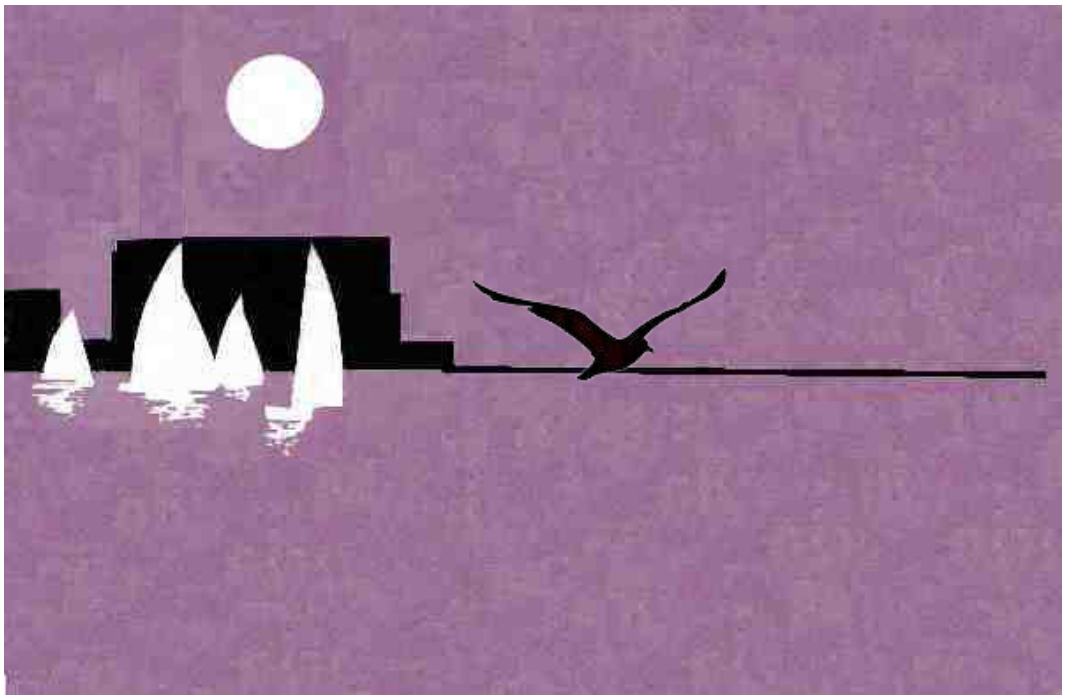
Monterey Peninsula, Carmel Bay, and South Monterey Bay

Integrated Regional Water Management Plan and

Integrated Coastal Watershed Management Plan

Proposal Description

Proposition 50 Implementation Grant Fund Application



Big Sur Land Trust
California State University Monterey Bay
Carmel River Watershed Conservancy
City of Monterey
City of Pacific Grove
Monterey County Service Area 50
Monterey County Water Resources Agency
Monterey Peninsula Water Management District
Monterey Regional Water Pollution Control Agency

July 14, 2005

Acronyms

AF – acre-feet
AFA – acre-feet annually
AMBAG – Association of Monterey Bay Area Governments
ASBS – Areas of Special Biological Significance
ASR – Aquifer Storage and Recovery
BMP – best management practice
BSLT – Big Sur Land Trust
CDPR – California Department of Parks and Recreation (see also CSP)
CSIP – Castroville Seawater Intrusion Project
CAW – California American Water
CAWD – Carmel Area Wastewater District
CCA – Critical Coastal Area
CCC – California Coastal Commission
CDFG – California Department of Fish and Game
CEQA – California Environmental Quality Act
CDO – cease and desist order
CRB – Carmel River Basin
CRLF – California red-legged frog
CRMP – Carmel River Management Plan
CRWC – Carmel River Watershed Conservancy
CSA – County Service Area
CSP – California State Parks
CSUMB – California State University Monterey Bay
CVSIM – Carmel Valley Simulation Program
CZARA – Coastal Zone Act Reauthorization Amendment
DSOD – California Division of Safety of Dams
DWR – California Department of Water Resources
EIR – Environmental Impact Report
ICWM – Integrated Coastal Watershed Management
ICWMP – Integrated Coastal Watershed Management Plan
IRWM – Integrated Regional Water Management
IRWMP – Integrated Regional Water Management Plan
LCP – Local Coastal Plan
LUP – Land Use Plan
MBNMS – Monterey Bay National Marine Sanctuary
MCWRA – Monterey County Water Resources Agency
MGD – million gallons per day
MM – management measures
MPRPD – Monterey Peninsula Regional Park District
MPWRS - Monterey Peninsula Water Resource System
MPWMD – Monterey Peninsula Water Management District
MRSWMP – Monterey Regional Storm Water Management Program
MRWPCA – Monterey Regional Water Pollution Control Agency
MURP – Model Urban Runoff Program

NOAA – National Oceanic and Atmospheric Administration
NOP – Notice of Preparation
NPDES – National Pollutant Discharge Elimination System
NPS – non-point source
NTU – nephelometric turbidity units
PBCSD – Pebble Beach Community Services District
RURWP – Regional Urban Recycled Water Project
RM – river mile (measured from the Pacific Ocean)
RWQCB – Regional Water Quality Control Board
SVRP – Salinas Valley Reclamation Project
SBGMP – Seaside Basin Groundwater Management Plan
SFBCDC – San Francisco Bay Conservation and Development Commission
SGB – Seaside Groundwater Basin
SSAMP – Sewer System Asset Management Plan
SWQPA – State water quality protection area
SWRCB – State Water Resources Control Board
TMDL – Total Maximum Daily Load
USGS – United States Geological Service
WDR – Waste Discharge Requirement
WQPP – Water Quality Protection Program

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Appendix A to this proposal contains for each project: 1.) project summary; 2.) specific location map (if appropriate); 3.) cost estimate; and 4.) a detailed project schedule (if appropriate).

1.0 Summary

A group consisting of public and non-profit agencies in the Carmel Bay, Monterey Peninsula, and Southern Monterey Bay coastal and inland areas (stakeholder group) is participating in the development of the "Monterey Peninsula, Carmel Bay, and South Monterey Bay Integrated Regional Water Management Plan and Integrated Coastal Watershed Management Plan" (Plan), which is intended to be functionally equivalent IRWM plan. It is anticipated that this Plan will be adopted by participating agencies in the latter half of 2006.

MPWMD recently completed a Planning Grant application for grant funds from Proposition 50 to develop a functionally equivalent Plan. As part of that effort, the stakeholder group prepared a draft Plan with a significant amount of input from participating agencies. Subsequently, based on the objectives and strategies outlined in the draft Plan, several of the stakeholders in the Planning Region proposed projects to be included in this proposal. These projects present a good opportunity to address several problems identified by local, State, and Federal agencies, the public, and advocates for resource stewardship. A collaborative, inclusive process was used to develop and analyze these projects. It is apparent that the stakeholders in this Planning Region desire, to the fullest extent possible, to carry out the will of the California Legislature to integrate water resource management. Regardless of how this proposal is judged and what funding may be available, the process of understanding this Planning Region's complex issues, increasing communication and collaboration among stakeholders, and integrating efforts has begun and will continue into the foreseeable future.

As listed in **Table 1, Proposal Summary**, 17 projects are proposed to be carried out with Proposition 50 grant funding. The grant fund request totals $27.3 million with a local contribution of $7.8 million (22.2% of total project costs) for a total proposal cost of approximately $35 million. Many of the projects are anticipated to begin starting in 2007 (see **Table 4 – Schedule**), although several projects are already in the initial planning stages. Geographically, there are projects in nearly every major watershed in the Region and several involve improving near-shore water quality in the Monterey Bay (see Region Map).

Table 1 – Proposal Summary

	Carmel Bay, Monterey Peninsula, and Southern Monterey Bay Planning Region						Local Contribution as % of Project Cost
	Project	Sponsor	Priority Score	Local Contribution	Grant Fund Request	Project Cost	
1	Aquifer Storage and Recovery	MPWMD	9	$ 467,600	2,788,000	$ 3,255,600	14.4%
2	Seaside Basin Groundwater Replenishment Project - Planning & Design (see Note 1)	MRWPCA	9	50,000	2,200,000	$ 2,250,000	2.2%
3	CSUMB Storm Water Percolation and Education	CSUMB	8	352,600	3,173,400	$ 3,526,000	10.0%
4	Restoration of the Carmel River Floodplain (at Garland Park)	BSLT	8	60,000	350,000	$ 410,000	14.6%
5	Carmel River Watershed Water Quality Volunteer Monitoring Program	CRWC	8	33,000	300,000	$ 333,000	9.9%
6	Restoration of Hatton Creek (see Note 2)	BSLT	8	40,000	200,000	$ 240,000	16.7%
7	Project Monitoring	BSLT	8	15,000	150,000	$ 165,000	9.1%
8	Watershed and Water Supply Protection Through Use of Conservation Easements	BSLT	7	5,000,000	5,000,000	$ 10,000,000	50.0%
9	Removal of Del Monte Resort Dam (See Note 3)	BSLT	7	5,000	300,000	$ 305,000	1.6%
10	Lower Carmel River Flood Control	MCWRA	7	25,000	225,000	$ 250,000	10.0%
11	Restore Roads with Sedimentation Problems in Regional Parks	BSLT	7	20,000	200,000	$ 220,000	9.1%
12	Farm Water Conservation and Best Management Practices	BSLT	7	10,000	50,000	$ 60,000	16.7%
13	Sanitary Sewer System Repair and Replacment in the Cities of Monterey and Pacific Grove	Ci. Monterey / P.G.	6	940,750	8,466,750	$ 9,407,500	10.0%
14	Carmel River Parkway Trails, Restoration, and Education	BSLT	6	208,000	2,000,000	$ 2,208,000	9.4%
15	Uplands Grazing Mgt. & Monitoring Plan for Sediment Reduction and Habitat Protection, Ph. II	BSLT	6	400,000	750,000	$ 1,150,000	34.8%
16	Implementation of Solid Waste Removal Technology	Ci. Monterey / P.G.	6	99,000	891,000	$ 990,000	10.0%
17	Microbial Source Tracking in the Cities of Monterey and Pacific Grove	Ci. Mont / P.G. / Foundation	6	36,000	216,000	$ 252,000	14.3%
		Totals		$ 7,761,950	$ 27,260,150	$ 35,022,100	22.2%

Abbreviations

BSLT	Big Sur Land Trust
CSUMB	California State University Monterey Bay
CRWC	Carmel River Watershed Conservancy
Ci Monterey	City of Monterey
PG	City of Pacific Grove
CSA 50	Monterey County Service Area 50
MCWRA	Monterey County Water Resources Agency
MPWMD	Monterey Peninsula Water Management District
MRWPCA	Monterey Regional Water Pollution Control Agency

Notes

1. - The stakeholder group unanimously agreed on June 17, 2005 to support a request for funding of construction of this project in the second Prop 50 Implementation Grant cycle.
2. Also known as Hatton Canyon Creek.
3. Also known as Old Carmel River Dam.

Funds requested for these projects would be used for a variety of purposes including planning, design, construction, monitoring, education, and conservation as follows:

Projects including planning, design, and construction activities that would directly address a key issue or objective in the IRWM/ICWM Plan. These include:

Project	Project Title
1	Aquifer Storage and Recovery
3	CSUMB Storm Water Percolation and Education
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
14	Carmel River Parkway Trails, Restoration, and Education
16	Implementation of Solid Waste Removal Technology

Projects including planning and design activities for a project that would directly address a key issue or objective in the IRWM/ICWM Plan, but that will require additional funds for construction. These include:

Project	Project Title
2	Seaside Basin Groundwater Replenishment Project - Planning and Design
4	Restoration of the Carmel River Floodplain (at Garland Park)
6	Restoration of Hatton Canyon Creek
9	Removal of Del Monte Resort Dam
10	Lower Carmel River Flood Control
11	Restore Roads with Sedimentation Problems in Regional Parks

Projects that would use passive resource conservation measures include:

Project	Project Title
8	Watershed and Water Supply Protection Through Use of Conservation Easements
12	Farm Water Conservation and Best Management Practices
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II

Data gathering and monitoring projects include:

Project	Project Title
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
7	Project Monitoring
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

This proposal parallels the format of the draft Integrated Regional Water Management Plan and Integrated Coastal Watershed Management Plan (IRWM/ICWM Plan) for the Region. Background information for most of the projects in this proposal can be found in the corresponding numbered section in the IRWM/ICWM Plan.

2.0 Region description – see Section 2.1 IRWM/ICWM Plan for a Planning Region Map. See Figure 1- Region Map - for project locations.

