

Proposed Scope of Work – September 30, 2013

Los Padres Dam and Reservoir Acquisition – *Long-Term Strategic and Short-Term Tactical Plan*

Project Context

The Monterey Peninsula Water Management District (MPWMD or District) seeks to enhance its long-term water supply security across its various assets (both infrastructure and entitlements). Portions of the service area and source areas lie within the highly sensitive Carmel River watershed where future water availability, water right entitlement limitations, instream flow requirements, and the uncertainty of future allowable diversions provide a critical backdrop in long-term water supply security planning for the District.

Regulatory constraints, such as SWRCB Order 95-10 and Cease-and-Desist Order 2009-0060, will have a significant effect on allowable water diversions from the Carmel River by 2017. Anticipated shortages by 2021 may exceed 7,000 AFA in a dry-year (given cutbacks ordered to current supplies).

California American Water Company (“Cal-Am”) has advanced its Monterey Peninsula Water Supply Project (“MPWSP”), which includes many distinct though inter-related actions. The technical feasibility, permitting complexity, and imprecise costs associated with the proposed desalination plant in Marina make the reliability of this action somewhat uncertain and warrant contingency planning by the District.

At this time, the District seeks to further evaluate the merits of retaining the Los Padres Dam and Reservoir and explore the potential for yield enhancement of the facility as part of a wider District effort to investigate new water supplies. Several factors elevate the urgency of this objective. First, NOAA Fisheries continues to encourage Cal-Am to evaluate removal of the dam, which is stated as a long-term goal in the Draft South-Central California Coast Steelhead Recovery Plan. Second, as described in part of Cal-Am’s 2015-17 General Rate Case application to the CPUC, Cal-Am has requested funds to initiate the evaluation of the dam’s removal; however, Cal-Am has made it clear that its priorities are centered on appeasing NOAA Fisheries (aka NMFS) concerns, which focus on improving steelhead fish passage at the dam and spawning substrate downstream of the dam.

The risk to the District is that the Cal-Am feasibility studies may overlook key issues that are relevant from a basin-wide water supply security perspective. Issues that Cal-Am has not proposed to address in its feasibility analysis include an update to baseline hydrology (e.g., unimpaired flows), anticipated future extreme event hydrology, development of a model to predict changes to instream aquatic habitat, downstream floodplain implications, U.S. Forest Service future land and fire management practices, and the potential for developing additional on and off-channel storage within the watershed. These issues are among many that should be part of any genuine investigation into the long-term viability of Los Padres Dam. At this time, however, Cal-Am has committed to including only a subset of these important elements in its pending Feasibility Study for the dam.

Ideally, each of the above noted factors should be incorporated into the analysis to assure that a full range of issue-sensitive alternatives is developed. These could then be ranked and screened using a variety of tiered weighting procedures. Currently, Cal-Am's alternatives are limited to only two options (i.e., dam removal with restoration to the pre-dam environment and variations in recovering reservoir storage).

Maintaining or increasing the ability to augment flow in the Carmel River main stem throughout the water year is a vital element of the District's overall future water supply reliability plan. In addition to addressing loss of reservoir storage, a broader more considered look into all of the issues associated with the dam's continuing functionality is important to properly and fully assess the future long-term water supply associated with Los Padres Dam and its effects on the Carmel River environment. The District's interests in the watershed require that it consider a stronger more deliberate posture regarding the future disposition of Los Padres Dam and Reservoir.

A key consideration for maintaining surface storage in the watershed is the ability to augment dry season flows in the main stem of the river in order to provide juvenile rearing habitat. Therefore, an understanding of the hydrologic impact of the presence or absence of releases from surface storage during the period from June 1 through November 30 of each water year is critical to understanding the importance of releases. In addition, there may be opportunities to maximize existing Aquifer Storage and Recovery operations along the river during the diversion period (December 1 through May 31) by increasing surface storage enough to augment river flows when instream flow requirements are not being met.

This Plan, in one document, would provide the District with a contemporary and forward-looking assessment of the technical and institutional challenges, benefits, and opportunities regarding the acquisition of Los Padres Dam and Reservoir and a stepwise plan of action for the short-, intermediate, and long-term.

