Chapter 7 Technical Analysis and Data Management

The Technical Analysis and Data Management section is intended to ensure the efficient and effective use of available data in developing and implementing the East Stanislaus IRWMP, as well as describe stakeholder access to data, and how that data generated by IRWM implementation activities can be integrated into existing State databases.

7.1 Technical Analysis

> The IRWMP must document the data and technical analyses used to develop the IRWMP.
>
> *- Proposition 84 & 1E IRWM Guidelines*, November 2012, Page 22

The East Stanislaus IRWMP has been developed using sound technical information, analyses, and methods. Information, documents, and studies were collected from various sources including the cities of Modesto, Turlock, Ceres, and Hughson, the Central Valley Regional Water Quality Control Board, Stanislaus County, and the California Department of Water Resources. Multiple local water planning and land use documents were reviewed and used to prepare the East Stanislaus IRWMP. These include Urban Water Management Plans (UWMPs), Water Supply Master Plans (WSMPs), project Environmental Impact Reports/Environmental Impact Statements (EIRs/EISs), General Plans and feasibility studies. Additionally, specialized studies, such as those evaluating the potential for future climate change in the Central Valley, were reviewed and used to prepare specific plan sections. Some of the key documents used in the East Stanislaus IRWM planning process are summarized in Table 7-1. All documents cited in the References section of this IRWMP were also reviewed and used in development of the East Stanislaus IRWMP.

Table 7-1: Key Documents Used to Prepare East Stanislaus IRWMP

Document	Year	Author	Description
Modesto Irrigation District Agricultural Water Management Plan for 2012	2012	Modesto Irrigation District	Assesses current efficient water management practices, evaluates additional practices that may conserve water, and presents opportunities for MID to demonstrate existing accomplishments in water use efficiency.
Oakdale Irrigation District Agricultural Water Management Plan	2012	Davids Engineering	Assesses current efficient water management practices, evaluates additional practices that may conserve water, and presents opportunities for OID to demonstrate existing accomplishments in water use efficiency.
Turlock Irrigation District 2012 Agricultural Water Management Plan.	2012	Turlock Irrigation District	Assesses current efficient water management practices, evaluates additional practices that may conserve water, and presents opportunities for TID to demonstrate existing accomplishments in water use efficiency.

Document	Year	Author	Description
Climate Ready Water Utilities Adaptation Strategies Guide for Water Utilities	2012	United States Environmental Protection Agency	Provides strategies to provide water and wastewater utilities with a basic understanding of how climate change can impact utility operations and missions, and examples of actions utilities can take (i.e. adaptive actions) to prepare for these impacts.
Ceres 2010 Urban Water Management Plan	2011	West Yost Associates	Describes current and future water use, sources of supply and associated reliability, and existing and planned conservation measures for the City of Ceres.
DWR Disadvantaged Communities GIS data	2011	DWR	DWR derived GIS data at the census block, census tract, and census designated place levels from the U.S. Census Bureau's American Community Survey. Included median household income information for 2006 through 2010.
City of Modesto and Modesto Irrigation District 2010 Joint Urban Water Management Plan	2011	West Yost Associates	Describes current and future water use, sources of supply and associated reliability, and existing and planned conservation measures for the City of Modesto and Modesto Irrigation District (MID).
City of Turlock 2010 Urban Water Management Plan	2011	City of Turlock	Describes current and future water use, sources of supply and associated reliability, and existing and planned conservation measures for the City of Turlock.
Hydrologic Response and Watershed Sensitivity to Climate Warming in California's Sierra Nevada	2010	Null, Sarah E., Joshua H. Viers, and Jeffery F. Mount	Summarizes a study that focused on the differential hydrologic response of individual watersheds (including the Merced, Stanislaus, and Tuolumne River watersheds) to climate change within the Sierra Nevada mountains of California.
2010 Census Data	2010	U.S. Census Bureau	The U.S. Census counts every resident in the U.S. every 10 years, as mandated by the U.S. Constitution, and collects basic information regarding the residents.
Modesto 2010 Water System Engineer's Report	2010	West Yost Associates	Compares the City's existing water supplies with projected water demands to determine if an overall system supply shortage will exist in the future. Includes analysis of the water system's storage, pumping, and pipeline needs, along with the system's ability to meet the operational and design criteria under various demand conditions.
City of Modesto Municipal Stormwater Program, Stormwater Management Plan	2009	City of Modesto	Provides a comprehensive approach to addressing pollutants in stormwater discharges and describes a monitoring program for assessing the health of local water bodies, evaluating selected treatment control