DRAFT AREA MAP
The Monterey Peninsula, Carmel Bay, and South Monterey Bay Region

	Project	Sponsor
1	Aquifer Storage and Recovery	MPWMD
2	Seaside Basin Groundwater Replenishment Project - Planning & Design - see Note 1	MRWPCA
3	CSUMB Storm Water Percolation and Education	CSUMB
4	Restoration of the Carmel River Floodplain (at Garland Park)	BSLT
5	Carmel River Watershed Water Quality Volunteer Monitoring Program	CRWC
6	Restoration of Hatton Creek	BSLT
7	Project Monitoring	BSLT
8	Watershed and Water Supply Protection Through Use of Conservation Easements	BSLT
9	Removal of Del Monte Resort Dam (Old Carmel Dam)	BSLT
10	Lower Carmel River Flood Control	MCWRA
11	Restore Roads with Sedimentation Problems in Regional Parks	BSLT
12	Farm Water Conservation and Best Management Practices	BSLT
13	Sanitary Sewer System Repair and Replacment in the Cities of Monterey and Pacific Grove	Mry / P.G.
14	Carmel River Parkway Trails, Restoration, and Education	BSLT
15	Uplands Grazing Mgt. & Monitoring Plan for Sediment Reduction and Habitat Protection, Ph. II	BSLT
16	Implementation of Solid Waste Removal Technology	Mry / P.G.
17	Microbial Source Tracking in the Cities of Monterey and Pacific Grove	Mry / P.G.

- IRWMP Area
- MPWMD Boundary
- Rivers
- Cal-Am Pipelines
- Roads
- Watershed Boundaries
- Seaside Groundwater Basin
- Carmel Valley Alluvial Aquifer
- Areas of Special Biological Significance
- City Limits

Monterey Peninsula
Water Management District

3.0 Key Issues

See Section 3.0 in the Plan for a description of key issues. The suite of projects proposed for this Planning Region (Region) addresses six of the seven key issues identified in the functionally equivalent IRWM/ICWM Plan (Plan). The only issue that this proposal does not address directly is the remediation of the San Clement Dam, which has been declared the No. 1 unsafe dam in California by the Division of Safety of Dams. This issue is currently being studied by a group including the dam owner (CAW), U.S. Army Corps of Engineers, California State Department of Water Resources, National Marine Fisheries Service, and U.S. Fish and Wildlife Service. However, one of the goals of Project 5 (Carmel River Watershed Water Quality Volunteer Monitoring Program) is to establish a baseline of data to compare the effects of remediation of the San Clemente Dam on the Carmel River riparian corridor.

- **Storm water discharges into Areas of Special Biological Significance (ASBS)**

There are no projects in this proposal that directly address this issue. However, Project 17 (Microbial Source Tracking) may lead to an understanding of non-point source contamination affecting near-shore environments, including the Pacific Grove Area of Special Biological Significance.

- **Diversions in Carmel Valley leading to environmental degradation**

Projects including planning, design, and construction activities that would directly address this issue:

Project	Project Title
1	Aquifer Storage and Recovery
12	Farm Water Conservation and Best Management Practices

Project 1 involves a complex process of diverting excess winter Carmel River Basin flows, transporting water through six miles of the California American Water pipeline system, and injecting the water into the Seaside Groundwater Basin. Injected water would be recovered in the dry season to meet municipal demand on the Monterey Peninsula, thus reducing diversions during the critical dry months in the Carmel River. It is estimated that this project could reduce diversions by about 2,000 AFA, or nearly 20% of the water that is illegally being diverted out of the basin.

Project 12 would reduce current consumption on an agricultural parcel in the basin by introducing more efficient farm irrigation.

Projects including planning and design activities for a project that would directly address this issue, but that will require additional funds for construction:

Project	Project Title
2	Seaside Basin Groundwater Replenishment Project - Planning and Design
4	Restoration of the Carmel River Floodplain (at Garland Park)
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
11	Restore Roads with Sedimentation Problems in Regional Parks
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II

Project 2 includes planning and design to recycle additional amounts of wastewater from the Monterey Peninsula for use as irrigation water. This project, when fully implemented, would build on the experience gained in the past 20 years by MRWPCA with recycling wastewater and the experience gained by MPWMD in the Seaside Groundwater Basin with aquifer storage and recovery. When fully implemented, this project could reduce diversions in Carmel Valley by approximately 2,800 AFA.

The remainder of the projects in Carmel Valley proposed to reduce diversions or resist environmental degradation are in the planning and design phase. When implemented, these projects are likely to cause a powerful shift toward ecosystem restoration.

- **Decline of the steelhead run**

Projects including planning, design, and construction activities that would directly address this issue:

Project	Project Title
1	Aquifer Storage and Recovery

The effects of reduced diversions in Carmel Valley due to Project 1 (see preceding discussion) would translate into improved summer and fall rearing habitat conditions and could extend the amount of dry season habitat further downstream. Project 9 would remove an 85-year old eight-foot high impediment to migration, allow the channel of the Carmel River to adjust freely to changes in sediment load, and would likely improve substrate conditions in the immediate vicinity of the dam.

Projects including planning and design activities for a project that would directly address this issue, but that will require additional funds for construction:

Project	Project Title
2	Seaside Basin Groundwater Replenishment Project - Planning and Design
9	Removal of Del Monte Resort Dam

Project 2 would directly reduce Carmel Valley diversions. Project 4 would restore portions of a large meander of the Carmel River that was cut off in the 1950's to straighten the main road in Carmel Valley. This project would increase the riparian forest adjacent to the river.

Projects that are in the planning and design phase, but when implemented would likely indirectly benefit steelhead:

Project	Project Title
4	Restoration of the Carmel River Floodplain (at Garland Park)
6	Restoration of Hatton Canyon Creek
14	Carmel River Parkway Trails, Restoration, and Education

Project 4 would restore portions of a large meander of the Carmel River that was cut off in the 1950's to straighten the main road in Carmel Valley. This project would increase the riparian forest adjacent to the river. Project 6 may provide additional steelhead habitat if this creek is reconnected to the Carmel River riparian corridor. Project 14 would increase wetland and riparian area in the Carmel River riparian corridor.

Projects that indirectly benefit steelhead by passive means:

Project	Project Title
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
11	Restore Roads with Sedimentation Problems in Regional Parks
12	Farm Water Conservation and Best Management Practices
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II

Projects 5 and 7 would aid in understanding habitat quality. The remaining projects would prevent degradation of the Carmel River.

- **Flooding in Carmel Valley and the Carmel River Lagoon**

Projects including planning and design activities for a project that would directly address this issue, but that will require additional funds for construction:

Project	Project Title
4	Restoration of the Carmel River Floodplain (at Garland Park)
10	Lower Carmel River Flood Control

Project 4 could increase the sinuosity of the Carmel River and result in additional flood capacity in the reach affected by the project. Project 10 would address significant flood issues in a residential neighborhood plagued by floods.

- **Urban runoff**

Projects including planning, design and construction activities that would directly address this issue:

Project	Project Title
3	CSUMB Storm Water Percolation and Education
12	Farm Water Conservation and Best Management Practices
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
16	Implementation of Solid Waste Removal Technology

Projects including planning and design activities for a project that would directly address this issue, but that will require additional funds for construction:

Project	Project Title
4	Restoration of the Carmel River Floodplain (at Garland Park)
6	Restoration of Hatton Canyon Creek
10	Lower Carmel River Flood Control
11	Restore Roads with Sedimentation Problems in Regional Parks
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II

Projects that indirectly address this issue:

Project	Project Title
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

Projects 5,7, and 17 would monitor various qualities of urban runoff. Project 8 would prevent or reduce urban runoff through improved stewardship of a large parcel in Carmel Valley.

- **Deteriorating water quality and quantity in the Seaside Groundwater Basin**

Projects including planning, design, and construction activities that would directly address this issue:

Project	Project Title
1	Aquifer Storage and Recovery

Project 1 would directly address this issue by injecting relatively high quality water into the underlying aquifer.

Projects including planning and design activities for a project that would directly address this issue, but that will require additional funds for construction:

Project	Project Title
2	Seaside Basin Groundwater Replenishment Project - Planning & Design

Project 2 would include planning and design for a project that would introduce high quality treated wastewater into the underlying aquifer.

4.0 Objectives

As described below, the suite of projects in this proposal meet seven of the eight major objectives described in the Plan

4.1 Review local and Regional Water Supply Planning

No projects to meet this objective are proposed to be funded at this time with Proposition 50 Implementation Grant funds. Planning Grant funds have been requested to assist with this effort. Please see Section 4.1 in the ICWM/IRWM Plan for additional information.

4.2. Manage surface and groundwater supply

Projects including planning, design, and construction activities that would directly meet this objective:

Project	Project Title
1	Aquifer Storage and Recovery
12	Farm Water Conservation and Best Management Practices

Direct management of the Seaside Groundwater Basin is accomplished with Project 1. This project could inject up to 2,000 AFY into the underlying aquifer and would help bring balance back into the basin, which is currently being overdrafted. Because the Seaside Basin is used together with surface and groundwater from the Carmel River Basin to meet municipal demand, increased supplies in the Seaside Basin would improve management in both basins. Project 12 would slightly reduce consumption in the Carmel River Basin.

Projects including planning and design activities for a project that would directly meet this objective, but that will require additional funds for construction:

Project	Project Title
2	Seaside Basin Groundwater Replenishment Project - Planning and Design
4	Restoration of the Carmel River Floodplain (at Garland Park)
6	Restoration of Hatton Canyon Creek

Project 2 would be the first step in adding additional capacity to manage the Seaside Basin by increasing the recharge of that basin. Projects 4 and 6 may have some benefits (not currently quantified) to Carmel River Basin flows by increasing retention of groundwater (bank storage) and/or increasing winter recharge of the Carmel River Aquifer. The storage capacity of the Carmel River Alluvial Aquifer has declined slowly as the river has cut into alluvial deposits over the past 80 years and bank storage has been reduced.

Projects that indirectly meet this objective:

Project	**Project Title**
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements

Projects 5, 7, and 8 in Carmel Valley will provide information leading to better management of basin supplies and more efficient use of water.

4.3. Augment water supplies

Projects including planning, design, and construction activities that would directly meet this objective:

Project	Project Title
1	Aquifer Storage and Recovery

Project 1 would increase the amount of groundwater available for extraction in the Seaside Groundwater Basin (SGB) by an estimated 2,000 AFY. This would be a significant step in meeting SWRCB Order WR 95-10 to reduce diversions by 10,730 AFY in Carmel Valley and to maximize diversions from the Seaside Basin.

Projects including planning and design activities for a project that would directly meet this objective, but that will require additional funds for construction:

Project	Project Title
2	Seaside Basin Groundwater Replenishment Project - Planning & Design

Project 2 is the planning and design phase of a larger project to increase flow to the SGB by up to 2,800 AFY.

4.4. Restore ecosystems

All of the projects proposed contribute to restoration of portions of the local ecosystems. The most important ecosystems in the Region are the Carmel River and the Monterey Bay National Marine Sanctuary, which includes the Carmel Bay and Pacific Grove ASBS. As described in Sections 2.6 and 4.4 in the IRWM/ICWM Plan, the Carmel River Basin environment remains in a degraded state, with much of the damage due to water extraction. The following projects

associated with the Carmel River Basin directly benefit sensitive species and their habitats by increasing flows, restoring habitats, preserving habitats, or reducing degradation:

Projects including planning, design, and construction activities that would directly meet this objective:

Project	Project Title
1	Aquifer Storage and Recovery

Projects including planning and design activities for a project that would directly meet this objective, but that will require additional funds for construction:

Project	Project Title
2	Seaside Basin Groundwater Replenishment Project Planning and Design
4	Restoration of the Carmel River Floodplain (at Garland Park)
6	Restoration of Hatton Canyon Creek
9	Removal of Del Monte Resort Dam
10	Lower Carmel River Flood Control
11	Restore Roads with Sedimentation Problems in Regional Parks

Projects in the Carmel River Basin that indirectly meet this objective:

Project	Project Title
8	Watershed and Water Supply Protection Through Use of Conservation Easements
12	Farm Water Conservation and Best Management Practices
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II

Projects in the Carmel River Basin that indirectly benefit sensitive species and their habitats through monitoring and education activities that will improve resource management :

Project	Project Title
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
7	Project Monitoring

Projects including planning, design, and construction activities that would directly improve near-shore environments in the Monterey Bay National Marine Sanctuary:

Project	Project Title
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove

16	Implementation of Solid Waste Removal Technology

Monitoring projects contributing to an understanding of the biological communities in near-shore environments:

Project	Project Title
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

4.5. Maintain and/or improve water quality

With the exception of project 10 (Lower Carmel River Flood Control Project), all projects will have direct or indirect benefits on water quality. It should be noted that Project 10 could improve Carmel River water quality during a flood by reducing the amount of urban area flooded during a large runoff event and thereby reducing contaminated runoff.

