REPORT ON THE WATER SUSTAINABILITY ATLAS PILOT PROJECT WITH RECOMMENDATIONS

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Prepared for California Department of Water Resources

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1. INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The Water Sustainability Atlas (Atlas) was developed because a need was identified for a tool that facilitates the implementation of sustainable water management through a transparent and cooperative process by tracking progress, communicating the value of past investments, and building partnerships for multi-benefit projects.

The Atlas is a flexible tool for:

- Sharing accomplishments and value of past investments,
- Communicating future projects, needs, and priorities to facilitate partnerships for multi-benefit projects and improve return on investment (ROI),
- Tracking and reporting progress toward sustainable water management to obtain support from the public and the Legislature,
- Collaborating on regional and statewide investments in a transparent manner, and
- Building relationships among the California Department of Water Resources (DWR) and regional and local participants.

This report documents how the Atlas was conceived, how it will benefit its participants, accomplishments and lessons learned, platform features, and recommendations for successful implementation.

1.2 BACKGROUND

The concept for the Atlas was initially introduced by stakeholders during the development of the *IRWM Stakeholder Perspectives* document as a tool for communicating the value and accomplishments of Integrated Regional Water Management (IRWM). IRWM practitioners have often emphasized the key role of IRWM in meeting regional and statewide resource management challenges. Regional coalitions like these, including the newly formed Groundwater Sustainability Agencies (GSAs), require stakeholders to work together to meet common goals that are in the public interest.



The California Department of Water Resources, too, strives to manage the same common resource to support statewide priorities and has lacked the necessary data to do this efficiently. In many instances, intersecting priorities of all three (state, regional, and local agencies) exist and create opportunities for partnership to implement multibenefit, multi-priority projects. The Atlas was conceived as a tool that will open the lines of communication between DWR and regional and local water management agencies to track sustainability, build partnerships, and improve ROI in support of sustainable water resource management.

The following strategic initiatives are advanced through the Atlas' broad-reaching purpose:

- <u>Meet Strategy 4 Communicate Value of the IRWM Stakeholder Perspectives report:</u> The Atlas will allow
 regional water management groups (RWMGs), groundwater sustainability agencies (GSAs), and other
 water agencies to document and communicate local accomplishments and success stories to both the
 public and the Legislature in an easy-to-use common web-based platform.
- <u>Support development of the California Water Plan (CWP)</u>: The Atlas will streamline the process of capturing
 regional and local water management needs to establish investment priorities as they relate to DWR's four
 societal values so that they can be rolled up into California's water planning cycles to support decisionmaking for future state investments and incentives programs. Participants will also be able to report
 progress toward meeting societal goals and sustainability indicators identified in their planning efforts and
 the CWP, showing the valuable ROI and enabling adaptive management at both the State and regional/local
 level.

- <u>Measure progress toward achieving sustainability according to the Sustainable Groundwater Management</u> <u>Act:</u> GSAs will be able to use the Atlas to report progress in implementing the Sustainable Groundwater Management Act (SGMA), including their progress towards satisfying those indicators.
- <u>Support actions identified in the California Water Action Plan:</u> The Atlas will help increase regional selfreliance and integrated water management across all levels of government through streamlining interagency communication and stakeholder cooperation by centralizing information to support multi-benefit project development and local investment needs. The Atlas will also help facilitate the development of feasible, multi-benefit projects among willing local partners and help identify sustainable and integrated financing opportunities.

1.3 BENEFITS OF THE ATLAS

The Atlas has wide-ranging applicability across programs and jurisdictions and will serve and benefit many stakeholders.

The Atlas will:

- <u>Inform Decisions:</u> Collect accurate information on financing needs and intended outcomes to support decision-making and guide state investments.
- <u>Communicate Value</u>: Communicate value of past investments to the public and the Legislature by documenting local, regional, and statewide accomplishments and the value of past investments.
- <u>Build Partnerships:</u> Meet local needs for developing multibenefit projects and achieving sustainable water management goals through improved interagency communication.
- <u>Increase Transparency</u>: Provide access to information on investments, accrued benefits, and progress toward sustainable water management to facilitate accountability.
- <u>Improve ROI</u>: Improve return on investment (ROI) and effectiveness of actions and intended outcomes by collecting defensible information on financing needs and outcomes to support decision making for future investment.
- <u>Share Information:</u> Make information accessible and usable by the public and state.