Document	Year	Author	Description
Turlock Groundwater Basin Groundwater Management Plan	2008	Turlock Groundwater Basin Association	Provides an overview of the local agencies, land uses, and status of groundwater resources in the Turlock Groundwater Subbasin, its basin management objectives and the goal of ensuring a safe, reliable, cost-effective groundwater supply for the area and basin .
Modesto Draft Storm Drainage Master Plan	2008	Stantec	Identifies the storm drainage infrastructure improvements needed to effectively accommodate stormwater runoff under existing and future conditions within the City of Modesto's sphere of influence.
Modesto Wastewater Treatment Master Plan and Supplement	2007 and 2008	Carollo Engineers	Guides improvement and expansion of the City of Modesto's wastewater collection, treatment, and disposal facilities and operation with the goal of accommodating the wastewater service needs of the population and land uses as described in the City's General Plan.
City of Modesto Wastewater Collection System Master Plan	2007	Carollo Engineers	Evaluates the City of Modesto's wastewater collection system, existing and future capacity, and identifies recommended improvements to mitigation deficiencies and accommodate growth.
Hughson Wastewater Treatment Master Plan	2007	Carollo Engineers	Consists of a plan for the Hughson Wastewater Treatment Plant based on projected flows and loadings through the year 2025, including evaluations of treatment, effluent, disposal, and biosolids disposal alternatives. Recommends project including an implementation schedule.
Hughson Sewer System Master Plan	2007	Carollo Engineers	Presents an evaluation of the existing sewer system, recommended facility improvements, and a capital improvement program for a planning horizon through 2025.
Hughson Water System Master Plan	2007	Carollo Engineers	Evaluates the need for water system master planning (including projected future demands) and proposes improvements to mitigate existing capacity deficiencies and expansion improvements.
Hughson Storm Drain Master Plan	2007	Carollo Engineers	Evaluated existing storm drainage system using hydraulic modeling and proposed improvements to enhance system reliability. Developed capital improvement program for buildout conditions of the 2005 General Plan (2030).

Document	Year	Author	Description
City of Hughson Urban Water Management Plan	2006	Carollo Engineers	Describes current and future water use, sources of supply and associated reliability, and existing and planned conservation measures for the City of Hughson.
Oakdale Irrigation District Water Resources Plan	2005	CH2M Hill	Evaluates the district's water resources, delivery system and operations, and examines land use trends to determine how future changes in these areas will impact water supply and demand during the next two decades. Provides specific, prioritized recommendations for OID facility improvements that will comply with CEQA and accommodate available financial resources.
Integrated Regional Groundwater Management Plan for the Modesto Subbasin – Stanislaus and Tuolumne Rivers Groundwater Basin Association	2005	Bookman-Edmonston	Modesto, MID, Oakdale, Oakdale Irrigation District, Riverbank, and Stanislaus County formed the Stanislaus and Tuolumne River Groundwater Basin Association in 1994. They prepared this document since some or all of their service areas rely on groundwater for water needs. The Plan identifies Basin Management Objectives for the Modesto Subbasin, as well as groundwater management area objectives, and groundwater monitoring activities.
City of Hughson Storm Water Management Program, Report of Waste Discharge	2004	Tulloch Engineering	Describes the stormwater quality management activities proposed by the City of Hughson in compliance with the federal stormwater quality regulations.
Turlock Stormwater Management Plan	2003	City of Turlock	Includes description of stormwater management actions for the City of Turlock, Best Management Practices for six control measures, and the efforts the City will take to comply with all necessary requirements.
San Joaquin River Management Plan	1995	Advisory Council to DWR	Plan developed by an Advisory Council and Action Team representing wide range of Federal, State, and local agencies and private interests concerned with protecting the health of the San Joaquin River system. Describes and recommends specific projects, studies, and acquisitions that will help revive the San Joaquin River system.