Project Objective

*The project objective is to prepare a **multi-faceted long-term strategic and short-term tactical plan** that, through an evaluation of the benefits and risks of the District acquiring Los Padres Dam and Reservoir, will generate technical and institutional information that can be used as negotiating support with Cal-Am, NMFS, other public trust resource agencies, and vested stakeholders.*

Work Activities (Scope-of-Services)

The proposed work activities can be categorized into several areas: background and information consolidation; issue-specific evaluation and presentation (e.g., trial balloons); identification of District actions; and integrated Plan preparation and review. In summary, the Plan will provide a categorized rationale that can be used as supporting arguments to Cal-Am, NMFS, and other agencies/stakeholders for the District to retain Los Padres Dam. The rationale can be viewed as *trial balloons* since they can serve as independent supporting arguments in the District's ongoing discussions with Cal-Am and others.

Critical to the effective execution and progress of this Scope-of-Work will be the requirement for close integration and partnering with District staff. Working closely with the Planning and Engineering and Water Resources Divisions, the Consultant will undertake the activities in a phased manner. The General Manager will provide strategic oversight consistent with the agreed upon approach and is expected to offer continual *ad hoc* direction and guidance as circumstances and specific issues unfold.

The District has already identified the need for specific studies involving an update of unimpaired flow along the main stem, development of an integrated surface and groundwater model for the watershed, and analyses of instream flows needed to maintain beneficial habitat for steelhead. These studies are necessary in order to properly establish a new hydrological baseline for the watershed. These would be performed under varying long-term management scenarios for Los Padres Dam. This Scope-of-Work assumes that consultant teams are already undertaking those efforts on behalf of the District (e.g., updated IFIM studies to characterize current and future Cal-Am operations on the Carmel River). Similarly, it is recognized that a full economic cost-benefit analysis on various yield enhancement scenarios and an environmental effects evaluation of the two Cal-Am alternatives is being conducted by separate consultant teams. These ongoing parallel efforts can help support this current Scope-of-Work.

The following specific Tasks make up this Scope-of-Services:

Task 1 Review and Consolidate Pertinent Data and Information

Consultant will review and consolidate the extensive information data that exists related to Los Padres Dam and Reservoir. This effort will be necessary to support Tasks 2 and 3 following. Key issues will be fashioned from recent studies, data trends (e.g., from MPWRS reporting), MPWSP progress reports, Recovery Plan preparations, etc. This consolidation will help focus development of the rationale documents in Tasks 2 and 3. An outline of the Plan will be prepared during this initial Task and vetted by District staff.

A. Water Year Classification

The District will provide simulated monthly unimpaired Carmel River flows at San Clemente Dam from 1902 to the present and a current classification of water years. Based on these data, Consultant will evaluate trends in monthly flow data and in water year type characterizations at this reservoir (e.g., using a 10 or 20-year or other appropriate rolling period and evaluating whether there is a trend in the deviation from the mean on a monthly and annual basis). In some areas of California, typical water year type classifications are undergoing re-assessment as shifting climatic regimes change the frequency of year-type triggers so that they no longer always represent current conditions. The “normal” water years of today will increasingly resemble the “dry” and “critically-dry” years of tomorrow. Adhering to traditional water year type classification system, given changing hydrology, can have significant implications to various regulatory and institutional requirements that identify WY types in many of their prescriptions.

Consultant will also address potential hydroclimatological changes occurring and anticipated to occur in the watershed in the future as a result of shifting climatological trends. The climate change signature for California’s coastal watersheds is not as pronounced as it is for the Sierra Nevada or southern Cascades (owing to a lack of snowpack). Nevertheless, increased global temperatures and resultant changes in cyclonic patterns and ocean-atmosphere couplings observed through ENSO periodicity can lead to changing precipitation intensities, storm track

positioning, event duration, and frequencies. For the Carmel River watershed, such changes, to the extent possible, will be evaluated. Incorporation of this information into both planning and real-time operational prescription setting will be important in the long-term as the District and other water users within the basin acclimate to changing hydroclimatological conditions. Consultant will assess how the existing water year classification may change as a result of expected changes in hydroclimatological conditions.