1.4 ACCOMPLISHMENTS TO-DATE

The Atlas is built using an existing platform, currently implemented for several IRWM regions across the state. The platform was chosen because of its wide acceptance and success in supporting regional and local water management planning activities. The platform was enhanced to include statewide coverage of projects and regional summaries and successes, along with new dashboards for decision support, report development, and tracking of sustainability indicators.

The prototype Atlas has been successfully used in three pilot projects for the American River Basin IRWM region, the San Diego IRWM region, and the Mojave IRWM region. These regions were selected because of their interest in and support for the development of a regional Atlas, readily available regional and project information, and the slight differences in the information collected on projects for their regions to assess the overlaps and gaps in information. The following describes the information that was collected from the regions and how it was used in the Atlas.



1.4.1 IRWM Region Summaries

Region summary information had been collected in 2013 during development of region summaries for the CWP and served as the basis for the IRWM region summary information used as input to the Atlas. The summaries were updated and supplemented to include current information describing accomplishments and successes, such as region story and history, description, regional funding, key challenges, milestones, and achievements. Each regional representative was provided a copy of the previously collected information and asked to provide updates along with photos highlighting activities and work accomplished in Excel format. This information was then loaded into the Atlas using easy-to-use data entry interfaces.

1.4.2 Project Information

Two of the pilot regions utilize an online project database to collect and prioritize projects for inclusion in their IRWM Plans as well as for Stormwater Resources Plans. The project information stored in these databases includes project description, location, contacts, objectives, status, funding, and other IRWM or stormwater-related information. The Atlas includes an Excel template for project import. This template was used to organize information from the databases to a format that could be easily transferred to the Atlas.

For two of the regions, the projects were exported from the regional databases and fields were reviewed, compared, and matched to the Excel template. The regional project databases did not include information related to the CWP's societal values and outcomes. Additionally, operation and maintenance costs of the projects did not exist in the regional databases. In the case of San Diego, only the newer projects were transferred from the database, and then that list was augmented with projects from other sources. In the case of the Mojave region, which does not utilize the same online project database, the template was used to organize project information from various sources.

Prior to and after the information was loaded into the Atlas, the IRWM region representatives reviewed the presentation of the information in the Atlas and provided feedback. Feedback was collected and incorporated as requested.

1.5 FEEDBACK AND LESSONS LEARNED

The following are lessons learned from the pilot projects and other feedback obtained from stakeholders:

- There is strong support for the Atlas: Stakeholders feel that the Atlas is very easy to use, and the advanced graphical visualization of information is highly desirable. The Atlas will meet the recommendations in the *IRWM Stakeholder Perspectives* document and will also save time for local agencies for providing public access to their project information.
- There are discrepancies in the level of information collected and available at the regional and local level: Operations and maintenance costs, project status, and other project information are not always tracked to the equal level of detail by different agencies. Project objectives and region-specific data fields needed to be collected in a more standardized format.
- CWP sustainability indicators are a new concept, are not tracked, and may not always align with the regional or local objectives: Many regions track indicators and objectives according to the goals of their IRWM Plans, which may or may not always align with the sustainability indicators and objectives identified in the CWP. Additional collaborative work needs to occur between DWR and regional and local agencies to correlate and align statewide sustainability indicators with regional and local objectives.
- Some regional and local water management groups lack staff resources to collect, input, and review
 information: Organizing the information for input into the Atlas requires some level of effort from the region.
 Some regions rely heavily on stakeholder participation in a database and don't need as much assistance,
 while others rely on external project lists and files and may need support in consolidating, organizing, and
 reviewing the information. DWR may have to provide technical assistance to regional and local agencies for
 organizing and inputting data into Atlas.
- **Regional water management groups find value in the information presented in the Atlas:** Regional participants showed support for the Atlas and how the information is presented to promote their

accomplishments and further their partnership with DWR. These participants felt that the Atlas met the stakeholder recommendations to communicate value in the *IRWM Stakeholder Perspectives* document.