Document	Year	Author	Description
General Plans (Stanislaus County, Turlock, Modesto, Ceres, Hughson, Waterford, Riverbank, Oakdale)	Various	Various	Formalize long-term visions for the County and cities within the East Stanislaus region. Every city and county in California must adopt a general plan; they serve as a legal document for land use and development. Most plans look 15 to 25 years into the future. Each Plan includes 7 elements – land use, circulation, housing, conservation, open space, noise, and safety.

The technical information included in these plans and studies is ideal for use in developing the East Stanislaus IRWMP. While some of these documents are project-specific, others address water and/or land management issues on a local or regional basis. This allows for an understanding of regional issues shared by multiple entities in the Region, as well as more specific, localized issues, and potential solutions. Furthermore, these documents have been developed by the local and regional entities to address and plan for future growth and development, as well as anticipated changes in climate, economic conditions, and land use. They have been performed with a technical level of care that justifies their use in the IRWMP development.

Beyond the analyses required to prepare this IRWMP, no additional focused models or studies were performed in support of this IRWMP. Although several such studies have been identified as a result of the IRWMP preparation, a lack of funding has, to date, prevented their implementation. These focused studies include preparation of a regional water needs assessment, a county island sewer connection study, and an integrated stormwater resources plan. These studies, once implemented, will help the ESRWMP fill identified data gaps in regional understanding, including projected future demands (on a regional level), areas where sanitary practices may be contributing to groundwater contamination, and opportunities for integrating stormwater management with other regional water supply management. Furthermore, two additional studies are presently underway that cover the IRWM region and will, once completed, be integrated into the East Stanislaus IRWMP. These studies are the Regional Flood Management Plan, which will evaluate flood management risks in the region and propose projects for addressing those risks, and CV-SALTS, a coalition of Central Valley stakeholders working to develop a workable, comprehensive plan to address salinity, including nitrates, throughout the region in a comprehensive, consistent, and sustainable manner. The results of the CV-SALT effort will include programs and management strategies to help manage salt and nutrient loadings to the Modesto and Turlock Subbasins.

The projects included in the East Stanislaus IRWMP have also been found to be technically feasible based on similar projects, pilot studies, technical analyses, benefit analyses, cost estimating, modeling and simulation efforts and data assessments by the project proponents, local planners, and the IRWM planning participating entities. As the projects move closer to design and implementation, technical analyses will be conducted to confirm project feasibility and to provide any necessary feedback to modify the project's plan to improve its likelihood of success. The following table summarizes project-specific documentation that supports the technical feasibility of the East Stanislaus IRWMP projects and the associated technical feasibility of IRWMP implementation.

