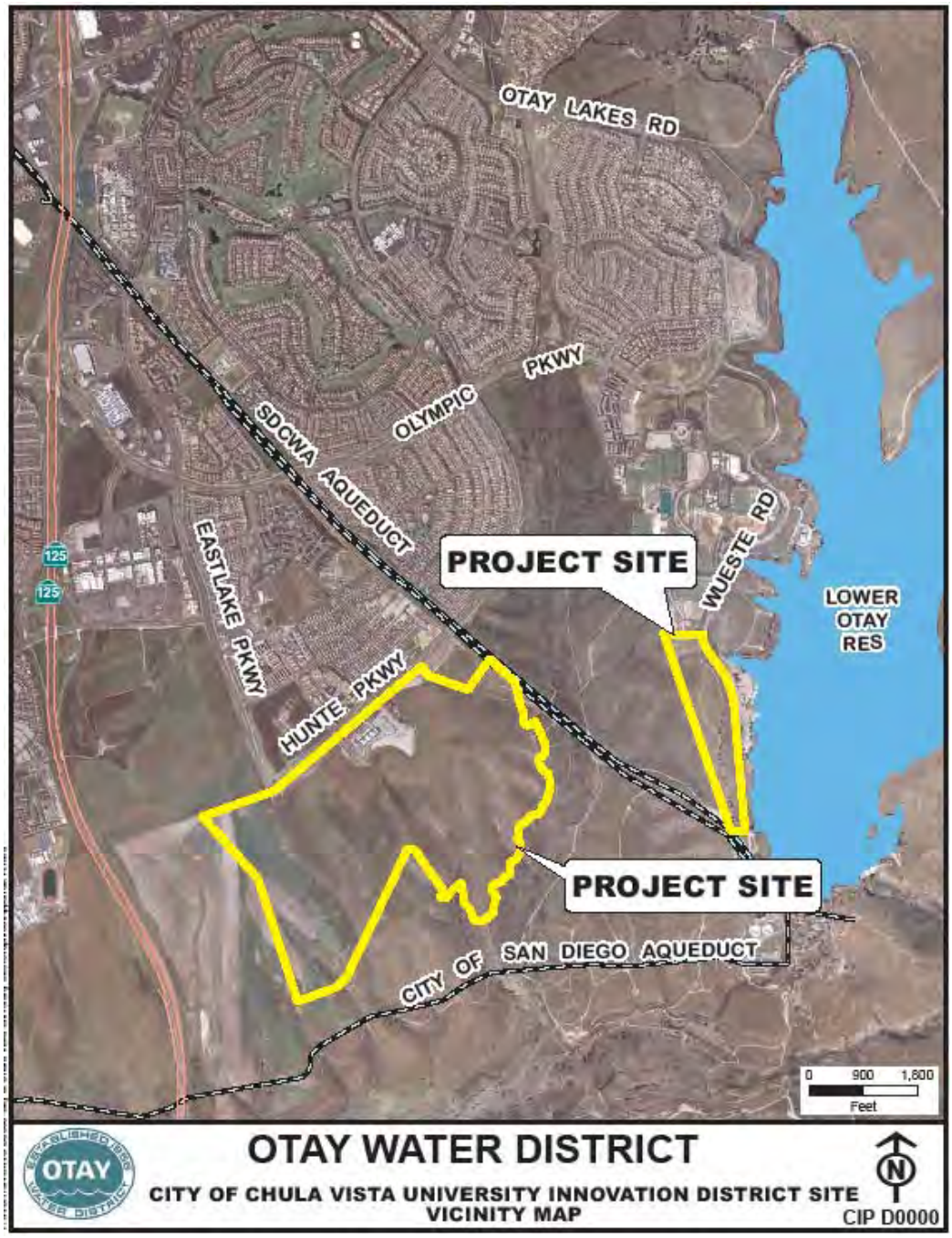
Agreement between the San Diego County Water Authority and Otay Water District regarding Implementation of the East County Regional Treated Water Improvement Program.

Agreement between the San Diego County Water Authority and Otay Water District for Design, Construction, Operation, and Maintenance of the Otay 14 Flow Control Facility Modification.

Agreement between the Otay Water District and the City of San Diego for Purchase of Reclaimed Water from the South Bay Water Reclamation Plant.