• Regional water management groups view participation in the Atlas as an opportunity for relationship-building: Regional participants felt that participation in the Atlas will help support networking opportunities between DWR and regional and local entities and offer a good opportunity for DWR to get more engaged in regional and local activities. This will result in improved relationships and stronger partnerships.

These lessons and feedback will drive the approach to full scale implementation discussed in the next sections.

2. DESCRIPTION OF THE ATLAS

2.1 OVERVIEW

The Atlas is a GIS-enabled, web-based application that includes several modules to meet the strategic initiatives and benefits described in the previous section. The Atlas is easy-to-use and intuitive in order to encourage stakeholder participation and streamline participation efforts. It also meets currently published preliminary protocols developed to support the AB 1755 Open and Transparent Data Act. As a federated system that leverages existing constituent databases, the Atlas allows local and regional participants to port their data to the Atlas either periodically or potentially in real-time depending on their needs. For participants who do not have an existing database, they could choose to enter their information directly into the Atlas and use it as their own database. As a result, users are not confined to a specific method of participation in the Atlas.

Descriptions of the following modules are in included in this section:

- Regions
- Projects
- Sustainability
- Dashboard
- User Manager



2.2 REGIONS MODULE: SHARING VISION, SHOWING VALUE

The Regions Module showcases the accomplishments and successes of different regional and local groups, their stories of ideas and values, successful partnerships, past and current investments, and water management summaries. The regional summaries communicate and promote the value of past investments and a vision for the future, including featured projects that demonstrate the tangible value of the investments.

Participants can tell their story of challenges and successes through text and photos. Web-based access encourages continued collaboration, partnerships, and development of new ideas by eliminating barriers to accessing this information. Participants have control over the information being shared and are able use simple forms to ensure information is always up-to-date and progress and accomplishments are communicated efficiently.



Figure 1 – Region Atlas Summary

Regional information is accessed through a map-based interface. When clicked, an entity's summary is displayed, including pictures, stories, contact information, featured projects, and the entity's atlas. Regional information is available to all users in a read-only format.

2.3 PROJECTS MODULE: IDENTIFYING LOCAL VALUES AND PRIORITIES

The Projects Module communicates the needs, values, and priorities of regional and local participants and stakeholders. Regional and local project needs help identify opportunities for partnerships by showing unfunded project needs for implementing projects that address unmet multi-beneficial goals. Project proponents at both the state and local level can determine where these partnerships will be most effective and meet common goals.

Participants will be able to enter projects directly into the Atlas using easy-to-use import templates or transfer information automatically from their existing databases. Participants control the project information included, ensuring that their project ideas and values are always communicated and displayed.

Projects are accessible via either a map or list-based view. The map-based view allows users to filter color-coded projects by various project criteria to help streamline identification of multi-benefit projects. Participants may click on the project location to view the project details. Entity administrators who manage the project information in the Atlas can also edit the project if needed.



Figure 2 - Project Map

The list-based view of the projects shows all the entity's projects in a tabular view showing status, project costs, and unfunded amounts. This allows participants and the State to identify project needs and supports partnership identification. Entity administrators may also add new projects to the list using easy-to-use forms, import projects using an Excel template, and export their project list for streamlined project information review and update.

Project information can be added and updated in the project details window. The project details window collects basic project information including descriptions, status, investments, expenditures, objectives, and other information used to support statewide planning, analysis, and partnership opportunities.