Projects including *planning, design, and construction activities that would directly meet this objective:*

Project	Project Title
1	Aquifer Storage and Recovery
3	CSUMB Storm Water Percolation and Education
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
16	Implementation of Solid Waste Removal Technology

Project 1 would directly improve the quality of groundwater in the Seaside Basin. Projects 3, 13, and 16 would directly improve the quality of near-shore water in the Monterey Bay National Marine Sanctuary by reducing or removing contaminants.

Projects including planning and design activities for a project that would directly meet this objective, but that will require additional funds for construction:

Project	Project Title
4	Restoration of the Carmel River Floodplain (at Garland Park)
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
6	Restoration of Hatton Creek
7	Project Monitoring
11	Restore Roads with Sedimentation Problems in Regional Parks
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II

These projects will generally improve surface water quality in the Carmel Valley by preventing point and non-point source pollution from entering the Carmel River.

Projects that will indirectly improve water quality in Carmel Valley through monitoring and/or planning and design for future projects:

Project	Project Title
8	Watershed and Water Supply Protection Through Use of Conservation Easements
12	Farm Water Conservation and Best Management Practices

Projects that will indirectly improve the quality of near-shore water in the Monterey Bay National Marine Sanctuary:

Project	Project Title
17	Microbial Source Tracking in the Cities of Monterey and Pacific Grove

4.6. Increase opportunities for recreation and public access

Projects including planning, design, and construction activities that would directly meet this objective:

Project	Project Title
3	CSUMB Storm Water Percolation and Education
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
14	Carmel River Parkway Trails, Restoration, and Education
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

Projects including planning and design activities for a project that would directly meet this objective, but that will require additional funds for construction:

Project	Project Title
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
10	Lower Carmel River Flood Control
11	Restore Roads with Sedimentation Problems in Regional Parks

4.7. Resolve conflicts and legal issues

Project	Project Title
1	Aquifer Storage and Recovery
2	Seaside Basin Groundwater Replenishment Project - Planning and Design
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
10	Lower Carmel River Flood Control

Projects 1 and 2 will help satisfy SWRCB Order WR 95-10 to reduce diversions from the Carmel Valley. Project 5 will help establish a baseline of information to compare to after the San Clemente Dam Retrofit project is completed. This project would also help monitor flow requirements for steelhead. Project 10 will be a step toward alleviating chronic flooding of residential areas in the Lower Carmel Valley

4.8. Identify potential flood control projects in the Carmel River floodplain

Project	Project Title
10	Lower Carmel River Flood Control

5.0 Management strategies

The following strategies are used singularly or in combination (* *indicates a strategy that must be considered to meet the minimum IRWM Plan Standards pursuant to CWC §§ 79562.5 and 79564).*

- Ecosystem restoration*
- Environmental and habitat protection and improvement*
- Water supply reliability*
- Flood management*
- Groundwater management*
- Recreation and public access*
- Storm water capture and management*
- Water quality protection and improvement*
- Wetlands enhancement and creation*
- Water recycling*
- Conjunctive use
- NPS pollution control
- Water and wastewater treatment
- Water transfers

No projects in this proposal use the following strategies:

- Water conservation*
- Desalination
- Imported water
- Land use planning
- Surface storage
- Watershed planning

However, efforts to carry out water conservation, desalination, land use planning, and watershed planning are currently being implemented in this Planning Region (see Section 4.3 and 5 in the Plan). Strategies not currently being considered within the Region include projects that would modify a stream or river to increase surface storage and projects to reduce water importation (no water is imported from outside of the Region).

- **Ecosystem Restoration**

This strategy is a specific objective of the IRWM/ICWM Plan (See Section 4.4 above and Section 4.4 in the IRWM/ICWM Plan).

The following projects meet the definition of ecological restoration found in "The SER International Primer on Ecological Restoration Society for Ecological Restoration International Science & Policy Working Group (Version 2, October, 2004) " at: http://ser.org/content/ecological_restoration_primer.asp

"Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed."

Project	Project Title
1	Aquifer Storage and Recovery
2	Seaside Basin Groundwater Replenishment Project - Planning and Design
3	CSUMB Storm Water Percolation and Education
4	Restoration of the Carmel River Floodplain (at Garland Park)
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
9	Removal of Del Monte Resort Dam
10	Lower Carmel River Flood Control
11	Restore Roads with Sedimentation Problems in Regional Parks
12	Farm Water Conservation and Best Management Practices
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

- **Environmental and habitat protection and improvement**

See Section 5.1 in the IRWM/ICWM Plan. This strategy is vital to maintaining the beauty and value of the resources in this Planning Region. The following projects are consistent with this strategy:

Project	Project Title
1	Aquifer Storage and Recovery
2	Seaside Basin Groundwater Replenishment Project - Planning and Design
3	CSUMB Storm Water Percolation and Education
4	Restoration of the Carmel River Floodplain (at Garland Park)
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
9	Removal of Del Monte Resort Dam
11	Restore Roads with Sedimentation Problems in Regional Parks
12	Farm Water Conservation and Best Management Practices
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

- **Water Supply Reliability**

See Sections 4.1, 4.2, 4.3, and 5.3 in the IRWM/ICWM Plan. There are multiple strategies being used to increase the amount of water available in the Planning Region and to conserve or reduce usage where possible. The following projects are consistent with this strategy:

Project	Project Title
1	Aquifer Storage and Recovery
2	Seaside Basin Groundwater Replenishment Project Planning and Design
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
12	Farm Water Conservation and Best Management Practices
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II

- **Groundwater management**

Management of the Carmel River Aquifer and Seaside Groundwater Basin is one of the most significant issues in the Planning Region and is described in Sections 3, 4.2, 4.3, 4.5.5, 4.7, 5.3, 5.4, 5.7.2, and 5.11 in the IRWM/ICWM Plan. The following projects are consistent with this strategy:

Project	Project Title
1	Aquifer Storage and Recovery
2	Seaside Basin Groundwater Replenishment Project Planning and Design

- **Flood management**

See Section 5.5 in the IRWM/ICWM Plan. There are multiple flood-prone areas in the Planning Region. The following projects include this strategy as a component of the project:

Project	Project Title
3	CSUMB Storm Water Percolation and Education
4	Restoration of the Carmel River Floodplain (at Garland Park)
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
10	Lower Carmel River Flood Control

- **Recreation and public access**

See Section 5.9 in the IRWM/ICWM Plan. This strategy is a central theme for many of the proposed projects including:

Project	Project Title
2	Seaside Basin Groundwater Replenishment Project - Planning and Design
3	CSUMB Storm Water Percolation and Education
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
9	Removal of Del Monte Resort Dam
11	Restore Roads with Sedimentation Problems in Regional Parks
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
14	Carmel River Parkway Trails, Restoration, and Education
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

Project 2 would provide irrigation water for parks and golf courses. Project 3 would encourage public participation in completing the project and the area will be opened up and may be used for hiking. Projects 6, 9, 11, and 14 would enhance or create recreation opportunities. Projects 7 and 17 would provide information to officials concerned about water quality in recreational areas. Projects 13, 16, and 17 would address near-shore contamination that can close local public beaches.

- **Storm water capture and management**

Project	Project Title
3	CSUMB Storm Water Percolation and Education

This strategy is under development in the IRWM/ICWM Plan (see Section 5.2). However, this is a central focus of Project 3, which retains all storm water from a 32-acre portion of the CSUMB campus.

- **Water quality protection and improvement**

See Section 4.5, 5.2, and 5.7 in the IRWM/ICWM Plan.

Project	Project Title
1	Aquifer Storage and Recovery
2	Seaside Basin Groundwater Replenishment Project Planning and Design
3	CSUMB Storm Water Percolation and Education
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
11	Restore Roads with Sedimentation Problems in Regional Parks
12	Farm Water Conservation and Best Management Practices
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

Projects 1 and 2 would improve water quality in the Seaside Groundwater Basin. Project 3 would prevent urban stormwater runoff from entering the Monterey Bay from a 32-acre site. Projects 5, 7, and 17 would provide water quality data. Projects 8, 11, 12, 13, 14, 15, and 16 would prevent a variety of pollutants from entering local water bodies.

- **Wetlands enhancement and creation**

See Section 5.8 in the IRWM/ICWM Plan.

Project	Project Title
1	Aquifer Storage and Recovery
2	Seaside Basin Groundwater Replenishment Project Planning and Design
3	CSUMB Storm Water Percolation and Education
4	Restoration of the Carmel River Floodplain (at Garland Park)
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
9	Removal of Del Monte Resort Dam
12	Farm Water Conservation and Best Management Practices
14	Carmel River Parkway Trails, Restoration, and Education

Projects 1 and 2 would decrease diversion from Carmel Valley, which would directly benefit wetlands in the Carmel River riparian corridor. More specifically, areas of the river that dry up annually between RM 0.5 and RM 6 would likely flow longer in the spring and the underlying aquifer, which would be pumped less in the dry months, would recharge earlier in the winter, resulting in earlier overland flow. Project 3 would create wetlands in the percolation area. Projects 4, 6, 9, and 14 would increase streamside wetland areas. Projects 5 and 7 would provide data associated with wetland areas. Project 12 would preserve riparian areas adjacent to the Carmel River.

- **Water recycling**

See Section 5.7 in the IRWM/ICWM Plan. This strategy has been and will continue to be extremely important to this Planning Region in meeting State-mandated requirements to reduce consumption. The following project utilizes this strategy

Project	Project Title
2	Seaside Basin Groundwater Replenishment Project Planning and Design

- **Conjunctive use**

See Section 5.11 in the IRWM/ICWM Plan. This strategy has been employed by MPWMD for more than 20 years in the Carmel River Basin and for more than 10 years by MRWPCA in treating and using wastewater.

Project	Project Title
1	Aquifer Storage and Recovery
2	Seaside Basin Groundwater Replenishment Project Planning and Design

- **NPS pollution control**

The following projects are consistent with efforts to reduce and/or treat non-point source pollution:

Project	Project Title
3	CSUMB Storm Water Percolation and Education
4	Restoration of the Carmel River Floodplain (at Garland Park)
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
11	Restore Roads with Sedimentation Problems in Regional Parks
12	Farm Water Conservation and Best Management Practices
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

- **Water and wastewater treatment**

The following projects are consistent with efforts to treat wastewater:

Project	Project Title
2	Seaside Basin Groundwater Replenishment Project - Planning and Design
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

- **Water transfers**

There are no water transfer projects proposed.

5.13 Integration with State and Regional Plans

Project 1 – Aquifer Storage and Recovery: The ASR Project is consistent with the following Statewide Priorities as prescribed in Section II.F of the November 2004 Grant Program Guidelines:

- Reduce conflict between water users or resolve water rights disputes, including interregional water rights issues: The ASR Project will provide a new source of water supply that will help to resolve the water rights disputes associated with over drafting of the Carmel River Basin, as described in SWRCB Order WR 95-10 and with overdrafting of the Seaside Groundwater Basin as described in the report by Yates and others.

Project 2 – Seaside Basin Groundwater Replenishment Project (GRP) – Planning and Design: The GRP helps to address the following Statewide Priorities as prescribed in Section II.F of the November 2004 Grant Program Guidelines:

- Reduce conflict between water users or resolve water rights disputes, including interregional water rights issues: The GRP will provide a new source of water supply that will help to resolve the water rights disputes associated with over drafting of the Carmel River Basin, as described in SWRCB Order WR 95-10.

- Implementation of recommendations of the floodplain management task force, desalination task force, or recycling task force: The GRP will help to achieve the State Recycling Task Force's goals of increasing water recycling to reduce wastewater discharges and to augment local water supplies.