Appendix A

University Innovation District Project Vicinity Map



Appendix B
University Innovation District Project Development Plan

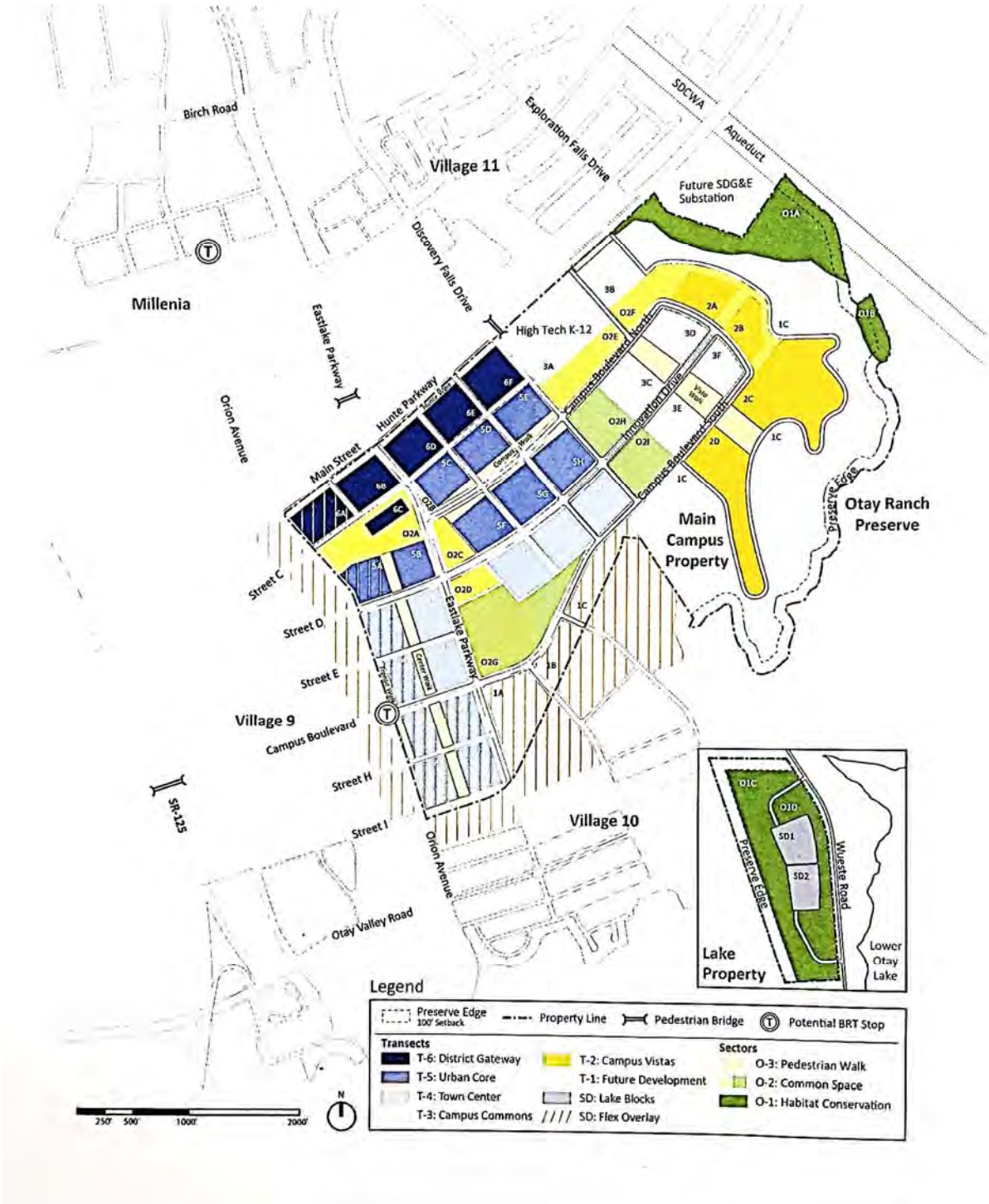


EXHIBIT D

Water Supply Assessment & Verification Report for the

City of Chula Vista
University Innovation District Project

Otay Water District
Board of Directors Meeting
October 5, 2016

BACKGROUND

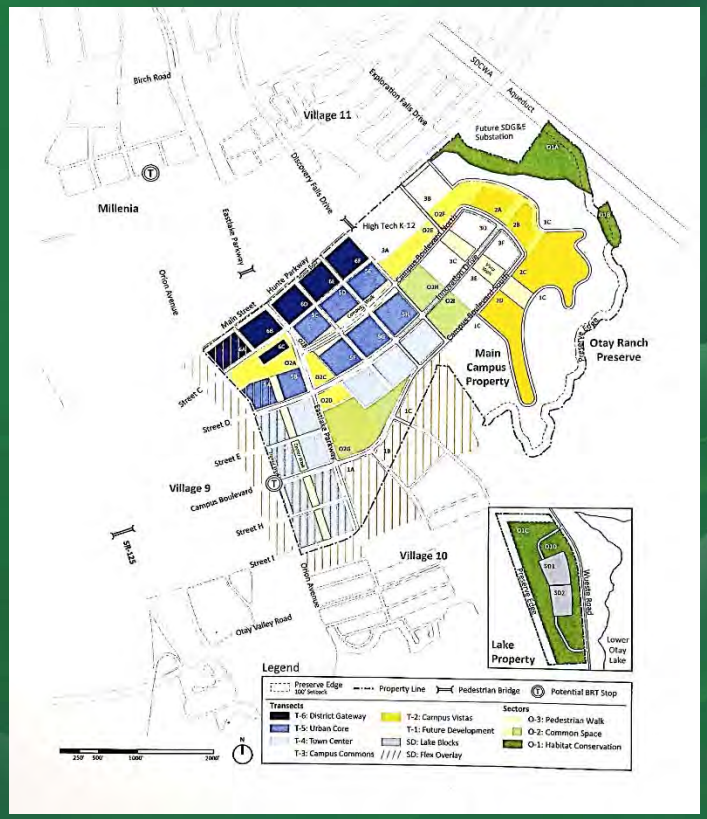
Senate Bills 610 and 221 became effective on January 1, 2002.

Primary intent: Improve the link between water supply availability and land use decisions.

- **SB 610 requires a Water Supply Assessment (WSA) to be included in the CEQA documents for a project.**
- **SB 221 requires a Water Supply Assessment & Verification (WSA&V), also included in the CEQA documents.**
- **Board approval required for submittal of the WSA&V Report to the City of Chula Vista.**

City of Chula Vista
University Innovation District

Total Potable Water Demand – 941.7 AFY
(11.7 higher than 2010 Update of 2008 WRMP)
Total Recycled Water Demand – 178 AFY



Project Background

- 383.8 acre site planned for a State University.
- Includes education buildings, student & faculty housing, commercial, recreation, & open space areas.
- 10,066,200 sq. ft. of development.

WSA & V Report

- Acknowledges the challenges for regional and local water supply agencies in meeting demands and that a diversified portfolio is needed to serve existing and future needs.

- The Report documents planned water supply projects and the actions necessary to develop the supplies.

- Description of how water supply is planned and available for the project and for existing and future development over a 20-year planning horizon, under normal and in single-dry and multiple-dry years.

Diversification of County Water Authority Supplies

Projected Verifiable Water Supply Projects

Water Authority Supplies (acre feet)		
Project	**2020 - 2025**	**2030 -2040**
IID Water Transfer	190,000	200,000
ACC and CC Lining	80,200	80,200
Carlsbad Desalination	56,000	56,000
Total:	326,200	336,200