B. Surface Storage Requirement Analysis

The Consultant will analyze the following types of water year conditions: two recent years in a row classified as “dry” water years. The District will provide mean daily flows at Los Padres and San Clemente Dams from WY 2007 through WY 2013, which includes this condition. Data include estimates of losses due to reservoir evaporation, vegetation transpiration, and diversions between the dams. Consultant will evaluate the two-year period of WY2012 and WY2013 to determine the volume of surface storage necessary at Los Padres Reservoir to maintain the following minimum level of flow downstream of San Clemente Dam at the Sleepy Hollow weir: 5, 10, 20, and 40 cfs.¹

C. Comparison of Hydrological Conditions

Using storage volumes calculated in Task B, Consultant will estimate what flows could be available at the Sleepy Hollow weir in normal water years (2008, 2009). Consultant will evaluate and compare reconstructed unimpaired flow at San Clemente Dam with the flow conditions resulting from increased storage in dry and normal water years. Consultant will review operational requirements for maintaining minimum downstream flow as stipulated in water rights Permit 20808B (as shown in Table A of the 2007 amended permit) and estimate what level of storage would be required to meet instream flow requirements.

Task 2 Develop Technical Rationale

Consultant will develop technical rationale for each of the key issues related to Los Padres Dam. At this time, Consultant envisions five technical area constraints and opportunities. These include:

A. Dam Facility (tied to dam removal or enhancement)

Dam removal: Consultant will describe issues and studies or steps required to safely remove the dam and return the site to a pre-dam condition. Consultant will describe regulatory constraints, required institutional authorizations and processes, and long-term requirements after dam removal (e.g., monitoring, maintenance, reporting).

Dam enhancement: Consultant will describe issues, studies, and steps required to enhance surface storage at Los Padres Reservoir to the levels described in Item 3 of this task. Consultant will describe potential modifications to the dam, including fish passage improvements and

¹ Lic. No. 11866 issued to Cal-Am requires a minimum release of 5 cfs from Los Padres Reservoir while water is being stored (diversions to storage are allowed from October 31 to May 31 of the following year). MPWMD and others have set a minimum flow target of 5 cfs at the Sleepy Hollow weir (about one mile downstream of San Clemente Dam). At a flow of 8 to 10 cfs, dry season habitat between Los Padres Dam and Carmel Valley Village at RM 14 is rated “good” for juvenile steelhead rearing. Permit 20808B, Table A requires a minimum of 20 and up to 50 cfs release under certain circumstances to the channel below Los Padres Dam. MPWMD estimates that future dry season diversions (after unauthorized diversions cease) may be up to 6 cfs between the Village and Highway 1. Transpiration along the streamside corridor may be 4 to 5 cfs during warmer months. Maintaining a minimum flow of 5 cfs at Highway 1 would likely require a flow in excess of 15 cfs at the Sleepy Hollow weir.

modifications to pass the Probable Maximum Flood that would be required for each level of storage. The Consultant will describe regulatory constraints and required private and/or institutional authorizations and processes.

B. Dam Operations/Sediment Management (tied to dam removal or enhancement)

Dam removal: Consultant will describe the risks associated with dredging and dam removal operations, including the long-term stability of dredged material in the watershed, the potential effects to downstream areas from a resumption of the natural sediment load to the river, and responsibility for potential changes in the environment downstream of Los Padres Dam from its removal.

Reservoir storage enhancement, Consultant will describe alternatives to maintain and increase storage volume and manage sediment passage and long-term requirements (e.g., maintenance, monitoring, reporting).

C. Instream Habitat Conditions

Using existing temperature data and analysis, Consultant will evaluate trends in temperature data above and below Los Padres Dam² and estimate future changes in trends for the following scenarios: 1) no sediment removal (i.e., continued siltation with no action); 2) dam removal; 3) dredging to original capacity; 4) expanding storage to meet minimum flow releases described in item 3 of this task.

D. Water Demand/Supply

Consultant will estimate water availability to meet future demand from each of the dam alternatives evaluated.