Project 3 – CSUMB Storm Water Percolation and Education: CSUMB shall implement a Storm Water Management Plan (SWMP) that contains the United States Environmental Protection Agency NPDES Phase II MS4 Permit components as listed below:

- Best Management Practices for the Six Minimum Control Measures
    - Public Education and Outreach
    - Public Participation and Involvement
    - Illicit Discharge Detection and Elimination
    - Construction Site Stormwater Runoff Control
    - Post-construction Stormwater Management in New Development and Redevelopment
    - Pollution Prevention and Good Housekeeping
- Measurable Goals for Each Minimum Control Measure
- Estimated Timeline for Implementation
- Persons Responsible for Implementation
- Assessment of SWMP Effectiveness
- Reporting

Watershed Management Initiative (2002) and Update 2004

Project	Project Title
4	Restoration of the Carmel River Floodplain (at Garland Park)
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
9	Removal of Del Monte Resort Dam
11	Restore Roads with Sedimentation Problems in Regional Parks
12	Farm Water Conservation and Best Management Practices
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

Three of the priority activities identified in the 2002 Watershed Management Initiative parallel projects proposed by Big Sur Land Trust (BSLT). These priorities include expansion of nonpoint source pollution management efforts that address impacts of sedimentation, nutrients, and pesticides from agricultural activities and development of a riparian corridor protection policy. Big Sur Land Trust has proposed an Uplands Grazing Management and Monitoring project (15) for Sedimentation Reduction and Habitat Protection that seeks to reduce sediment pollution in the Carmel River. Through this project, a grazing management plan will be developed for the Palo Corona Ranch landscape in the Carmel River Watershed. Recommendations will be made and implemented for road improvements and grazing prescriptions that will achieve management goals of minimizing impacts to water quality and sensitive aquatic habitats.

All the above projects support environmental habitat protection and improvement, with several projects emphasizing riparian habitat improvement. Project 14 (Carmel River Parkway Trails, Restoration, and Education) consists of site specific planning to restore natural riparian habitat at the mouth of the Carmel River. Projects 4 and 6 (Restoration of the Carmel River Floodplain and Restoration of Hatton Creek) will improve riparian habitat by increasing vegetation through volunteer opportunities to plant natural flora, removing artificial channels, and reducing downstream flooding. Project 12 (Farm Water Conservation and Best Management Practices) will preserve riparian habitat adjacent to the project farmland property and include native habitat buffers around the property.

The projects proposed by the Cities of Monterey and Pacific Grove (13, 16, 17) are consistent with several of the priorities identified in both the 2002 and 2004 Update of the Central Coast Regional Water Quality Control Board's Watershed Management Initiative. The relevant priority issues in the 2002 Watershed Management Initiative include expanding nonpoint source activities to address urban runoff and focusing increased funding and outreach to address beach

closure and coastal water quality issues and compliance with Phase II of the NPDES Storm Water Program.

Project 16 (Implementation of solid waste removal technology) is consistent with Minimum Control Measures (MCM) numbers 5 & 6 outlined in the Statewide General NPDES Permit for Phase II, which identify the need for structural and non-structural Best Management Practices (BMPs) for the control of urban runoff. Implementation of the Microbial Source Tracking project is consistent with MCM 3, illicit discharge detection.

In September 2004 the Central Coast Watershed Management Initiative Update was released with an increased focus on agricultural water quality impacts. As previously mentioned, Project 15 (Uplands Grazing Management and Monitoring for Sedimentation Reduction and Habitat Protection) will reduce sediment pollution in the Carmel River through recommendations for road improvements and grazing prescriptions on the Corona Ranch landscape. These efforts will achieve management goals of minimizing impacts to water quality and sensitive aquatic habitats in the Carmel River Watershed.

The relevant priority issues in the 2004 Watershed Management Initiative Update include addressing beach closure issues and implementing Phase II of the NPDES Stormwater Program. Project 13 to replace and repair the sewage infrastructure in the Cities of Pacific Grove and Monterey will address beach closure issues by reducing the likelihood of sewage spills caused by failing pipes, and by eliminating the potential for exfiltration from leaking pipes, a potential source of bacteria to surface and near-shore waters. Additionally, microbial source tracking diagnostic work (Project 17) will help to identify the source, and this will ultimately lead to the implementation of appropriate management measures.

Central Coast Regional Water Quality Control Board Basin Plan

Project	Project Title
1	Aquifer Storage and Recovery
2	Seaside Basin Groundwater Replenishment Project - Planning and Design
3	CSUMB Storm Water Percolation and Education
4	Restoration of the Carmel River Floodplain (at Garland Park)
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
9	Removal of Del Monte Resort Dam
10	Lower Carmel River Flood Control
11	Restore Roads with Sedimentation Problems in Regional Parks
12	Farm Water Conservation and Best Management Practices
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

California's Basin Plans are the basis of the Regional Boards Water Quality Planning Program. They provide the foundation for each Regional Board's regulatory activities, inform the public of regional water quality goals and requirements, and establish the basis for cooperative watershed management. The main goal of the Central Coast Regional Water Quality Control Board is to ensure that the water resources of the Central Coastal Basin are preserved for future generations of Californians. Those goals that most closely coincide with the projects above include:

- Protect and enhance all basin waters, surface and underground, fresh and saline, for present and anticipated beneficial uses, including aquatic environmental values.
- The quality of all surface waters shall allow unrestricted recreational use.
- Reduce and prevent accelerated (man-caused) erosion to the level necessary to restore and protect beneficial uses of receiving waters now significantly impaired or threatened with impairment by sediment.

Projects 1 and 2 help meet Basin Plan Objective II.A.4.a. "GENERAL OBJECTIVES" for tastes and odors and chemical constituents in groundwaters by injecting relatively high quality water into the Seaside Basin, which has high concentrations of hydrogen sulfide and is threatened with salt water intrusion. These projects may also assist in meeting Objective II. A. 1 for Dissolved Oxygen (DO) in the Carmel Bay by reducing diversions in Carmel Valley that lead to higher DO in the Carmel River lagoon.. That objective states "The mean annual dissolved oxygen concentration shall not be less than 7.0 mg/l, nor shall the minimum dissolved oxygen concentration be reduced below 5.0 mg/l at any time." Dissolved oxygen in the Carmel River

Lagoon periodically dips below violates this objective. For example, between February 1992 and May 2003, dissolved oxygen measurements have periodically been recorded below 7.0 mg/L. This is usually observed in the late summer and fall months. When this flow is released through breaching of the sandbar at the mouth of the lagoon, the near-shore waters may experience a temporary although slight increase in DO until the water is mixed into Carmel Bay waters.

Project 3 (CSUMB Storm Water Percolation and Education) will improve water quality in the Monterey Bay by retaining storm water runoff on site and preventing this surface flow from directly flowing into Monterey Bay waters.

Note that Projects 5 and 7 address all of these goals outlined in the Central Coast Regional Water Quality Control Board Basin Plan.

Projects 4, 6, 8, 11, 12, and 15 in the Carmel River watershed would meet the general objective of reducing sedimentation described in Appendix A-4 "Water Quality Control Policy for the Enclosed Bays and Estuaries of California (Bays and Estuaries Policies)." The following projects have water quality benefits through sediment transport reduction: Project 8 (Watershed And Water Supply Protection Through Use of Conservation Easements), Project 11 (Restore Roads with Sedimentation Problems in Regional Parks), and Project 15 (Uplands Grazing Management and Monitoring for Sediment Reduction and Habitat Protection). Project 12 (Farm Water Conservation and Best Management Practices) also has applications to water quality improvement as it will manage runoff from the Odello East property by collaborating with a farm lessee. These projects will reduce harmful amounts of sediment from entering waterways, while maintaining natural hydrology and geomorphology of streams by eliminating channelization and hardscaping. This will protect the integrity of water quality and natural habitat while maintaining the natural flow of sediment.

Erosion is addressed by Project 8 (Watershed and Water Supply Protection Through Use of Conservation Easements). Erosion will be reduced through a collaborative model project conservation easement thereby protecting the integrity of downstream waters. Project 11 (Restore Roads with Sedimentation Problems in Regional Parks) will determine the beast means for designing and restoring old roads in three regional parks to reduce soil erosion.

Projects 11 (Restore Roads with Sedimentation Problems in Regional Parks) and 14 (Carmel River Parkway Trails, Restoration, and Education) focus on increasing access for public enjoyment of Carmel River Watershed resources. Project 14 will increase public access by connecting existing parklands with a series of new trails. will improve public safety access and recreational access. In addition, Project 6 (Restoration of Hatton Creek) seeks to create a public greenbelt and passive recreational open space that currently has overburden material, weeds, exotic plants, and graded and compacted landscape.

Projects 13, 16, and 17 to improve the condition of sewage infrastructure, reduce solid waste discharge, and identify sources of bacterial contamination will improve water quality by reducing the likelihood of sewage spills and exfiltration, and will similarly reduce the likelihood of beach closures resulting from spills, thus removing restrictions to recreational use.

Implementation of solid waste removal technology will reduce the amount of trash and litter that enters the near shore and surface waters. Microbial source tracking will lead to the implementation of BMPs to reduce this type of pollution, removing occasional restrictions to recreational uses of these waters.

Protecting Our Ocean -California's Action Strategy (Ocean Action Plan 2004)

Many project objectives proposed by BSLT closely parallel goals identified in the 2004 Protecting Our Ocean -California's Action Strategy. All BSLT projects (Nos. 4, 6, 7, 8, 9, 11,12, 14, 15) coincide with these Ocean Action Plan priorities:

Increase the Abundance and Diversity of Aquatic Life

The first goal of the Ocean Action Plan is to increase the abundance and diversity of aquatic life in California's ocean, bays, estuaries, and coastal wetlands. Several BSLT projects support this goal by improving steelhead habitat through sediment reduction. These projects include Watershed and Water Supply Protection Through Use of Conservation Easements, Restore Roads with Sedimentation Problems in Regional Parks, and Uplands Grazing Management and Monitoring for Sediment Reduction and Habitat Protection. These projects will reduce harmful amounts of sediment from entering waterways, while maintaining natural hydrology and geomorphology of streams by eliminating channelization and hardscaping. This will protect the integrity of water quality and natural habitat while maintaining the natural flow of sediment.

Other projects will fulfill this goal through riparian and wetland restoration efforts; these projects include: Carmel River Parkway Trails, Restoration, and Education, Restoration of the Carmel River Floodplain, and Restoration of Hatton Creek. The Farm Water Conservation and Best Management Practices project involves water quality protection and preservation of riparian habitat through management practices. The Del Monte Resort Dam is currently a partial barrier to steelhead migration and a removal study project will lead to habitat improvement for steelhead, red-legged frogs, and other terrestrial and aquatic species. Project Monitoring also supports this goal.

Improve Water Quality

The second goal of the Ocean Action Plan is to make ocean, bay, estuary, and coastal wetlands water cleaner. A watershed and water supply protection project, road restoration project, and uplands grazing management and monitoring plan will contribute to increased water quality in the Carmel River Watershed through sediment reduction efforts. The Farm Water Conservation and Best Management Practices project will also protect water quality integrity through management practices. Project monitoring will measure the effectiveness of these projects to improve water quality.

Implementation of solid waste removal technology will reduce the amount of trash and litter that enters the near shore and surface waters. Microbial source tracking will lead to the implementation of BMPs to reduce this type of pollution, removing occasional restrictions to recreational uses of these waters.

Improving the condition of sewage infrastructure, reducing solid waste discharge, and identifying sources of bacterial contamination will improve water quality by reducing the

likelihood of sewage spills and exfiltration, and will similarly reduce the likelihood of beach closures resulting from spills, thus removing restrictions to recreational use.

Provide a Useful and Safe Environment for Public Enjoyment
Providing a marine and estuarine environment that Californians can productively use and safely enjoy is the third goal of the Ocean Action Plan. Many BSLT projects improve recreational usage and increase public access. One such project is Carmel River Parkway Trails, Restoration, and Education. This project will increase public access by connecting existing parklands with a series of new trails. A project to restore regional park roads will also improve recreational access in addition to public safety access. In addition, a project to restore Hatton Creek seeks to create a public greenbelt and passive recreational open space that currently has overburden material, weeds, exotic plants, and graded and compacted landscape. Project monitoring also supports this goal. Reducing microbial contamination of recreational waters will also further this goal in the region.

Sediment Management
One action of the Ocean Action Plan is to Complete the California Coastal Sediment Management Plan. BSLT projects closely support the actions of this management plan which will help address sediment management issues regarding coastal erosion and wetland restoration. Erosion influenced sedimentation problems in the Carmel River Watershed are recognized by several projects including Watershed and Water Supply Protection Through Use of Conservation Easements, Restore Roads with Sedimentation Problems in Regional Parks, and Uplands Grazing Management and Monitoring for Sediment Reduction and Habitat Protection. All nine BSLT projects support environmental habitat protection and improvement, of which 3 specifically focus on wetland restoration. These projects include: Carmel River Parkway Trails, Restoration, and Education, Restoration of the Carmel River Floodplain, and Restoration of Hatton Creek. Project Monitoring also supports this goal.

California Water Plan Update Advisory Review Draft 2004

Big Sur Land Trust projects support the following management objectives identified in the 2004 California Water Plan Update Advisory Review Draft: provide water supply benefit; improve water quality; and environmental benefits. Of the 25 resource management strategies identified in the Update, BSLT projects most closely support the following: pollution prevention, agricultural lands stewardship, ecosystem restoration, and floodplain management. Note that Project Monitoring supports all the resource management strategies below.