Table 7-2: East Stanislaus IRWMP Project Technical Feasibility

Project	Documents Completed or Project Status	Description
Hughson Non-Potable Water System	Notice of Exemption (NOE) for the non-potable water distribution system for the City of Hughson (May 2012). Design and Phase 1 Implemented (December 2012).	A NOE was filed since the project is categorically exempt. Additionally, the project is similar to existing facilities currently in operation and is therefore technically feasible.
Hughson Water Blending Facility	Design started February 2013.	Project is similar to existing facilities currently in operation and is therefore technically feasible
Monterey Park Tract Community Safe Drinking Water Project	Water Supply Study for the Monterey Park Tract Community Services District (September 2011)	The Study was prepared for the California Department of Public Health (Safe Drinking Water State Revolving Fund Loan Program) and Stanislaus County Redevelopment Agency.
SRWA Regional Surface Water Supply Project	CEQA and 2013 CEQA Gap Analysis complete. Preliminary Design Report (PDR) complete. Re-evaluation of PDR currently underway for current project needs.	The project is a collaboration between the cities of Turlock, Modesto, and Ceres under the Stanislaus Regional Water Authority JPA. Studies and CEQA documentation completed and on-going.
North Valley Regional Recycled Water Program	Del Puerto Water District Recycled Water Feasibility Study, November 2010	Feasibility study reviews and evaluates recycled water delivery alternatives to provide DPWD with recycled water from Modesto and Turlock
Modesto Area 2 Stormwater to Sanitary Sewer Cross-Connection Removal Project	City of Modesto Area 2 Storm Drain to Sanitary Sewer Cross Connections Removal Final Design (2013)	The project is ready to proceed. Phase 1 of the project is underway as a result of funding through a State Stormwater Grant.
Hughson Water Well No. 9	Test Well is complete. Design of production well started February 2013.	Project is similar to existing facilities currently in operation and is therefore technically feasible
Hughson 7th Street Low Impact Development (LID) Storm Drainage Improvements	Program standards and specifications underway (started March 2013).	Project will be constructed using techniques developed by the City of Portland and the City of Seattle. Since both cities have working projects on the ground, this project is technically feasible.
Municipal Well #41	Turlock Water Master Plan Update, Carollo Engineers, 2009 Project plans and specifications	Master Plan identifies need for project. Plans and specifications provide detailed information required for project implementation.

Project	Documents Completed or Project Status	Description
Water Storage Reservoir NW	Turlock Water Master Plan Update, Carollo Engineers, 2009 Project plans and specifications	Master Plan identifies need for project. Plans and specifications provide detailed information required for project implementation.
Hughson Well No. 9 Arsenic Treatment Facility	Test Well Complete. Design of production facility started in February 2013.	Project is similar to existing facilities currently in operation and is therefore technically feasible.
Canal Drive Stormwater Trunk Line	City of Turlock, Storm Drain Master Plan	Shows alternate means of conveying wastewater – construction of stormwater trunk line parallel to TID Lateral #4
Hughson Regional Surface Water Treatment Plant Pipeline Turnout	Hughson Water Master Plan, Carollo Engineers, 2007	Project is similar to existing facilities currently in operation and is therefore technically feasible.
Arsenic Mitigation Project	Assessment of Arsenic Treatment Technologies	An evaluation of the City water system was conducted to determine if the City is required to install an arsenic removal system to meet the new standard and what current arsenic treatment technologies were best applied to the existing system. In determining preferred technologies, both capital and O&M costs were evaluated, along with site-specific concerns of waste disposal, size and location of treatment units, and staffing requirements for O&M. The assessment report provided the City with a planning level evaluation of currently used arsenic treatment technologies appropriate for the existing City wells and preliminary cost estimates for implementation.
DAC and Native American Outreach and Technical Assistance	Builds upon existing and ongoing IRWM-related outreach.	On-going outreach has been conducted as part of the East Stanislaus IRWM planning process. A more targeted approach will be taken with the implementation of this project. Sound technical assistance will be provided using common outreach techniques to contact DACs and Native American communities in the Region.
Online Data Management System	OPTI was developed as an IRWM project solicitation / tracking tool. This will build upon the existing OPTI system.	OPTI is being used by other IRWM regions throughout California and has proven successful in tracking project and IRWM-related information.