E. Summarize Impacts and Benefits

The Consultant will summarize the potential long-term impacts and benefits from dam removal or enhancement. Public benefits could be similar to criteria used by the California Water Commission (e.g., ecosystem and water quality benefits) or, Consultant could augment the listing with other criteria such as water supply, flood risk reduction, hydropower (clean energy), environmental flows, water temperature resiliency, recreational benefit, as well as short-term and long-term economic benefits through job creation (e.g., construction-related employment) and economic CII support (e.g., commercial, industrial, and institutional) through the provision of a more reliable long-term firm water supply.

The rationale will be technically based and highlight both constraints and opportunities to both the District and Cal-Am. As noted previously, supplemental and supporting information currently being generated by the District will be integrated as appropriate into these five technical areas. So, for example, the environmental effects analysis associated with dam removal or enhancement will provide additional insight into the Dam Facility rationale.

DELIVERABLES: Five technical rationale statements and summary of potential impacts and benefits of various actions.

² See MPWMD, "Carmel River Basin Surface Water Temperature Analysis, Water Years 1996-2011, Prepared by Thomas E. Delay, Water quality Research Assistant, May 2013.

Task 3 Develop Institutional and Regulatory Rationale

Consultant will develop rationale for each of the institutional and regulatory issue related to Los Padres Dam. At this time, Consultant envisions four areas of relevant institutional and regulatory constraint.

A. Water Rights

Consultant will evaluate the potential effects on existing water rights (License 11866 and Permit 20808B) and describe required regulatory filings associated with dam removal, maintenance dredging, and dam enhancement.

B. Steelhead Recovery Plan Implementation

This is an optional item pending resolution of differences about this plan between NMFS and CDFW and issuance of a Final Steelhead Recovery Plan by NMFS.

C. MPWSP Implementation

D. Implementation of the Physical Solution for the Seaside Groundwater Basin

The rationale will be focused on the institutional and regulatory constraints posed by these categories. If a rationale is developed concerning the NMFS Draft Recovery Plan, all federal ESA issues, for example, will be included under the Steelhead Recovery Plan Implementation rationale. There will be some overlap with the technical rationale since each issue is complex and possesses multiple implications. Water supply enhancement at Los Padres Reservoir, for example, while a technical water supply issue also involves land governance and institutional issues as the high water mark, depending on the size of the expansion, could inundate portions of the Ventana Wilderness. Water portfolio analysis and firm yield risk analysis will occur under the MPWSP Implementation rationale where each of the water supply “projects” are integrated into an overall future basin water supply demand. An expanded Los Padres Reservoir supply, from the District’s perspective, is an important consideration that merits continued exploration and inclusion in any future basin-wide supply investigation.

DELIVERABLES: Three institutional and regulatory rationale statements (one optional for the Steelhead Recovery Plan Implementation as noted above).

Task 4 New Alternatives

Consultant will, based on the constraints and opportunities identified and evaluated in Tasks 2 and 3, develop potential new alternatives (not currently being considered by Cal-Am). These could include hybrid alternatives that combine or rely on various elements from the technical or institutional/regulatory rationale. New elements of the alternatives will be described. As part of the District intent to broaden the scope of Cal-Am’s feasibility investigation of Los Padres Dam, Consultant will look at all possible permutations to enhance Los Padres Reservoir supply. This Task represents an important undertaking and will require close coordination between Consultant and District staff.

DELIVERABLE: Memorandum describing the New Alternatives.

Task 5 Alternatives Screening

Consultant will apply a detailed screening process to refine the listing of new alternatives down to a reasonable and feasible range. Screening criteria could be two tiered; the first set of

primary criteria would focus on the direct needs and objectives of the District (e.g., there is no benefit in carrying forward alternatives that do not meet the needs of the District). The second set of criteria would cover the full range of evaluative weighting measures including regulatory, institutional, technical feasibility, water quality, timing/efficiency, public health and safety, and economics (cost/benefit) considerations as well as environmental fatal flaws. A full discussion of how each alternative fares against these criteria will be provided.

DELIVERABLE: Memorandum describing the results of the Alternatives Screening.