Otay Water District
Projected Balance of Supply and Demand

Description	FY 2020	FY 2025	FY 2030	FY 2035	FY 2040
Demands					
Otay WD Demands[1]	47,328	54,771	57,965	59,279	65,913
AFG – Planning Area 12	46	46	46	46	46
AFG – Otay 250 Sunroad SPA	836	836	836	836	836
AFG – University Innovation District	11.7	11.7	11.7	11.7	11.7
Active Conservation Savings	(2,111)	(1,844)	(1,585)	(1,538)	(1,587)
Passive Conservation Savings	(2,497)	(4,497)	(5,489)	(6,040)	(6,744)
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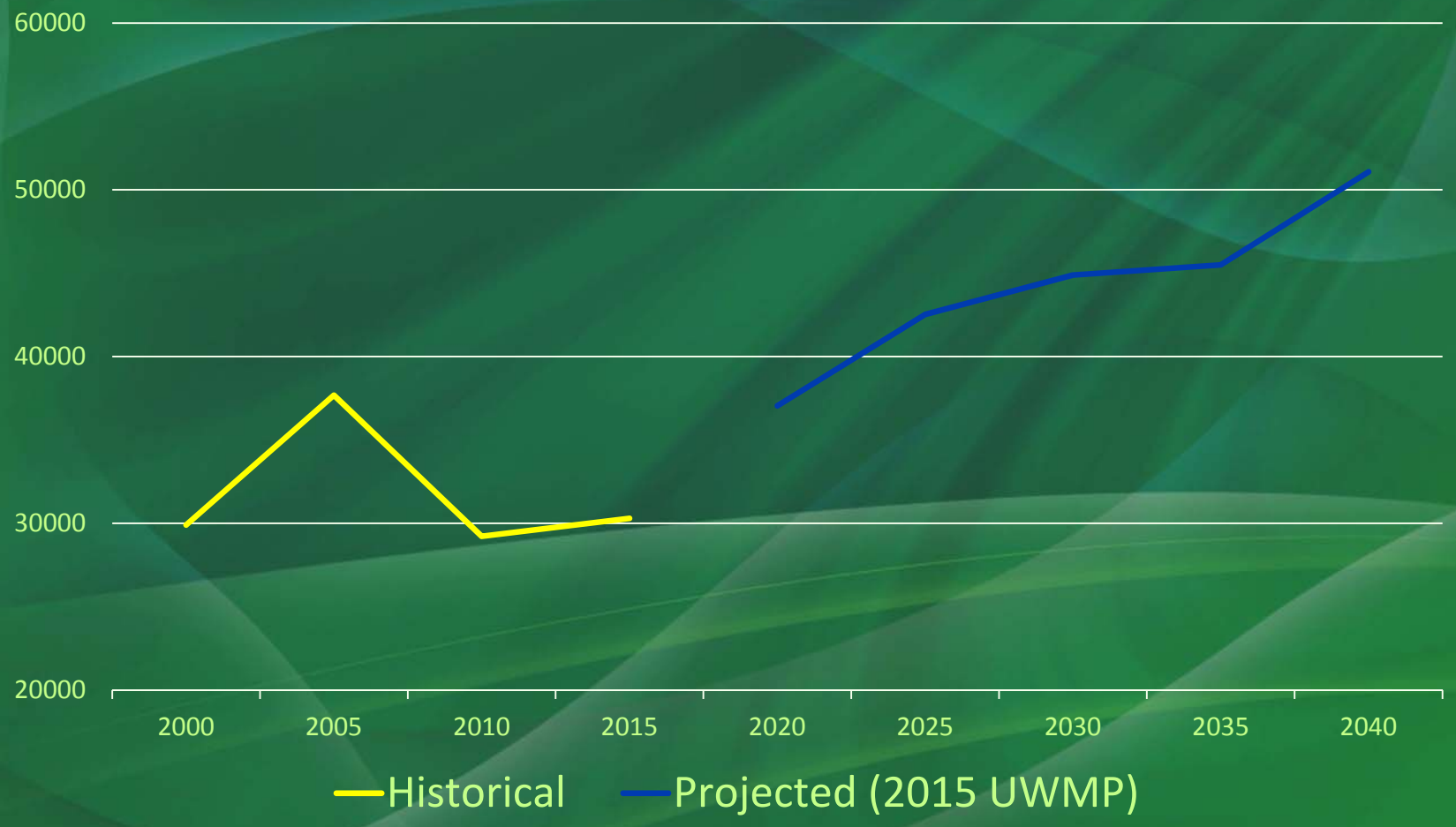
Supplies					
Water Authority Supply	37,943.7	43,423.7	45,784.7	46,394.7	51,975.7
Recycled Water Supply	5,670	5,900	6,000	6,200	6,500
Total Supply	43,613.7	49,323.7	51,784.7	52594.7	58,475.7
Supply Surplus/(Deficit)	**0**	**0**	**0**	**0**	**0**

[1] Potable, recycled and near term-annexation demands.

Source: Table 6 of the City of Chula Vista University Innovation District Project WSA&V Report.

Historical & Projected Potable Water Demands



CONCLUSION

- Water demand and supply forecasts are included in the planning documents of Metropolitan Water District of Southern California, San Diego County Water Authority, and the Otay Water District.

- Actions necessary to develop the identified water supplies are documented.

- The SB 610 & SB 221 WSA&V Report documents that sufficient water supplies are planned for and available over the next 20 years.

- The Board has met the intent of the SB 610 and SB 221 statutes.

STAFF RECOMMENDATION

That the Board of Directors approve Senate Bills 610 & 221 updated Water Supply Assessment & Verification Report dated August 2016

for the

City of Chula Vista
University Innovation District

QUESTIONS?