Project	Documents Completed or Project Status	Description
Regional County Island Sewer Connection Study	Will build upon existing data. No work completed to date.	Project would identify areas within the IRWM Region that rely on septic sewer systems, evaluate potential impacts on groundwater, determine whether positive conveyance systems could be extended to serve them or if other non-septic means could be developed to protect groundwater quality. Study will rely on existing, available data, and collect more data if necessary.
Regional Water Needs Assessment	No documents prepared to date; would build upon existing UWMPs and county population projections.	Project would develop a region-wide demand projection to increase the understanding and better management of local water supplies.
Integrated Stormwater Resources Management and Groundwater Augmentation Plan	No work completed to date.	Project will evaluate and describe stormwater management in the region and identify opportunities and projects that will provide flood protection, water supply augmentation, and other benefits including potential groundwater recharge opportunities.
Dennett Dam Removal	Dennett Dam Removal – Concept Level Basis of Design Report	The Report provides detailed information about the dam construction, site conditions, and considerations for the removal of the dam, including a comparison of alternatives and a recommended approach.
Northeast Storm Drainage Interceptor Project	Northeast Area Offsite Watershed Storm Drainage Evaluation (2005).	Project is at conceptual level. Project evaluated assessed stormwater management and runoff impacts from areas northeast of Modesto's General Plan Area.
Hughson Water Well No. 10	Hughson Water Master Plan, Carollo Engineers, 2007	Project is similar to existing facilities currently in operation and is therefore technically feasible.
Hughson Water Well No. 11	Hughson Water Master Plan, Carollo Engineers, 2007	Project is similar to existing facilities currently in operation and is therefore technically feasible.
Hughson Well No. 5 Depth Extension		Project is similar to existing facilities currently in operation and is therefore technically feasible.
Hughson Well No. 3 Depth Extension		Project is similar to existing facilities currently in operation and is therefore technically feasible.
Dos Rios Floodplain and Riparian Habitat Restoration	CEQA, permit acquisition, and earthwork design are complete for some phases of the project.	Project is similar to existing facilities currently in operation and is therefore technically feasible.

Project	Documents Completed or Project Status	Description
La Grange Floodplain Restoration and Spawning Gravel Augmentation	Conceptual planning complete. Design, CEQA documentation and permits still required.	Project is similar to existing facilities currently in operation and is therefore technically feasible.
Tuolumne River Trail Project	Tuolumne River Regional Park Master Plan and Master EIR (2001)	The Joint Powers Authority of the Cities of Modesto and Ceres, and Stanislaus County adopted the Master Plan and a Master EIR for the Plan. The Tuolumne River Trail Project is included in both of these documents which provide a vision for the future of the Tuolumne River Regional Park.

7.3 Data Management

> The IRWMP must describe the process of data collection, storage, and dissemination to IRWM participants, stakeholders, the public and the State.
>
> Data is technical information (e.g. designs, feasibility studies), and information gathered for a specific project in any phase of development including planning, design, construction, operation and monitoring.
>
> - *Proposition 84 & 1E IRWM Guidelines,* December 2012, Page 21

Data management is an important aspect to IRWM planning because the process encompasses multiple water and wastewater agency service areas, various watersheds, political areas, and groundwater basins, and provides the foundation on which water resource management and planning decisions are made. On a regional basis, this data management includes multiple data sources and a variety of methods for data collection, processing and management. Additionally, the IRWM planning process itself generates significant amounts of data related to the project review process and implementation of the IRWMP, such as project and Plan performance monitoring data. As such, development of a comprehensive data management system is ideal to promote the efficient and effective use of data.

Data related to the East Stanislaus IRWMP includes project- and program-specific technical information, such as feasibility studies or design documents, and any data collected during project or program development, implementation, or operation or as a result of required monitoring efforts. Data that may be collected includes, but is not limited to:

- Groundwater elevations
- Groundwater quality data
- Groundwater pumping volumes
- Water demand
- Surface water diversions
- Location of sensitive species
- Stream flows and/or stages
- Wastewater treatment plant flow data
- Water quality data
- Weather data (precipitation, evapotranspiration, temperature)
- Land use data

At present, the East Stanislaus Region will utilize existing, industry-standard data collection and management procedures for implementation of IRWMP-related projects. Modification to these procedures may occur as a result of the development of a region-wide data management system in order to ensure consistency with this new regional database once it is established. Typically, only data that is meant to be publically available is uploaded to entities' websites and/or uploaded to Statewide databases. Projects implemented outside of the Region's IRWM Program will be encouraged to follow similar protocols to maximize usefulness and compatibility of data collected throughout the region, and to improve potential integration into statewide databases. The types of data to be collected and anticipated collection and storage procedures are presented in the sections below.