Task 6 Identify “If/Then - Road Map”

Consultant will develop a sequential step-by-step “road map” that will be based on a series of current and anticipated “if-then” questions or sequences. So, for example, if Cal-Am remains firm on its position to only focus its Feasibility Study on NOAA Fisheries concerns, what are the District’s options? Additionally, if the SWRCB becomes amenable to a relaxation of the diversion schedule cutbacks owing to critical back-to-back dry years, how would that, if at all, influence the MPWSP objectives or District priorities?

Such a “road map” is essential for a long-term strategic plan since it lays out the critical decision points and challenges facing the District. It also provides a transparent and considered response to key decisions. It is valuable for short-term tactical positioning since it can provide the District with an immediate overview of current actions based on pre-determined decision responses; the overall objectives are always clear and can be reviewed constantly by District Board members, management, and staff. The complexity of the “If/Then – Road Map” will require careful coordination with the District to ensure that the proper responses are captured.

Task 7 Integrate All Elements into Draft Plan

All elements of the aforementioned elements (i.e., Tasks 2 through 6) will be integrated into a cohesive single document or Plan. This Plan document will be Draft in its first compilation.

DELIVERABLE: Draft Plan.

Task 8 Review of Draft Plan

The Draft Plan will be circulated within the District (e.g., Water Supply Planning Committee) for review and comment. At the District’s discretion, the review could be expanded to external agencies as well. Comments received from outside agencies and participating stakeholders will be reviewed collaboratively with the Consultant and District to identify contentious issues, possible risks, and the most efficient means of addressing or notating the comments. Revisions to the Draft Plan will be part of Task 9: Finalize Plan.

Task 9 Finalize Plan

Consultant will work with District staff in addressing comments and questions on the Draft Plan and finalizing the Plan.

DELIVERABLE: Final Plan.

Task 10 Identify Potential Funding Sources

Consultant will investigate potential funding sources to help underwrite various elements of the District's Plan and identified long-term water supply options (e.g., acquisition of Los Padres Dam). Potentially available federal and State funding sources will be explored as well as the potential bond and private equity markets. Without external funding, increased expenditures by ratepayers to fund the San Clemente Dam removal and the various water supply elements of the MPWSP, let alone removal or enhancement of Los Padres Dam will be significant and highly contentious.

Task 11 District Technical Planning Meetings

It is assumed that 3 technical planning meetings will be required between the Consultant and District staff during the development of the Plan. The initial meeting will serve as the project kick-off meeting. Each technical planning meeting is assumed to be 3-4 hours. Consultant will efficiently triage issues for discussion providing agendas beforehand and documenting agreed upon actions in summary form following each meeting.

Task 12 Committee/Board Meetings and Presentations

It is assumed that the Consultant will be requested to attend and/or make presentations at various Committee and/or Board meetings including, but not necessarily limited to the Carmel River Advisory Committee, District Water Supply Planning Committee, District Board of Directors' Meeting. It is assumed that a meeting with each of these groups is anticipated over the course of the project (total of 3 meetings) with preparation time included for the development of formal presentations for each group (total of 3 formal presentations).

Possible requests for meetings with various stakeholder groups including NOAA Fisheries, California Department of Fish & Wildlife, Monterey County Resource Management Agency, Monterey County Water Resources Agency, Big Sur Land Trust, Carmel River Steelhead Association, and others are likely. It is assumed that 2 additional meetings with any combination of the above stakeholder groups will be required.

Project Management

Properly implemented, project management should be integrated into the technical work assigned to the project. By itself project management costs are direct overhead burdens that provide no direct benefit to the technical assignment. Internal project team meetings, teleconferencing, document/records organization, activity tracking, etc. should be made part of a consultant team's technical and product/deliverable based responsibilities. **No separate independent project management budget is proposed.**

Contingency

As noted previously, the development of this Plan will be a fluid and dynamic exercise. This Scope-of-Work, therefore, includes a contingency allowance. A number of hours are unallocated to specific activities. It is proposed that these hours be set aside solely to provide a means to accommodate unknown requests for activities that may arise during the course of the project. Rather than stop the process and seek contractual amendments, this Contingency

provides the means to proceed with those work activities in order to avoid losing the advantages provided by the *ad hoc* opportunity. **No time can be billed to the Contingency without the express written consent of the District.** No monies under the Contingency, therefore, would be expended if no out-of-scope activities arise.