Pollution prevention
Many of the projects proposed by Big Sur Land Trust focus on reducing polluted runoff. Three projects will accomplish this through erosion control and sediment reduction including Watershed and Water Supply Protection Through Use of Conservation Easements, Restore Roads with Sedimentation Problems in Regional Parks, and Uplands Grazing Management and Monitoring for Sediment Reduction and Habitat Protection. The Farm Water Conservation and Best Management Practices project will manage agricultural runoff from the Odello East property through collaboration with a farm lessee.

In addition, CSUMB Storm Water Percolation and Education and Implementation of Solid Waste Removal Technology will prevent pollution from entering near-shore waters.

Agricultural lands stewardship
The Farm Water Conservation and Best Management Practices project will ensure a high level of land stewardship by collaborating with a farm lessee to manage the Odello East property. This relationship and management project will protect water quality, reduce water use, manage runoff, eradicate noxious weeds, and preserve adjacent riparian habitat.

Ecosystem restoration
Ecosystem restoration is a focus of three BSLT projects. Carmel River Parkway Trails, Restoration, and Education is designed to restore natural riparian and wetland habitat at the mouth of the Carmel River. Restoration of the Carmel River Floodplain will improve riparian and wetland habitat by increasing vegetation through volunteer opportunities to plant natural flora, removing artificial channels, and reducing downstream flooding. Restoration of Hatton Creek will also restore riparian and wetland habitat in addition to re-establishing and connecting the wildlife corridor and expanding endangered species habitat.

Floodplain management
Floodplain management is addressed by Project 4 (Restoration of the Carmel River Floodplain), which will determine the best means of restoring the historic floodplain at Garland Ranch Regional Park. Initial engineering and a biological assessment will determine subsequent implementation and construction improvements to enhance floodway capacity. Project 10 (Lower Carmel River Flood Control) addresses flooding in a large residential neighborhood with chronic flooding.

California's Non Point Source Pollution Control Program (2000)
The 2000 Plan for California's Non Point Source Pollution Control Program identifies clear goals to reduce nonpoint source pollution. Of these goals, one objective is to manage NPS pollution, where feasible at the watershed level-including pristine areas and waters that contain water bodies on the 303(d) list-where local stewardship and site-specific MPs can be implemented through comprehensive watershed protection or restoration plans. Note that Project Monitoring supports goals discussed below identified in California's Non Point Source Pollution Control Program.

Local stewardship with regards to polluted runoff is addressed in two projects proposed by Big Sur Land Trust. The Farm Water Conservation and Best Management Practices project involves collaboration with a farm lessee to manage runoff on the Odello East property. Watershed and Water Supply Protection Through Use of Conservation Easements will utilize land stewardship to decrease erosion and sedimentation on privately owned Carmel River Watershed lands. Reducing sediment transport will help protect the integrity of downstream water supply.

Big Sur Land Trust has proposed three additional projects that will minimize sediment related polluted runoff. Restore Roads with Sedimentation Problems in Regional Parks will determine physical design options and design specifications to restore former ranch roads in three large

regional parks. Restoration of these roads will reduce soil erosion and subsequent sediment transport and load into the Carmel River. One component of the Uplands Grazing Management and Monitoring Project is to determine recommendations for improvement to dirt roads to reduce sediment pollution into the Carmel River.

Project 5 – Carmel River Watershed Water Quality Volunteer Monitoring Program:
Implementation of a water quality monitoring program would respond to the Central Coast Regional Water Quality Control Board's (RWQCB) responsibility for implementing the Clean Water Act, Section 319, which requires states to institute monitoring and control of nonpoint source pollution, as well as the RWQCB's Water Quality Control Plan (Basin Plan). As part of this work, the RWQCB has established the Central Coast Ambient Monitoring Program (CCAMP) designed to coordinate and support Volunteer Monitoring Program data acquisition procedures and documentation to facilitate accessibility of the data for management uses. Additionally, Carmel Bay and its watershed are listed in the Critical Coastal Areas (CCA) Program, jointly administered as a component of California's NPS Plan by the California Coastal Commission and the State Water Resource Control Board. CCA's are comprised of high quality coastal waters not yet impacted by nonpoint source pollution, and are designated as State Water Quality Protection Areas (formerly called Areas of Special Biological Significance). A monitoring program would provide critical information currently not available to identify trends and increasing impacts to Carmel Bay associated with changes in land use that derive from a range of activities that include construction of new roads and housing developments, poorly maintained older roads, urban run-off, and agricultural run-off.

Project	Project Title
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

The 2000 Plan for California's Non Point Source Pollution Control Program identifies clear goals to reduce nonpoint source pollution. Of these goals, one objective is to manage NPS pollution, where feasible at the watershed level-including pristine areas and waters that contain water bodies on the 303(d) list-where local stewardship and site-specific MPs can be implemented through comprehensive watershed protection or restoration plans. The goals of these projects – reducing microbial contamination and solid waste will further the goals of the NPS program.

Projects 13, 16, and 17 complement one another because they seek to reduce certain pollutants in urban runoff in the Cities of Monterey and Pacific Grove to the benefit of the near shore waters of the Monterey Bay National Marine Sanctuary, the associated biological communities, and the commercial industries and recreational activities that depend on clean water. The projects taken together complement the priorities and strategies outlined in this plan.

State Water Resources Control Board Ocean Plan

Near-coastal waters are the downstream recipient of flow from most of California's watersheds

and upstream activities must be managed so as not to adverse affect downstream near-coastal waters. Periodic review and proposal of amendments to the California Ocean Plan is the primary function of the SWRCB Ocean Standards Program in addition to providing technical support and recommendations to staff of the RWQCBs on issues related to ocean water quality and issuance of WDR's to ocean dischargers. These projects will help to meet the objectives of the ocean plan including bacterial water contact standards and physical characteristics, as well as the goal of pollutant minimization.

Monterey Bay National Marine Sanctuary's Urban Runoff Action Plan; Draft Monterey Regional Stormwater Management Plan

This plan, developed in 1996, describes seven priority strategies for addressing the problems associated with urban runoff in the region including education and outreach, technical training, CEQA additions, structural and nonstructural controls, sedimentation and erosion, and storm drain inspection. The solid waste removal technology project will implement Strategy #4, Structural / Non-structural controls.

Monterey Bay National Marine Sanctuary Beach Closures Action Plan

The fifth action plan developed by the WQPP in 2003, is the Beach Closure and Microbial Contamination action plan. The goal of this plan is to reduce microbial contamination in MBNMS waters and to better identify sources of contamination in order to effectively allocate resources and evaluate health risks. The sewer infrastructure project implements Strategy BC-5, Source Control, and the microbial source tracking project implements Strategy BC-1, Research, contained in this plan.

California Coastal Commission Local Coastal Planning

In 1976, the State Legislature enacted the California Coastal Act to provide for the conservation and planned development of the State's coastline. The Coastal Act mandates the protection and restoration of coastal waters pursuant to several sections in the Public Resources Code. Mandated objectives that relate to these projects include:

- To maintain, enhance, and, where feasible, restore marine resources;
- To maintain and, where feasible, restore biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes through, among other means, minimizing adverse effects of wastewater discharges and entrainment, controlling runoff.

Pacific Grove Sewer System Asset Management Plan

The Sewer System Asset Management Plan (SSAMP – see "Att3_IG1_IRWMPlan_6of7" and "Att3_IG1_IRWMPlan_7of7") provides guidance to the City in the management of the City's sewer system assets. The SSAMP evaluates maintenance practices, reviews the condition of the sewer system, determines wastewater flows, evaluates the capacity of the sewer system, identifies capacity and condition issues, projects revenues and expenses, and recommends programs and activities that will assist the city in meeting all current and anticipated regulations with the goals of minimizing sanitary sewer overflows, providing an excellent level of service, and protection human health and the marine environment. The repair and replacement of the sewage infrastructure in Pacific Grove is directed by this Plan.

6.0 Prioritization of Projects

The stakeholder group met on June 1, 2005 and formed a subcommittee to develop a prioritization process. The subcommittee met on June 9, 2005, drafted a process to objectively review projects and refined the process over the following week. All stakeholders with projects for this proposal ranked their projects according to the draft criteria. This criteria was finalized at a June 17, 2005 stakeholder meeting and is shown below in Table 2. At the June 17, 2005 meeting, the stakeholder group also reviewed each project and ranked them. Project rankings are shown in Table 3.

The proposed projects address several key issues and objectives and make much needed improvements, but no single project or set of projects in this proposal fully satisfies any of the key issues or objectives in the IRWM/ICWM Plan for the Region. For the long term, additional projects will be necessary to fully satisfy the key issues and objectives for the Region.

Table 2 – Short Term Regional Priority Criteria

1. Project readiness (1 point)
Project can be initiated on or before January 1, 2007
2. Local contribution - fill out one category (1 point)
In-kind services
Currently budgeted and/or authorized
Future revenue stream
3. Implementation (1 point)
No known obstacles to project initiation or demonstrated public support
4. Objectives (1 point for each objective met)
4.1. Review local and regional water supply planning
4.2. Manage surface and groundwater supply
4.3. Augment water supplies
4.4. Restore ecosystems
4.5. Maintain and/or improve water quality
4.6. Increase opportunities for recreation and public access
4.7. Resolve conflicts and legal issues
4.8. Identify potential flood control projects in the Carmel River floodplain
5. Need - address one of the following key issues (1 point max.)
storm water discharges into ASBS
diversions/environmental degradation in Carmel Valley
flooding
urban runoff

The maximum total score for a project is 12 points.

Table 3 – Project Ranking

	Project	Sponsor	Priority Score
1	Aquifer Storage and Recovery	MPWMD	9
2	Seaside Basin Groundwater Replenishment Project - Planning & Design (see Note 1)	MRWPCA	9
3	CSUMB Storm Water Percolation and Education	CSUMB	8
4	Restoration of the Carmel River Floodplain (at Garland Park)	BSLT	8
5	Carmel River Watershed Water Quality Volunteer Monitoring Program	CRWC	8
6	Restoration of Hatton Creek (see Note 2)	BSLT	8
7	Project Monitoring	BSLT	8
8	Watershed and Water Supply Protection Through Use of Conservation Easements	BSLT	7
9	Removal of Del Monte Resort Dam (See Note 3)	BSLT	7
10	Lower Carmel River Flood Control	MCWRA	7
11	Restore Roads with Sedimentation Problems in Regional Parks	BSLT	7
12	Farm Water Conservation and Best Management Practices	BSLT	7
13	Sanitary Sewer System Repair and Replacment in the Cities of Monterey and Pacific Grove	Ci. Monterey / P.G.	6
14	Carmel River Parkway Trails, Restoration, and Education	BSLT	6
15	Uplands Grazing Mgt. & Monitoring Plan for Sediment Reduction and Habitat Protection, Ph. II	BSLT	6
16	Implementation of Solid Waste Removal Technology	Ci. Monterey / P.G.	6
17	Microbial Source Tracking in the Cities of Monterey and Pacific Grove	Ci. Mont / P.G. / Foundation	6

Abbreviations	
BSLT	Big Sur Land Trust
CSUMB	California State University Monterey Bay
CRWC	Carmel River Watershed Conservancy
Ci Monterey	City of Monterey
PG	City of Pacific Grove
CSA 50	Monterey County Service Area 50
MCWRA	Monterey County Water Resources Agency
MPWMD	Monterey Peninsula Water Management District
MRWPCA	Monterey Regional Water Pollution Control Agency
Notes	
1. - The stakeholder group unanimously agreed on June 17, 2005 to support a request for funding of construction of this project in the second Prop 50 Implementation Grant cycle.	
2. Also known as Hatton Canyon Creek.	
3. Also known as Old Carmel River Dam.	