7.3.1 Data Needs within the Region

While there has been significant progress in the last decade in characterizing the Region's water supplies, demands, groundwater and surface water availabilities and quality, wastewater treatment and collection needs, and potential for recycled water use, there remain data needs within the East Stanislaus Region. For the most part, these data needs center around the portions of Stanislaus County not found within urbanized areas (such as Modesto, Turlock, Ceres, Hughson, Waterford, Patterson and Oakdale), and are required to fill data gaps in knowledge necessary for the effective management of regional water supplies. Additional data needs include information regarding local hydrogeology and opportunities for groundwater banking, data pertaining to localized flooding and storm water management, and region-wide information to promote the reuse of storm water management.

Many of the data gaps identified as a result of this IRWMP developed are addressed through inclusion of a project in this IRWMP. For example, there are many areas in rural Stanislaus County that are not connected to municipal sewer systems and instead rely on stand-alone septic tanks/systems for wastewater disposal. These areas, referred to as County "islands", are often the same areas that rely on private groundwater wells for water supply. Septic systems are, however, a key source of contamination to shallow groundwater aquifers and as such, pose a continuing source of groundwater quality problems for these rural communities and for the groundwater basins as a whole. Groundwater is a critical water supply for the East Stanislaus Region, and understanding and managing potential sources of contamination to the underlying groundwater basins is needed to sustain this important supply. The **Regional County Island Sewer Connection Study,** included in this Plan, would help identify County "islands" within the region that are on septic systems, determine potential groundwater impacts (current and future) from the septic systems, analyze the feasibility of connecting these areas to centralized or satellite collection and treatment systems, and perform an associated preliminary financial analysis of the most feasible and reasonable alternatives. The Study would build upon existing data and information gathered by the County.

Other projects included in the Plan that would help fill data gaps include the following:

- **Regional Water Needs Assessment** - The purpose of this study is to complete a comprehensive assessment of current and future potable water demands within the entire East Stanislaus Region. This information is critical to managing water supplies under various hydrologic conditions to ensure water supply reliability and to prepare for droughts and potential climate change impacts. In essence, one must know the demands in order to be able to ensure the supply. UWMPs have been prepared by many entities within the Region (for example, by the Cities of Modesto, Turlock and Ceres), but not all areas and water users are included in the urban water management planning jurisdictions as required by the State (e.g. Hughson), and these areas are typically dependent on groundwater as their primary supply. This task will help fill the information gap and assess the current and future demands from those parts of the region where UWMPs are not required and, as needed, update the information where UWMPs are required so as to provide the region with essential information regarding projected future demands in order to effectively manage their water supplies to meet demands in a sustainable fashion. As water demands within the Region continue to increase and as groundwater quality continues to be a major factor threatening the sustainability of regional supplies, it is critical that a complete understanding of regional demands be prepared; that new, supplemental supply sources be identified, obtained, and integrated into the Region's water supply portfolio; and that effective programs be established to protect and sustain existing regional water supplies for all users, including the environment.

- **North Valley Regional Recycled Water Feasibility Study** - Del Puerto Water District, in cooperation with the cities of Modesto and Turlock, are currently preparing the North Valley Regional Recycled Water Feasibility Study to evaluate the potential for regionalizing recycled water use in Stanislaus County. As presently envisioned, the project could produce and deliver up to 30,000 acre-feet per year (AFY) of disinfected tertiary treated recycled water to western Stanislaus County. The source of recycled water includes treated water from the Cities of Turlock and Modesto. Another related feasibility study will be completed to analyze options for conveying the recycled water to the west side of the county, to Del Puerto Water District and other potential users, where it could be used for irrigating food crops, public and privately owned landscaping, and for industrial uses. The feasibility study will further the understanding of how recycled water could be transported via the Delta-Mendota Canal (DMC), which is typically used to transport raw water. It will provide data and information to both the East Stanislaus Region and the Westside-San Joaquin Region. Regulatory and permitting requirements would be evaluated, as well as water rights and a DMC water quality mixing evaluation. For the mixing evaluation, field testing and numerical simulation of expected mechanical and chemical interactions between recycled water and raw water would be completed.
- **Integrated Stormwater Resource Management Plan and Groundwater Augmentation Plan** – The East Stanislaus Region will prepare an Integrated Stormwater Resources Plan to develop a comprehensive understanding of stormwater resource management in the region, including identification of areas where stormwater runoff is currently causing problems and where stormwater runoff is critical to maintaining habitats. It will also conduct a groundwater quality study of the Modesto and Turlock Groundwater Subbasins of the San Joaquin Valley Groundwater Basin to aid in understanding regional groundwater quality and the role that stormwater percolation has on groundwater quantity and quality. Lastly, it will analyze the feasibility of managed groundwater recharge in the East Stanislaus Region using stormwater runoff as potential source water. The Plan will contribute to better understanding of the underlying groundwater subbasins, the impacts of land use planning and stormwater management activities on the subbasins, and to developing possible, multi-benefit solutions for managing the Region's water resources and improving stormwater management.