REPORT ON THE WATER SUSTAINABILITY ATLAS PILOT PROJECT WITH RECOMMENDATIONS

Projects					LIST VIEW 🕅 MAP VIEV
				() ADD	
Name	Status	Total Project Cost	Local Cost Match	Grant Amount	Unfunded Amount
PMWD-CWD Intertie Project for Conjunctive Use and Climate Adaptation	N/A	\$0	\$0	\$0	\$0
ite 18A Culvert Replacement and Fish Passage Enhancement Project	Completed	\$ 0	\$ 0	\$0	\$0
PMWD-CWD Intertie Project for Conjunctive Use and Climate Adaptation	Not Started	\$ 3,108,360	\$ 0	\$ 0	\$0
Vest Roseville Recycled Water Pump Station Expansion	Not Started	\$ 250,000	\$ 0	\$ 0	\$ 250,000
Vest Side Dr. Well	In Progress	\$ 20,000	\$ 10.000	\$ 0	\$ 10,000
Voodcreek West ASR Well	Not Started	\$ 2,500.000	\$ 0	\$ 0	\$0
/est Side Tank and Pump Station	In Progress	\$ 23,000,000	\$ 5,000,000	\$ 0	\$ 11,000,000
ook Riolo to Baseline Pipeline	Not Started	\$ 85,000	\$ 0	\$ 0	\$ 85,000
SWC Alternative Water Supply Project	Completed	\$ 4,595.000	\$ 2.297.500	\$0	\$ 2.297.500
leasant Grove WWTP Expansion - Phase 1	Completed	\$ 61,000,000	\$ 0	\$ 0	\$ 61,000,000
Vestern Placer County Groundwater Management Plan Update	In Progress	\$ 5,000	\$ 0	\$0	\$ 5,000
hicken Ranch Slough Restoration and Demonstration Project	Not Started	\$ 2,114,067	\$ 0	\$ 0	\$0
bandoned Wells Program (AWP)	In Progress	\$ 0	\$ 0	\$ 0	\$0
k Grove Green Street Project: Repurposing Urban Runoff with Green Instructure Technologies	In Progress	\$ 5,000,000	\$ 2,500,000	\$ 2,500,000	\$ 5,000,000
inda Creek Erosion Control and Enhancement	Not Started	\$ 150,000	\$ 0	\$ 0	\$0
ampton Water Treatment Plant Improvements	In Progress	\$ 200,000	\$ 0	\$ 0	\$ 200,000
rden Service Area Distribution System Pipe Realignment and Meter Installation Project	In Progress	\$ 75,700.000	\$ 75,700,000	\$ 0	\$0
acramento State Turf and Irrigation Replacement	Not Started	\$ 2,427,055	\$ 0	\$0	\$ 2,427,055
ID Treatment Plant	In Progress	\$ 154,857,351	\$ 2,200,000	\$ 0	\$ 152,657,351
0 Inch PCWA Phase III Pipeline	In Progress	\$ 3,600.000	\$ 3,600,000	\$ 0	\$0
/ater Distribution System Rehabilitation	In Progress	\$ 13,225,000	\$ 345,000	\$ 0	\$ 12,880,000
ew City Water Well 10	Not Started	\$ 2,610,000	\$ 0	\$ 0	\$ 2,610,000
apehart System Connecting Main	Not Started	\$ 2,000,000	\$ 1.000.000	\$ 0	\$ 1,000,000
acramento Suburban Water District 2014 Meter Retrofit Project	Completed	\$ 1,807,175	\$ 1,500,000	\$ 0	\$ 307,175

Figure 3 - Project List

Opti ATLAS		HOME	ATLAS INDICATORS P	ROJECTS PROFILE REGION LOGOUT
	Site 18A Culvert Replacement and Fish Passage Enhancemen	nt Project		
	All Details C Frequently Updated			🕀 ADD 🔥 EXPORT
N			Grant Amount	
	Sections: 🗾 🧪 🗯 🛱 🛛 Overall Progress: 💻		\$ 0 \$ 0 \$ 0 \$ 0	
	Overview		\$ 0	
	Overview	^	\$0	
	A		\$0	
			\$0	
	Status	^	\$0	
			\$0	
			\$ 0	
	🖠 Outcomes	^		
	C Depetite		\$0	
	Benefits	~	\$0	
			\$ 0	
			\$0	
	DELETE PROJECT		\$ 0	
CONTACT US				POWERED BY

Figure 4 - Project Details Window

2.4 SUSTAINABILITY MODULE: TRACKING STRATEGIES AND PROGRESS TOWARD SUSTAINABLE WATER MANAGEMENT

Investment strategies and regional goals are tracked as regions progress toward sustainable water management. The Atlas enables transparent, accountable, and effective investment at a regional and local scale through tracking of sustainability indicators and intended outcomes as they drive local sustainable water management. Participants can easily report progress toward meeting intended outcomes, showing valuable ROI and enabling adaptive management.