Table 3a – Individual Project Scoring

IRWM/ICWM Plan	Project Title	Aquifer Storage and Recovery	Seaside Basin Groundwater Replenishment Project - Planning & Design (see Note 1)	CSUMB Storm Water Percolation and Education	Restoration of the Carmel River Floodplain (at Garland Park)	Carmel River Watershed Water Quality Volunteer Monitoring Program	Restoration of Hatton Creek (see Note 2)	Project Monitoring	Watershed and Water Supply Protection Through Use of Conservation Easements	Removal of Del Monte Resort Dam (See Note 3)
Short-Term Regional Priority Scoring	**Agency**	**MPWMD**	**MRWPCA**	**CSUMB**	**BSLT**	**CRWC**	**BSLT**	**BSLT**	**BSLT**	**BSLT**
1. Project readiness										
Project can be initiated on or before January 1, 2007		1	1	1	1	1	1	1	1	1
2. Local contribution - fill out one category		1	1	1	1	1	1	1	1	1
In-kind services			x		x	x	x	x	x	x
Currently budgeted and/or authorized									x	
Future revenue stream		x	x	x						
3. Implementation										
No known obstacles to project initiation or demonstrated public support		1	1	1	1	1	1	1	1	1
4. Objectives										
4.1. Review local and regional water supply planning										
4.2. Manage surface and groundwater supply		1	1	1	1		1	1	1	1
4.3. Augment water supplies		1	1							
4.4. Restore ecosystems		1	1	1	1	1	1	1	1	1
4.5. Maintain and/or improve water quality		1	1	1	1	1	1	1	1	1
4.6. Increase opportunities for recreation and public access				1			1	1		
4.7. Resolve conflicts and legal issues		1	1			1				
4.8. Identify potential flood control projects in the Carmel River floodplain					1	1				
5. Need - address one of the following key issues (1 point max.)										
storm water discharges into ASBS										
diversions/environmental degradation in Carmel Valley		1	1		0	1	1	1	1	1
flooding					1					
urban runoff				1						
Total (maximum score is 12)		**9**	**9**	**8**	**8**	**8**	**8**	**8**	**7**	**7**

Table 3a – Individual Project Scoring (continued)

IRWM/ICWM Plan — Project Title	Lower Carmel River Flood Control	Restore Roads with Sedimentation Problems in Regional Parks	Farm Water Conservation and Best Management Practices	Sanitary Sewer System Repair and Replacment in the Cities of Monterey and Pacific Grove	Carmel River Parkway Trails, Restoration, and Education	Uplands Grazing Mgt. & Monitoring Plan for Sediment Reduction and Habitat Protection, Ph. II	Implementation of Solid Waste Removal Technology	Microbial Source Tracking in the Cities of Monterey and Pacific Grove
Short-Term Regional Priority Scoring — Agency	**MCWRA**	**BSLT**	**BSLT**	**Ci. Monterey / P.G.**	**BSLT**	**BSLT**	**Ci. Monterey / P.G.**	**Ci. Mont / P.G. / Foundation**
1. Project readiness								
Project can be initiated on or before January 1, 2007	1	1	1	1	1	1	1	1
2. Local contribution - fill out one category	1	1	1	1	1	1	1	1
In-kind services		x	x		x	x	x	x
Currently budgeted and/or authorized	x			x	x			
Future revenue stream								
3. Implementation								
No known obstacles to project initiation or demonstrated public support		1	1	1	1	1	1	1
4. Objectives								
4.1. Review local and regional water supply planning								
4.2. Manage surface and groundwater supply			1					
4.3. Augment water supplies								
4.4. Restore ecosystems	1	1	1		1	1	1	
4.5. Maintain and/or improve water quality		1	1	1	1	1	1	1
4.6. Increase opportunities for recreation and public access	1	1		1	1			1
4.7. Resolve conflicts and legal issues	1							
4.8. Identify potential flood control projects in the Carmel River floodplain	1							
5. Need - address one of the following key issues (1 point max.)								
storm water discharges into ASBS								
diversions/environmental degradation in Carmel Valley		1	1			1		
flooding	1							
urban runoff				1			1	1
Total (maximum score is 12)	7	7	7	6	6	6	6	6

7.0 Project Implementation

Projects will be implemented by the sponsoring agencies. A schedule is shown in Table 4. No single project is dependent on the completion of another. However, the monitoring projects included in this proposal would provide valuable information both for short-term priority projects and future projects carried out in the Region. These projects are:

Project	Project Title
5	Carmel River Watershed Water Quality Volunteer Monitoring Program
7	Project Monitoring

When fully implemented, the combination of Project 1 (Aquifer Storage and Recovery) and Project 2 (Seaside Basin Groundwater Replenishment Project - Planning & Design) will increase the quality and quantity of groundwater in the Seaside Groundwater Basin and provide water supply reliability. Project 1 would have an immediate effect on bringing the basin back into balance, whereas Project 2 would likely take longer to replenish the basin, but would address long-term degradation in the basin.

Project 2 (GWP) will be carried out in the following three phases (referred to as Tasks in the Schedule contained in Attachment 2 of the Project Summary):

Task 1 – The Planning Phase. This phase will include coordination with other agencies, preparation of feasibility studies and other preliminary technical reports, pilot testing, CEQA and NEPA compliance processes, and preparation of the final design report that will serve as the basis for Task 2 – The Design Phase.

Task 2 – The Design Phase. This phase will include preparation of plans and specifications for the full-scale GWR project, obtaining of all necessary permits and approvals, and obtaining necessary right-of-way upon which to construct the GWR facilities.

Task 3 – The Construction Phase. This phase will include bidding, contract award, construction, and start-up.

Each of these tasks is shown in the Schedule in Attachment 2 and in the Cost Estimate in Attachment 3, both contained in the Project Summary.

The GRP is currently in the planning stage, with an initial feasibility study already completed (see Attachment 1) and subsequent work in progress. The Schedule contained in Attachment 2 of the Project Summary shows the planned dates for completion of the remaining planning steps including CEQA and NEPA compliance, the preparation of design documents, acquisition of permits and approvals, and construction of facilities.

The GRP will be managed and implemented by the MRWPCA. MRWPCA is the public agency providing regional wastewater services to approximately 255,000 residents and associated commercial and industrial users throughout northern Monterey County. MRWPCA is a California Joint Powers Authority governed by a Board of Directors comprised of representatives

from each of its twelve member entities. Those entities are the cities of Pacific Grove, Monterey, Seaside, Del Rey Oaks, Sand City, and Salinas, the Marina Coast Water District, the County of Monterey, the County Sanitation Districts of Moss Landing and Boronda, County Service Area No. 14 (Castroville), and Fort Ord (ex officio member). MWPCA was formed in 1971, has a current staff of approximately 75 people, and an annual operating budget of approximately $14 million.

Projects to improve water quality in the MBNMS are linked because they would likely decrease the amount of pollution entering the MBNMS. Those projects are:

Project	**Project Title**
3	CSUMB Storm Water Percolation and Education
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

The two monitoring projects in the Carmel Valley (Project 5 - Carmel River Watershed Water Quality Volunteer Monitoring Program and 7 - Project Monitoring) are complementary as each project focuses on different aspects. Project 5 helps establish and maintain a baseline of information while Project 7 would examine the effectiveness of the suite of projects proposed by the Big Sur Land Trust and its associates.

Table 4 – Schedule - Carmel Bay, Monterey Peninsula, and Southern Monterey Bay IRWM/ICWM Plan

No.	Project Name
1	**Aquifer Storage and Recovery**
	See schedule for milestones
2	**Seaside Basin Groundwater Replenishment Project**
	Planning and Design
	See schedule for milestones
3	**CSUMB Storm Water Percolation and Education**
	Design/CEQA Compliance
	Construction
	Seeding and Monitoring
4	**Restoration of the Carmel River Floodplain**
	See schedule for milestones
5	**Carmel River Watershed Water Quality**
	Volunteer Monitoring Program
	See schedule for milestones
6	**Restoration of Hatton Canyon Creek**
	See schedule for milestones
7	**Project Monitoring**
8	**Watershed and Water Supply Protection**
	Through Use of Conservation Easements
	See schedule for milestones
9	**Removal of Del Monte Resort Dam**
	See schedule for milestones
10	**Lower Carmel River Flood Control**
	Begin Engineering Report
11	**Restore Roads with Sedimentation Problems**
	in Regional Parks
	See schedule for milestones
12	**Farm Water Conservation and**
	Best Management Practices
	See schedule for milestones
13	**Sanitary Sewer System Repair and Replacment in the Cities of**
	Monterey and Pacific Grove*
	Start: Spring following receipt of grant agreement
	Duration: 24 months
14	**Carmel River Parkway Trails, Restoration, and Education**
	See schedule for milestones
15	**Uplands Grazing Management and Monitoring Plan for**
	Sediment Reduction and Habitat Protection - Phase II
	See schedule for milestones
16	**Implementation of Solid Waste Removal Technology***
	Start: Two moths following receipt of grant agreement
	Duration: 8 months
17	**Microbial Source Tracking in the Cities of Monterey and Pacific**
	Grove*
	Start: Immediately following receipt of grant agreement
	Duration: 24 months

* Contingent upon receipt of grant funding

8.0 Impacts and Benefits

Some discussion of Impacts and benefits is included in Section 8 in the Plan. Effects of the Plan within the Region are proposed to be studied in detail in the next 12 months. Based on a screening level analysis of the projects in the Proposal (see Table 5), there appear to be some temporary site related impacts, but no long term effects within the Region.

Although it is not likely that implementation of the Plan or projects in the proposal will have any impacts outside of the Region, areas around the Monterey Bay are connected hydrologically through the bay waters. However, effects from one region on another may be difficult to detect.. For a discussion of efforts to link plans being developed around the Monterey Bay, see Section 2.1.1 in the Plan or see Section 3.9 "Other Regional Plans in Monterey Bay" in the Salinas Valley Functionally Equivalent Plan. connection.

Projects 1 and 2 will benefit the residents and businesses throughout the Planning Region defined in this Grant Application by augmenting the current potable water supply which is in a critical over draft condition. Specifically, the Seaside Groundwater Basin was reported to be in severe over draft in the recently released MPWMD report titled "Seaside Groundwater Basin: Update on Water Resource Conditions, April 14, 2005". There are no currently known negative impacts associated with Project 2 . Any which are identified during the environmental compliance work to be conducted under Task 2 (see Schedule in Attachment 2 of the Project Summary) will be appropriately mitigated as a condition of certifying the CEQA and NEPA documents.

Table 5 – Impacts and Benefits

	Carmel Bay, Monterey Peninsula, and Southern Monterey Bay IRWM/ICWM Plan			
	Impacts and Benefits			
	Project	Sponsor	Impacts	Benefits
1	Aquifer Storage and Recovery	MPWMD	Potential short-term, construction related impacts due to noise, dust, increased traffic. Potential loss or disturbance of T&E species at constuction sites. Increased energy use.	Regional benefits including reduced dependency on Carmel River Basin, increased water supply, improved water quality in the Seaside Groundwater Basin
2	Seaside Basin Groundwater Replenishment Project - Planning & Design (see Note 1)	MRWPCA	Potential short-term, construction related impacts due to noise, dust, increased traffic. No long term impacts identified.	Completion of plans and design may lead to a project with regional benefits including reduced dependency on Carmel River Basin, increased water supply, improved water quality in the Seaside Groundwater Basin
3	CSUMB Storm Water Percolation and Education	CSUMB	Potential short-term, construction related impacts due to noise, dust, increased traffic. No long term impacts identified.	Removal of a decayed portion of an abandoned military base, reduction in urban stormwater runoff, potential recharge of Salinas and Seaside Groundwater Basins, restoration of native maritime species, increase in wetlands.
4	Restoration of the Carmel River Floodplain (at Garland Park)	BSLT	none identified	Completion of an engineering analysis may lead to a future project with Regional benefits that include riparian habitat improvement, flood capacity improvement, increase viability of California red-legged frogs and tiger salamander.
5	Carmel River Watershed Water Quality Volunteer Monitoring Program	CRWC	none identified	This project will provide critical data to evaluate impacts as well as other dynamic influences throughout the watershed that will occur during implementation of projects throughout the watershed.
6	Restoration of Hatton Creek (see Note 2)	BSLT	none identified	Completion of an engineering feasibility analysis at this Caliofrnia State Park site may lead to a project with Regional benefits including riparian habitat improvement, increased viability for California red-legged frogs and tiger salamander and an increase in recreational access.
7	Project Monitoring	BSLT	none identified	Serve as a model for determining overall project effectiveness, contribute to the attainment of goals and benefits identified in each individual project.
8	Watershed and Water Supply Protection Through Use of Conservation Easements	BSLT	none identified	Decrease on site erosion and reduce sedimentation in the Carmel River.
9	Removal of Del Monte Resort Dam (See Note 3)	BSLT	none identified	This project will remove an 85-year old impediment to steelhead migration and allow the stream profile to adjust to chhanges in sediment and flow characteristics.
10	Lower Carmel River Flood Control	MCWRA	unknown	Reduce potential for flooding in a flood-prone area.
11	Restore Roads with Sedimentation Problems in Regional Parks	BSLT	none identified	Reduce manmade sediment load to Carmel River, improve habitat for steelhead and California red-legged frogs, improve public safety and recreational access.
12	Farm Water Conservation and Best Management Practices	BSLT	none identified	Reduce agricultural runoff, reduce groundwater pumping, remove noxious weeds.
13	Sanitary Sewer System Repair and Replacment in the Cities of Monterey and Pacific Grove	Ci. Monterey / P.G.	unknown	Reduce the number of sewer system overflows, reduce microbial contamination of surface and near-shore environments, reduce NPS pollution. Potential Regional benefit from increased access to beaches.
14	Carmel River Parkway Trails, Restoration, and Education	BSLT	none identified	Increase parkland access, riparian and wetland restoration, public outreach and restoration.
15	Uplands Grazing Mgt. & Monitoring Plan for Sediment Reduction and Habitat Protection, Ph. II	BSLT	none identified	Reduce sediment load in Carmel River and San Jose Creek.
16	Implementation of Solid Waste Removal Technology	Ci. Monterey / P.G.	unknown	Prevent trash from flowing to beaches, reduce NPS pollution.
17	Microbial Source Tracking in the Cities of Monterey and Pacific Grove	Ci. Mont / P.G. / Foundation	unknown	Improved knowledge of sewage sources, identify sources of NPS pollution, identify sources of bacterial contamination.