While other projects included in the East Stanislaus IRWMP are not studies or plans, many of them will have data collection as an aspect of project development and completion. Additionally, some of the projects are not yet ready for construction; some require preparation of plans, design documents, and other technical reports. The methods for collection and storage of these documents and their associated data are described in the following sections.

7.3.2 Data Collection and Storage

To date, data collection and storage is primarily managed on an individual basis by the members of the ESRWMP and local stakeholders. At present, each entity collects and manages data using its own protocols and methodologies. The four ESRWMP member agencies house data on their respective servers and use software such as Microsoft Excel, ArcGIS, Supervisory Control and Data Acquisition (SCADA), New World Systems, and Wonderware. Some of the data collection completed by the ESRWMP member agencies is summarized in the following table.

Table 7-3: Data Collection for the ESRWMP Member Agencies

Data Type	Frequency of Data Collection	Method for Data Collection
Turlock groundwater quality	Monthly	Well sampling
Turlock groundwater elevations	Monthly	Electronic water level indicator
Turlock water demand	Daily	Meter readings
Modesto groundwater quality	Monthly, quarterly	Well sampling
Modesto groundwater elevations	Monthly	Sounding cable
Modesto water demand	Daily	SCADA, meter readings
Ceres groundwater quality	Annual	Well sampling
Ceres groundwater elevations	Quarterly	Sounding cable
Ceres water demand	Monthly	Meter readings
Hughson groundwater quality	Weekly, quarterly, annually	Well sampling
Hughson water demand	Daily	SCADA
Hughson wastewater treatment plan groundwater monitoring	Quarterly	Monitoring well sampling

The STRGBA is also implementing the Well Field Optimization Project in order to improve understanding of the Modesto Subbasin groundwater system and its infrastructure, and to develop tools for optimizing operations of well fields in the subbasin in conjunction with surface water resources. Phases 1 and 2 of the project have been partially funded by Local Groundwater Assistance grants from DWR. A key component of the project is an inventory of all the wells operated by the STRGBA member agencies (i.e. MID, OID, Stanislaus County and the cities of Modesto, Riverbank, and Oakdale) and development of a web-based data management system (DMS) where well data can be accessed, queried, plotted and shared amongst the member agencies. The DMS is a Microsoft Access database with a customized interface and customized Decision Support System tool to automate the decision process for system operators in selecting wells to meet deliveries.

A regional data management system proposed by the ESRWMP and referred to as the **Online Data Management System** is also included in the East Stanislaus IRWMP as a project; implementation of this data management system is pending funding. The Online Data Management System would create a consolidated web-based data management system to facilitate the collection and analysis of various data types, monitoring and reporting, and provide stakeholder access to data. This data management system would be developed to facilitate the sharing of data with existing State databases and the DMS created as part of the Well Field Optimization Project. The East Stanislaus Online DMS would connect with the East Stanislaus IRWMP website, located at http://www.eaststanirwm.org/. Presently, data and documents specific to the East Stanislaus IRWM planning process are uploaded to the website and made available for public review

(including proposed projects through the Region's OPTI project solicitation website). The East Stanislaus Regional Water Management Partnership (ESRWMP) is responsible for maintaining the website and documents available there.