Sustainability indicators are associated with intended outcomes according to one of the four societal values of the CWP. Applicable indicators may be selected and tracked over time. Once an indicator is selected, participants may define a geographical area for tracking the indicator, enter new tracking data, or view and chart trends over time.

ATLAS				INDICATORS PROJECTS PROFILE REGION			
Sustainability Indicators							
Outcomes	• Public Health and Safety	Cosystem Vitality	8 Healthy Economy	Opportunities for Enriching Experiences			
A reliable water supply for domestic needs, sanitation, and fire suppression				✓ Select Indicators			
Particular states of the state	Population and Percentage of Population wit	th Reliable Domestic Water Supplies		+ 🗉 📀			
Reduced number of people exposed to waterborne health threats such as contaminants or infectious	This indicator analyzes the level of access to reliable do climatic conditions, and (2) acceptable service standards	This indicator analyzes the level of access to reliable domestic water supples. For this indicator, access to reliable domestic water supply is defined as the ability to meet (1) water demands consistently across the full range of climatic conditions, and (2) acceptable service standards during catastrophic conditions. A reliable water supply should be of suitable quantity and quality for its purpose.					
agents	The target outcome for this indicator is 100 percent of t	he population having access to reliable domestic water	supplies.				
Reduced loss of life, injuries and health risks caused from extreme hydrologic conditions, catastrophic	Population and Percentage of Population wit	thout Access to Reliable Sanitation		+ 🗉 📀			
events and/or system failures (including infrastructure)							
TACT US				POWER			

Figure 5 – Sustainability Module

2.5 DASHBOARD: ESTABLISHING INVESTMENT PRIORITIES

The Atlas dashboards roll up and report out on the captured local and regional water management needs and progress to help establish investment priorities. These priorities can then be rolled into the State's planning cycles to support decision making for future state investment and incentives.

Historical expenditures, projected investments, investment needs, and local priorities are collected in the Projects Module. Since all the information is georeferenced, it can be rolled up and visualized at different geospatial scales and may utilize various geospatial analysis tools. The dashboards also allow for drill down reports into specific information with the ability to track expenditures and needs over time. These reports can also be exported for direct use in the CWP. All reports and exports will be available at the click of a button, a significant time savings over current methods.

Regional and local participants have access to a similar dashboard displaying information pertinent to their entity, such as historical expenditures, distribution of project objectives, and other summary information.

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Opti atlas				INDICATORS PROJECTS PROFILE REGIO	
T State of California				SOCIETAL VALUES Ø MAJOR	PROGRAMS
	Public Health and Safety	C Ecosystem Vitality	(Healthy Economy	Opportunities for Enriching Experie	nces
# Projects (%)	2,546 (25%)	3,265 (33%)	2,251 (23%)	1,956 (20%)	
Total Project Need (\$ in Millions)	\$ 35,715	\$ 22,797	\$ 12,158	\$ 5,319	
50	TOTAL EXPENDITURES	local	PROJECTED TOTA	L INVESTMENTS	
40 40 30 20 10 0 2006 2007 2008	2009 2010 2011 2012 2013	- Code - State - Federal - Todal - Todal - 2014 - 2015 - 2015	5 5 5 5 0 2019 2020 2021 2022 2023 2024	2025 2025 2027 2028 2025 2030	Cosal
CONTACT US					POWERED BY

Figure 6 – Statewide Dashboard



Figure 7- Regional Dashboard

2.6 USER MANAGER: ENABLING STAKEHOLDER ACCESIBILITY

The Atlas allows stakeholders to manage all information for their entity, including the users with whom they associate their entity. Rather than creating a layer of management between the stakeholders and DWR, the Atlas enables entity participants to directly manage the users associated with their entity, saving time and reducing the burden on help desks to respond to user access questions.