Abbreviations

BSLT	Big Sur Land Trust
CRWC	Carmel River Watershed Conservancy
CSUMB	California State University Monterey Bay
Ci Monterey	City of Monterey
PG	City of Pacific Grove
CSA 50	Monterey County Service Area 50
MCWRA	Monterey County Water Resources Agency
MPWMD	Monterey Peninsula Water Management District
MRWPCA	Monterey Regional Water Pollution Control Agency

Notes

1. The stakeholder group unanimously agreed on June 17, 2005 to support a request for funding of construction of this project in the second Prop 50 Implementation Grant cycle.
2. Also known as Hatton Canyon Creek.
3. Also known as Old Carmel River Dam.

8.4 Compliance with California Environmental Quality Act

Project 1 – an EIR is currently being prepared and is expected to be certified in February 2006.

Project 2 – will require environmental analysis as part of the project.

Project 3 – environmental review and compliance is expected to be complete by February 2007

Projects 4, 6, and 11 are likely to be exempt under CEQA Section 15262 as they involve feasibility studies.

Projects 5 and 7 consist of data gathering only.

Project 8 – the status of this proposal under CEQA is not known.

Projects 9, 12, 14, and 15 – may require CEQA review/compliance.

Projects 13, 16, and 17 – no CEQA review/compliance necessary.

9.0 Data and Technical Analysis

Project 1 – Aquifer Storage and Recovery: Since 1996, MPWMD has evaluated the feasibility of an ASR project in the Seaside Groundwater Basin. Efforts have included hydrogeologic testing and construction of pilot and full-scale test ASR wells in the coastal area of the basin. This testing has found that the basin can be successfully used to store water for future use in the CAW system.

The need for basin management is well documented in the report "SEASIDE GROUNDWATER BASIN: UPDATE ON WATER RESOURCE CONDITIONS," Prepared for Monterey Peninsula Water Management District, Prepared by Eugene B. (Gus) Yates1, CHg 740, Martin B. Feeney2, CHg 145, Lewis I. Rosenberg3, CEG 1777, April 14, 2005. The following is from the Executive Summary:

> Groundwater conditions in the Seaside basin have deteriorated in the past decade. Groundwater extraction near the coast increased markedly beginning in 1995, resulting in declining water levels and depletion of groundwater storage. Based on detailed analysis of water level trends and groundwater budgets, the estimated sustainable yield of the Seaside basin under present conditions is 2,880 ac-ft/yr. Although there is significant uncertainty in this value, basinwide groundwater withdrawals in recent years have been on the order of 5,600 ac-ft/yr which exceeds the sustainable yield estimate by almost a factor of two. Water-level declines are not uniform throughout the basin, but in three of the four basin subareas (Northern Coastal, Northern Inland, and Laguna Seca), groundwater budgets indicate that total inflows are less than total outflows. In the Southern Coastal Subarea they are approximately equal.
>
> Chronically declining water levels and deficit water budgets over an 8-year period characterized by slightly below-average to wet climatic conditions suggest the basin is in a state of overdraft and that groundwater extraction exceeds the sustainable yield. The main limitation on yield in the Seaside basin is the risk of seawater intrusion, and the overriding issue of concern is that seawater might reach production wells before the

groundwater budget can be brought into balance. Intrusion could potentially arrive from Monterey Bay or from previously intruded areas only 1.5 miles north of the northern basin boundary. Groundwater storage cannot be relied upon to sustain current levels of production for many years in a row because the operable groundwater storage volume for the coastal subareas is on the same order of magnitude as annual groundwater extractions.

Project 2 – Seaside Basin Groundwater Replenishment Project - Planning and Design: As detailed above for Project 1, the Seaside Groundwater Basin needs to be brought back into balance. In addition to MPWMD-sponsored research in the basin, MRWPCA sponsored a recent study "Feasibility of Using Recycled Water to Recharge the Seaside Groundwater Basin in Monterey County – September, 2004" by William R. Mills PE, RGP, DDE.

The following is from that report:

> The following are findings related to the feasibility of artificial recharge using recycled water in the Seaside basin:
>
> 1. Artificial recharge of advanced treated recycled water into the Seaside basin is not prohibited by the hydrogeology of the basin or regulatory requirements.
> 2. The amount of recycled water recharge may be limited due to a regulatory requirement to provide a blend with waters of non-wastewater origin. The requirement may be reduced after a period of operation.
> 3. The injection of advanced treated recycled water into the basin should experience operational characteristics similar to those observed with the Santa Margarita Pilot Testing.
> 4. Artificial recharge of recycled water using surficial spreading basins may be limited due to subsurface sediments that may retard downward percolating waters.

The GWR is being patterned after the highly successful and widely respected "Water Factory 21" project constructed and operated by the Orange County Water District in southern California. Water Factory 21 is a 15 mgd advanced wastewater reclamation facility which has supplied fresh water for sea water barrier and groundwater basin recharge continuously since 1975. It has produced over 150,000 acre-feet of water for extraction by domestic wells. Water Factory 21 produces water that meets all drinking water standards.

Because of its success the Orange County Water District is now constructing a new groundwater replenishment project that will replace Water Factory 21 with an 80 mgd advanced water recycling system which will incorporate technical advances that have occurred since Water Factory 21 was constructed. The GRP will employ the same types of processes and technical advances that are being used in Orange County Water District's new facilities.

The increased amount of water that can be pumped from the basin as a result of the GRP will be determined by comparing well pumping records from before and after the GRP is implemented. Collectively, this information will enable the benefits of the GRP in terms of groundwater supply improvement to be quantified.

The quantities of recycled water that are used to replenish the Seaside Groundwater Basin will be measured and recorded in accordance with RWQCB permit requirements for this type of project. MPWMD will continue its current program of monitoring groundwater levels and groundwater quality in this basin. The increased amount of water that can be pumped from the basin as a result of the GRP will be determined by comparing well pumping records from before and after the GRP is implemented. Collectively, this information will enable the benefits of the GRP in terms of groundwater supply improvement to be quantified.

Project 3 – CSUMB Storm Water Percolation and Education: CSUMB's Storm Water Management Plan (SWMP) project is low tech and will require little maintenance or monitoring. The SWMP campus is designed to assist the Planning and Facilities departments of CSUMB in meeting the University's environmental stewardship goal. This plan and subsequent reporting will help monitor and maintain the project site.

The Management Plan will help campus staff to minimize the potential stormwater pollutants and their risks of entering the storm drain system and maintain and even improve the environmental aesthetics of the CSUMB campus and its vicinity. In developing a SWMP that emulates the NPDES Phase II permitting requirements, the University will continue to demonstrate its forward-thinking environmental values.

Facilities Services & Operations (FSO) supports the day-to-day operations of the campus by maintaining the buildings and spaces. Once established the FSO will mow the re-vegetated areas 2-3 times a year and be responsible for reporting any problems to the Campus Planning Department. The project maintenance cost will be a part of the ongoing FSO budget.

Project	Project Title
4	Restoration of the Carmel River Floodplain (at Garland Park)
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
9	Removal of Del Monte Resort Dam
11	Restore Roads with Sedimentation Problems in Regional Parks
12	Farm Water Conservation and Best Management Practices
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II

Big Sur Land Trust has proposed a monitoring project that will measure overall effectiveness of project implementation as it relates to water management and integration strategies. This project will help define and implement the Project Assessment and Evaluation Plan for projects put forward for grant funding.

Project 5 – Carmel River Watershed Water Quality Volunteer Monitoring Program: The 3-year program to establish the Carmel River Volunteer Monitoring Program (VMP) will include

guidance on appropriate methodologies and protocols for ambient water quality monitoring, a Quality Assurance Program Plan, as well as development of a database compatible with the Central Coast Ambient Monitoring Program (Central Coast Regional Water Quality Control Board) that will provide access to data by decision-makers and support an adaptive management processes to determining future management actions**.**

Project 10 – Lower Carmel River Flood Control: A project report was completed in August of 2002 that identifies improvements, that if implemented, could reducing the flooding potential in the Lower Carmel River areas. The project is currently in the preliminary engineering stage that includes Federal Emergency Management Agency (FEMA) floodplain mapping. The FEMA floodplain mapping is being conducted to accurately identify the floodplain and floodway within the Carmel River drainage. Once the floodplain is correctly identified based on current conditions, the next step will be to finalize the preliminary engineering and modeling tasks of the project.

This phase (Phase I) of the Lower Carmel River Flood Control Project will be utilized to prepare a Engineering Report that will evaluate the adequacy of existing project proposals, identify preferred projects and alternatives, integrate the newly defined FEMA floodplain into existing drawings, hydraulic modeling and soil tests and borings to assist with the identification of preferred projects. It will also include the development of operations and maintenance plans for pumping facilities to increase the effectiveness of these facilities.

Project 13 – Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove:

City of Pacific Grove

In May of 2004, the City of Pacific Grove accepted a Sewer System Asset Management Report (SSAMP) prepared by HDR Engineering, Inc (see attachment "Prop_Ref_1a.pdf" and Prop_Ref_1b.pdf," Sections 6 and 8). The purpose of the SSAMP is to provide guidance to the City in the management of the City's sewer system asset. The SSAMP report details 7,616 feet of sewer pipe graded C, D, or F, requiring over $1.4 million in repair costs (2004 dollars).

City of Monterey

In February of 2000, the City of Monterey completed a system study of the sanitary sewer system with televised recordings of all lines and "report card" rating of the pipe conditions. In August of 2001, a pre-design study was completed, taking all of the information from the initial study and putting together 22 rehabilitation projects for the pipes rated in the 'C', 'D', and 'F' categories. In September 2002, the first project was completed at a cost of approximately $700,000. The City has since completed project plans and specifications for the next phase which will be an additional $1.5 million in rehabilitation to the sanitary sewer system. This latest project is anticipated to go to bid and be constructed in late summer 2005. The final phase, which will be funded by this grant, will include repairs to pipes rated C, D, and F. This phase is estimated to cost approximately $8 million."

Project 16 – Implementation of Solid Waste Removal Technology: The New Monterey/Cannery Row Watershed is a representation of a number of different land uses which lead to five storm drain outfalls along Cannery Row. The majority of the watershed contains a large residential area combining both single-family and multi-family parcels. The lower third of the watershed is comprised of commercial properties including a large tourist area.

The Olivier Street/Scott Street storm drain is a 60" diameter pipe collecting drainage from much of the Old Monterey residential neighborhood as well as the Calle Principal commercial district and an area of the Monterey State Historic Park around Custom House Plaza. The State Historic Park is host to many festivals and functions throughout the year which attract many visitors to this area.

The purpose of this project is to curb emissions of solid waste from two key areas in the City of Monterey and two areas in the City of Pacific Grove. Solid wastes, including styrofoam cups, plastic bags, styrofoam packaging material, and cigarette butts have been increasingly discharged to the MBNMS from these outfalls over the past several years. Though volunteers pick up refuse along the beach below these outfalls several times each week, this technology would be much more effective at reducing trash discharges.

The proposed course of action will be to investigate technologies available for the separation of solid wastes from the storm water stream, and to install units in the four locations discussed above. The acceptable technology will combine 85-100% efficiency in the removal of water-borne litter and ease of maintenance.

Project 17 – Microbial Source Tracking, Cities of Monterey and Pacific Grove: The Monterey Peninsula's vitality is dependent on the health of the ocean that surrounds it. One of the greatest threats to the region's economic stability and environmental health is the adverse impact posed by poor water quality and by beach closures or postings. World class diving, kayaking, surfing and swimming lure thousands into waters that represent a health risk. The Peninsula is also home to the nation's largest kelp forests which are exceptionally rich in species diversity and provide key habitat for threatened populations of Southern sea otter. Human pathogens such as gastrointestinal parasites, have recently been documented in local sea otters and may be a factor in the slow recovery of the species. The Monterey Peninsula also has a significant aquaculture and kelp harvesting industry that is highly dependent upon unpolluted water.