Stakeholders participating in the IRWM planning process and project proponents are responsible for collecting, storing, and maintaining project-specific data in the individual entity's existing data management system and are tasked with uploading necessary, publically available data to applicable statewide databases, discussed in more detail in Chapter 7, Technical Analysis and Data Management. Any required monitoring after project implementation will be implemented consistent with applicable standards and reported to the State. Each entity that uploads data to its DMS, the East Stanislaus IRWMP website, and/or applicable statewide databases performs quality assurance and quality control (QA/QC) measures to validate the data. These measures include third-party reviews of data collected, laboratory quality control measures such as blind duplicates and matrix spike samples, and model calibration and sensitivity analyses.

While each entity is responsible for QA/QC and maintenance of their individual data and databases, the ESRWMP or its designee will oversee any data compilation related to IRWMP implementation (including the implementation of projects contained within the IRWMP) for presentation on the region's website. By making data available by request and available online through the ESRWMP member agencies' websites, project proponents' websites, and the East Stanislaus IRWMP website, data transfer and sharing among the ESRWMP, participating entities, and interested parties including local, State and federal agencies is made possible.

7.3.3 Data Dissemination

During preparation of the East Stanislaus IRWMP, data has been disseminated primarily via project-specific documentation and associated meetings, inter-agency collaboration on issues and projects of mutual interest, discussion at PAC, SC, and ESRWMP meetings, and through website postings on the East Stanislaus IRWM Region's website. Project proponents, PAC members, and IRWM planning participants are all jointly responsible for data dissemination. As previously mentioned, project-specific data is shared by and between participating agencies during project development and made available to the public at various milestones. Environmental documentation processes completed to comply with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) have also allowed for dissemination of data developed for review by interested stakeholders and the public. These methods will continue to be employed.

As described previously, all data specific to the East Stanislaus IRWM planning process will be housed on the East Stanislaus IRWM website and/or maintained by implementing agencies. Project- and program-specific data will be housed on the project proponent's individual data management systems. Hard copies and CDs may be available to interested parties without internet access. Future East Stanislaus IRWMP updates will be distributed in a similar manner to that employed for this IRWMP.

As described in Section 7.3, Plan Performance and Monitoring, East Stanislaus IRWMP project proponents implementing projects through the IRWM Program will be required to prepare project-specific monitoring plans that adhere to the data collection techniques and procedures established by existing statewide programs. This will ensure compatibility of data among projects implemented through the IRWM Program, as well as compatibility with relevant statewide databases. Individual project proponents will be responsible for collecting data in accordance with the approved project-specific monitoring plan, which will clearly identify monitoring and analytical techniques and QA/QC procedures to be implemented, and will describe how those techniques are compatible with the requirements of appropriate statewide database(s). The individual project sponsor will be

responsible for implementing and reviewing the data collection and QA/QC protocols to validate that data were collected in accordance with the QA/QC procedures required as part of the project monitoring program. In addition, project proponents will be responsible for reviewing the data for accuracy at the time of entry to the database to identify any errors. Once data collection and QA/QC has been completed in accordance with provisions of the approved project-specific monitoring plan, the project sponsor will submit the compatible data to the appropriate statewide database and provide the ESRWMP with confirmation that the data has been submitted to the appropriate statewide databases. Dissemination of data to statewide programs administered by the State Water Resources Control Board (SWRCB), the California Department of Water Resources (DWR), and other entities will support statewide data needs and allow for another method for public access. The current methods used to disseminate data to the State for programs such as CASGEM will continue in their present form, pending the development of a regional database.

East Stanislaus IRWM planning participants have supported statewide data needs in the past through voluntary participation, and will continue to do so in the future by making collected data available to programs such as the California Environmental Resources Evaluation System (CERES), Surface Water Ambient Monitoring Program (SWAMP), Groundwater Ambient Monitoring Assessment (GAMA) program, and the California Environmental Information Catalog (CEIC) when appropriate and feasible. Data will also be disseminated to DWR for inclusion in its databases, such as the Water Data Library (WDL), which contains groundwater level and water quality data. Finally, stakeholders, agencies, and the public may request all publicly available IRWMP data (i.e., non-proprietary and non-confidential) from any of the MOU signatories for this IRWMP.