The User Manager includes functionality for the DWR administrators to add and remove users as needed, including creating and managing user accounts for the regional and local entity administrators. The User Manager also allows the entity administrators to manage users associated with their entity. These users may edit the information associated with the entity, including projects and region atlas details. New users may be added via email invitations sent from the Atlas, or through associating existing users with the entity which allows more than one user to be associated with an entity.

All users can update their own profile information, including contact information and passwords.

Opti atlas						HOME ATLAS INDICATORS PRO	XIECTS PROFILE ADMIN LOGOUT
Profile							
1 Identity				3	Manage User	S	
Entity Name Entity Type	American River Basin Regional Water Management Group	Lead Organiz	tation Regional Water Authority	1	Name Jeanna Long Jim Blanke	E-mail jiong@woodardcurran.com jblanke@woodardcurran.com	Action
2 Contact							+ Add New User
Contact Name Contact Email	Rob Swartz rswartz@rwah2o.org	Contact Phone Website	(916) 967-7692 http://rwah2o.org/programs/integrated-r				
Contact Us							POWERED BY

Figure 8 – Entity Profile Page

3. APPROACH TO FULL SCALE IMPLEMENTATION

3.1 PROJECT VISION

It is envisioned that the Atlas become the primary tool to open the line of communication between DWR and local/regional water management entities to communicate the value of past investments, report progress toward sustainable water management, build partnerships for multi-benefit projects, and improve decision making and ROI. To meet this need, the following long-term vision statement was identified for the next phases of the project and will drive DWR's activities toward full scale Atlas implementation:

By June 2022, more than 400 local water management agencies and groups (e.g. RWMG, GSA, municipalities, tribal governments, etc.) are using and submitting project data and regional/local information to the Regional Water Management Atlas.

3.2 PROJECT SCOPE

Based on the current vision, stakeholder feedback, and lessons learned from pilot projects, the next phase of Atlas development and implementation will include the following:

- 1. Develop full-scale Atlas with additional features for automatic data linkages and enhanced dashboards: The prototype Atlas will be enhanced on a phased approach based on continued region/local entity uptake and participant feedback. These enhancements may include:
 - additional functionality to streamline data updates through automated database connections or through published web services,
 - enhanced dashboards and visualization tools as more information is added to the Atlas allowing for more thorough analysis,
 - adding flexibility for entities to utilize the Atlas for their own regional and local water management initiatives, and
 - new features identified by participants and stakeholders as needed, or as reporting needs change over time.
- 2. Provide technical assistance to regional and local water management groups to input information to the Atlas: An Implementation Team will be formed to provide technical assistance to regional and local water management groups. This team will help support regional and local entities by:
 - collecting and formatting project information,
 - supporting the entities in data imports and providing quality control and oversight,
 - working with entity staff, or their information technology experts, to link their existing database or tools to the Atlas, and
 - providing additional training to regional and local entity users.
- **3.** Align programs where possible: DWR will implement policies to support collection of regional and project information at the regional and local level through:
 - alignment of programs to ensure that statewide programs are requiring submittal of the same information and that the information may be used in the Atlas, and
 - reduction in duplicative project tracking and reporting requirements so that entities can submit to a single system.
- 4. Complete deployment for more than 400 regional and local water management groups: A phased approach will be taken (as shown in the following sections) to deployment for more than 400 entities. An initial phase will include collecting and organizing information for 80-100 regional and local water management groups by December 2020. The initial set of water management groups will span RWMGs, SWRP Regions, and GSAs.

For each phase of deployment, the regional and local information will be loaded into the Atlas, or automatic database connections will be implemented to allow for regions to seamlessly connect to the Atlas. The Implementation Team will work closely with each entity (as needed) according to Item 2 above. The Atlas will be configured as needed to include additional groups, as requirements are identified.