As a final suggestion, given the sensitive nature of these anticipated work activities and the need to ensure that the information is released only under the District’s own strategic timetable and in the manner the District desires, District Counsel may wish to place this assignment under attorney-client privilege.

Proposed Schedule

Work activities under this Scope-of-Work can commence immediately upon the District issuing a Notice to Proceed. Acknowledging the benefits of expediency, the project is proposed to be laid out over a short period of time. There is no need or benefit in extending a project schedule unnecessarily. A committed block of time has the advantage of maintaining focus on project issues, avoiding “restart” time, and generating innovative momentum.

Assuming a Notice to Proceed on **October 25, 2013**, the following expedited schedule is proposed:

Notice to Proceed	October 25, 2013
Task 1 Review and Consolidate Pertinent Data and Information	November 25, 2013
Task 2 Develop Technical Rationale	December 16, 2013
Task 3 Develop Institutional and Regulatory Rationale	December 23, 2013
Task 4 New Alternatives	January 6, 2014
Task 5 Alternatives Screening	January 6, 2014
Task 6 Identify “If/Then - Road Map”	January 13, 2014
Task 7 Integrate All Elements into Draft Plan	January 20, 2014
Task 8 Review of Draft Plan	January 27, 2014
Task 9 Finalize Plan	February 10, 2014
Task 10 Identify Potential Funding Sources	November 11, 2013

Note: Highlighted deliverables. Committee and/or Board meetings would dictate

Some flexibility should be built into the schedule to accommodate unknown meeting times with various Committees, Boards, or external parties (the latter whose schedule accommodation will remain an unknown factor).

Proposed Budget

A preliminary proposed budget is provided below. Only professional labor is charged. The 2013 labor rate is fixed through the duration of the project assumed to be completed by the end of February 2014.

Los Padres Dam and Reservoir Acquisition – Long-Term Strategic and Short-Term Tactical Plan					
Task	Staff/Hours				Budget
	Shibatani	Engineer	Fluvial Geomorph (Sediment)	GIS/CAD	
	\$225/Hr	\$195/Hr	\$165/Hr	\$105/Hr	
1. Review and Consolidate Pertinent Data and Information	8	8	4		\$4,020
A. Water Year Classification	18	24			\$8,730
B. Surface Storage Requirements Analysis	12	32			\$8,940
C. Comparison of Hydrological Conditions	16	32		10	\$10,890
2. Develop Technical Rationale					
A. Dam Facility	32	16	12		\$12,300
B. Dam Operations/Sediment Management	16	8	32		\$10,440
C. Instream Habitat Conditions	16		16		\$6,240
D. Water Supply/Demand	8	24			\$6,480
E. Summarize Impacts and Benefits	24			8	\$6,240
3. Develop Institutional and Regulatory Rationale					
A. Water Rights	8	16			\$4,920
B. Steelhead Recovery Plan Implementation	8		8		\$3,120
C. MPWSP Implementation	16				\$3,600
D. Physical Solution for Seaside GW Basin	12				\$2,700
4. New Alternatives	24			8	\$6,240
5. Alternatives Screening	8				\$1,800
6. Identify “If/Then - Road Map”	32				\$7,200
7. Integrate All Elements into Draft Plan	40	4		8	\$10,620
8. Review of Draft Plan	12				\$2,700
9. Finalize Plan	8				\$1,800
10. Identify Potential Funding Sources	8				\$1,800
11. District Technical Planning Meetings	36	16	8		\$12,540
12. Committee/Board Meetings and Presentations	36				\$8,100
Total Labor	398	180	80	34	\$141,420
Total Disbursements (No expenses are charged)*					\$0
Total Estimated Budget					\$141,420
Contingency	16	8			\$5,160
Total Estimated Budget with Contingency					\$146,580

*No direct expenses such as mileage, courier/postage, supplies, copying, accommodations, etc. are charged.