- 5. Operate and maintain the Atlas: The Atlas will be maintained such that DWR, regional and local entities, and other local water management groups are able to access the Atlas and perform annual project updates. It is anticipated that most entities will be self-sufficient in managing their information in the Atlas; however, many entities will still require some support on an annual basis to update their information. This will be provided by DWR and will serve to also help DWR become more knowledgeable about and engaged in the local activities.
- 6. Provide training to technical support team for "help desk" team and other support tasks: The project team will develop training materials and perform hands-on training workshops to train "help desk" members such that they can provide support to end users including DWR, regional and local water management groups, and the public.

3.3 MAJOR HIGH-LEVEL TARGETS

The following are the high-level milestones and their anticipated schedule for completion. Please note the inclusion of 80-100 regional and local water management groups spanning RWMGs, SWRP Regions, and GSAs in the Atlas by December 2020.

Milestones	Estimated Completion
Finish current pilot project	June 2020
Form Implementation Team	December 2020
Complete implementation for remaining RWMGs (50+/- regions)	December 2020
Complete implementation for SWRP Regions (25 +/- agencies)	December 2020
Form and train "Help Desk" Team	March 2021
Complete development of full-scale Atlas	December 2022
Complete implementation for GSAs (150+/- agencies)	December 2022
Complete implementation for Flood agencies (40+/- agencies)	March 2023
Complete implementation for other regional or local agencies (400+/- agencies)	June 2026
Provide technical assistance to enable GSAs, RWMGs, and other local water management groups to report their information	Ongoing
Operate and maintain the Atlas	Ongoing

Table 1 – Anticipated Schedule for Milestone Completion

3.4 HIGH-LEVEL COST ESTIMATE

Based on the high-level targets described above, the following cost estimate is provided to help inform budget planning efforts. It is anticipated that the budget required to complete all aspects of the scope will peak in the 2022 and 2023 fiscal years due to the large number of GSAs that will be brought into the Atlas. The costs will level off during the 2025 and 2026 fiscal years and should remain at that funding level unless there are significant enhancements to the Atlas.

Activities	2019	2020	2021	2022	2023	2024	2025	2026
Atlas Enhancements	\$200,000	\$100,000	\$100,000	\$100,000				
Entity Implementation and Technical Assistance	\$600,000	\$650,000	\$725,000	\$750,000	\$775,000	\$465,000	\$160,000	\$100,000
Annual Maintenance and Technical Support for updates		\$50,000	\$105,000	\$175,000	\$280,000	\$435,000	\$475,000	\$500,000
Grand Totals	\$800,000	\$800,000	\$930,000	\$1,025,000	\$1,055,000	\$900,000	\$635,000	\$600,000

Table 2 - Cost Estimate for Atlas Completion

The total expected investment over the next eight years is approximately \$6,745,000.

The cost estimate is based on the following assumptions:

- There is a 50/50 cost split between DWR and consultant staff resources.
- An average rate of \$185/hour was used for DWR staff resources.
- An average rate of \$200/hour was used for consultant resources.

3.5 RECOMMENDED NEXT STEPS

The following are recommended next steps to support full-scale implementation and will require coordination with multiple stakeholders, State representatives, and consultant staff.

- 1. Schedule and hold an internal meeting with DWR leadership to discuss the accomplishments and next steps for the Atlas, including how the Atlas can be used across programs and how the initial phases of program alignment can be accomplished.
- 2. Schedule and hold meetings with IRWM, SGMA, SWRP, State Water Resources Control Board, etc. These meetings will focus on presenting the Atlas and how it can be used by stakeholders to show the value of their accomplishments, communicate their needs, and further their partnership with DWR.
- 3. Find funding for the full-scale Atlas implementation. This will be accomplished through informal internal research and meetings with various leaders within DWR.
- 4. Develop detailed workplan and budget for full-scale implementation. The high-level scope, schedule, and budget considerations will be detailed in documentation to serve as contractor task orders and internal project management plans.