However, the pathway by which these microorganisms are reaching the ocean is not clear.

Contributing factors to postings and closures include anthropogenic sources such as sewage from overflows, cracks, leaching and clogging in aging sanitary system infrastructure and illicit connections. These problems must be addressed by repairs and replacements at known locations of pipe failure as well as additional diagnostic work on the lines. Other factors that contribute to coliform contamination include animals both wild and domestic as well as ubiquitous sources that are present in the soil. To date, the only monitoring that has been done prior to beach postings or closures is for total coliform. In addition, this testing is often conducted in the receiving water and not at the storm drain outfalls. While total coliform testing is useful, it

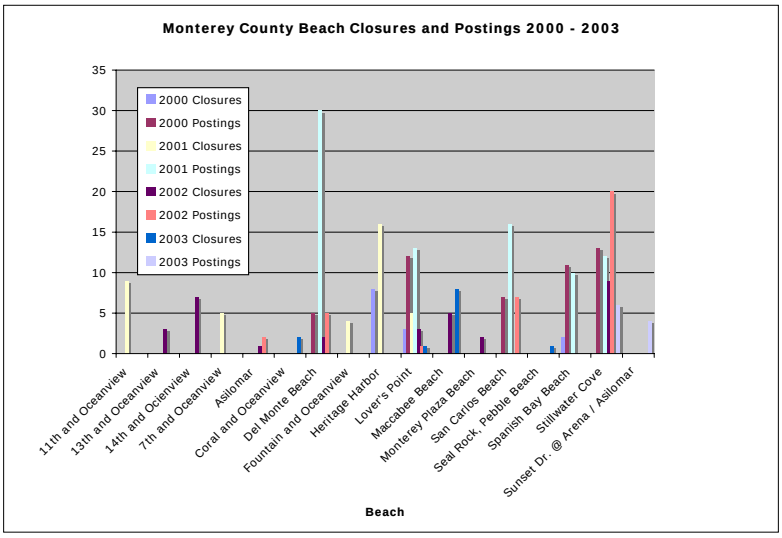
doesn't tell us where the coliform originated and therefore, it's difficult to effectively reduce or eliminate the sources.

Although much is known about anthropogenic sources of coliform, more diagnostic evaluation is needed to determine if a closure or a posting is caused by human or animal bacteria. A first step in effectively addressing this issue is better identification and tracking of the sources to distinguish among wildlife, domestic animals and human contributors. The first component is therefore, a comprehensive study using ribosomal RNA typing to determine sources of coliform contamination in three watersheds that flow into the Sanctuary. This will be a two-year project with the microbial source tracking study conducted over the first 12 month period. The second

year will entail data analysis, completion of a report, and outreach and technical follow-up with the local jurisdictions to identify appropriate management measures.

One component of this proposal is a method of fingerprinting using ribosomal RNA typing to determine the source of coliform bacteria posting beaches on the Peninsula, utilizing a method developed by Dr. Mansour Samadpour, of the Institute for Environmental Health (IEH)**.** There will be three study locations. The study sites bordering the Sanctuary are located in Monterey County in the cities of Monterey and Pacific Grove. These are urban watersheds with a chronic history of beach closures and postings.

The results of this study will provide the cities, county, Regional Water Quality Control Boards, State Water Resources Control Board and the Sanctuary with the information they need to reduce the number of beach postings and determine the true human health risk at these study locations and possibly other similar watersheds throughout the Sanctuary.



For the microbial study, the Sanctuary Citizen Watershed Monitoring Network will coordinate sampling with the Monterey County Department of Environmental Health. The county laboratory will analyze samples for E. coli and ship them to Dr. Samapour's lab for RNA analysis. Three sampling sites will be established for each of the three watersheds. There will be a total of 15 sampling events over a 12 month period. At each sampling event, five consecutive

samples will be taken at each sampling station for a total of 225 samples for each of the three watersheds. For each of the three watersheds a minimum of 150 samples will be collected from potential major sources of microbial pollutants to serve as references. The genetic fingerprinting analysis consists of two E. coli strains being purified from each of the water and sediment samples. One E. coli strain will be purified from each of the source samples. The E. coli strains from the source and site (water and sediment) samples will be analyzed by the ribosomal RNA typing method. The source and site fingerprints will be compared to each other and to IEH's current database of 70,000 E. coli strains. Water and sediment isolates that have identical genetic fingerprints as E. coli. clones, which have host specificity, will be considered to have originated from that particular host**.** The estimated cost of sampling and ribosomal RNA typing is $200,000.

In addition to the genetic analysis, trained volunteers from the Sanctuary Citizen Watershed Monitoring Network will collect stormwater samples for fecal coliform analyses at additional locations throughout the watersheds draining to these beaches, over the same time period as the RNA study. In addition to collecting samples during the dry and wet seasons, sampling will include a comprehensive First Flush analysis at15 storm drain outfalls. This existing volunteer network has extensive experience in storm drain sampling and water quality analyses (http://montereybay.nos.noaa.gov/monitoringnetwork/). Identification of upstream areas of high bacterial concentrations will assist in the future prioritization and implementation of management measures when the study is complete. Cost for this watershed coliform monitoring will be $16,000.

Contributing factors to postings and closures include anthropogenic sources such as cracks, leaching and clogging in aging sanitary sewer system infrastructure and illicit connections. These problems must be addressed by repairs and replacements at known locations of pipe failure as well as additional diagnostic work on the lines.

10.0 Data Management

Project 1 – Aquifer Storage and Recovery: Data from this basin include water quality, depth to groundwater, and water production. Several monitor wells have been located in the Seaside Groundwater Basin by MPWMD and others. Wells in the coastal portion are checked monthly. Wells located further inland are checked quarterly. Transducers have been placed in several wells to continuously measure drawdown and recovery. Water injected into the Seaside Basin through a full-scale test injection well is monitored and logged for a number of parameters including pH, temperature, conductivity, and coliform.

MPWMD provides a monthly update on the condition of the Seaside Basin through its website. The recently published groundwater basin update (Yates and others) is also available on the MPWMD website (http://www.mpwmd.dst.ca.us/seasidebasin/index.html). Spatial data from this report and ongoing data gathering efforts will be incorporated into the GIS being developed by MPWMD. However, because of the large file sizes associated with the GIS, these data will be available on CDs upon request.

Project 2 – Seaside Basin Groundwater Replenishment Project - Planning and Design: As noted under item 8 Technical Analysis, water quantity, quality, and groundwater level data will be compiled in conjunction with this project. This data will be integrated with ongoing monitoring of the Seaside Groundwater Basin being performed by MPWMD, and will be made available to stakeholders and other interested parties through dissemination by MPWMD, as described in Section 10 of the MPWMD Work Plan. This data will also be made available through the California Environmental Resources Evaluation System (CERES) website.

Project 3 – CSUMB Storm Water Percolation and Education: Storm water quality management plan reporting will be the responsibility of the Campus Planning and Development Department. CSUMB will voluntarily compile reports from various people responsible for implementing BMPs once every one to two years. Information such as an inventory of hazardous materials and documentation of any known hazardous spills on campus; records of illicit discharges into the storm drains from Campus Police; monitoring of pesticide use and landscaping practices from the Director of Facilities; and information from monitoring construction BMPs and their inspection from the Director of Construction will all be included. The Stormwater Coordinator will compile this comprehensive evaluation of the state of stormwater management on campus relative to the SWMP and provide recommendations to improve stormwater management on campus. Information may be made public in the following ways:

- Watershed Institute website http://watershed.csumb.edu/
- CSUMB SWMP website http://cdo.csumb.edu/site/x5189.xml
- California Environmental Resources Evaluation System (CERES) website http://ceres.ca.gov/
- MPWMD main office library
- CSUMB library

Project	Project Title
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6	Restoration of Hatton Canyon Creek
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9	Removal of Del Monte Resort Dam
11	Restore Roads with Sedimentation Problems in Regional Parks
12	Farm Water Conservation and Best Management Practices
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II

Public Outreach

Big Sur Land Trust has three strategic arenas that serve as the fundamental basis of the organization. Three main goals of the organization are protecting the best natural assets, connecting projects with people, and ensuring long- term capacity to sustain conservation investments. Therefore, BSLT will place an emphasis on public outreach during implementation of the proposed projects. Three newsletters are distributed by BSLT yearly in which project

details and status will be shared. BSLT is also in working in partnership with UC Berkley, UC Santa Cruz, and CSU Monterey Bay for various aspects of project development. Project site tours will also be provided for interested stakeholders. The Uplands Grazing Management and Monitoring for Sediment Reduction and Habitat Protection project has a built in public outreach component as it includes development of a public interpretation program and posted signage on the project site. Similarly, a component of the Carmel River Parkway Trails, Restoration, and Education project is an education site including learning, interpretation, and visitor services to inform the public of the rich diversity in the Carmel River Watershed.

Monitoring

Monterey Peninsula Water Management District (MPWMD)
MPWMD carries out surface water quality monitoring as part of its environmental protection program. Seven parameters (dissolved oxygen, carbon dioxide, pH, temperature, turbidity, conductivity, and salinity) are measured at three sites (Carmel River Lagoon, below San Clemente Reservoir, and below Los Padres Reservoir) in the CRB. In addition, temperature is measured at 12 stations along the main stem of the Carmel River.
Central Coast Ambient Monitoring Program (CCAMP)
The Central Coast Ambient Monitoring Program has a water quality monitoring site in the Carmel River at Highway 1.

The Central Coast Long-term Environmental Assessment Network (CCLEAN)
CCLEAN is a cooperative long-term monitoring program that satisfies the NPDES receiving water monitoring and reporting requirements of five entities including the Cities of Santa Cruz and Watsonville, Duke Energy, the Monterey Regional Water Pollution Control Agency, and the Carmel Area Wastewater District. CCLEAN measures inputs of possible water quality stressors and effects in nearshore waters by sampling effluent, rivers and streams, mussels, sediments and benthic communities, and nearshore waters. Effluent for each municipal discharger and rivers is sampled for persistent organic pollutants (POPs; polynuclear aromatic hydrocarbons, polychlorinated biphenyls and pesticides), nutrients, and suspended sediments using automated equipment to obtain 30-day flow-proportioned samples in the dry season and in the wet season.

The Uplands Grazing Management and Monitoring for Sediment Reduction and Habitat Protection project includes a monitoring component consisting of residual dry matter monitoring, vegetation monitoring, and water quality monitoring. Data from these monitoring efforts will be coordinated with monitoring efforts by the Monterey Bay National Marine Sanctuary, Monterey Peninsula Water Management District, CCAMP, CCLEAN, and the volunteer monitoring project proposed by the Carmel River Watershed Conservancy in this Integrated Regional Water Management Plan.

<u>Project 5 – Carmel River Watershed Water Quality Volunteer Monitoring Program</u>: The CRWC *Carmel River Watershed Action Plan* identified the need for a Volunteer Monitoring Program in its January 2005 report to the SWRCB. The *Action Plan* was developed with input from public and private land owners, resource specialists, and the general public, signaling support and interest in establishing a VMP. Taking action to implement a Carmel River Watershed VMP

will provide the essential component to assess and evaluate ongoing impacts related to water conservation and water quality projects that will occur as part of the IRWMP process. Additionally, as the *Action Plan* is implemented by local groups including the Carmel River Watershed Conservancy, the VMP will also help to establish local stewardship practices among the watershed stakeholders through direct experience in assessing impacts to water quality and quantity. Based on recommendations for establishing a VMP developed through the *Action Plan* public review process, this project will be ready for implementation immediately upon funding.

Project	Project Title
10	Lower Carmel River Flood Control
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

No data management information provided.

11.0 Stakeholder Involvement and Coordination

Project 1 – Aquifer Storage and Recovery: Because this ASR project potentially has such wide ranging effects on the Region and resource management, virtually all of the Region's stakeholders will have an interest in this project. A public outreach effort will be conducted by MPWMD during development of the EIR and public hearings will be held to receive input. All agencies involved in this project in a regulatory or participatory role will receive meeting notices and the public will be advised of the project through local media.

Project 2 – Seaside Basin Groundwater Replenishment Project - Planning and Design: The following is the list of principal stakeholders in the GRP:

- Fort Ord Reuse Authority (FORA)
- U.S. Army Base Realignment and Closure (BRAC) office
- U.S. Bureau of Land Management (BLM)
- Parsons UXO office at Fort Ord
- State Department of Health Services (DHS)
- Regional Water Quality Control Board (RWQCB)
- Monterey County Department of Environmental Health
- Monterey Peninsula Water Management District (MPWMD)
- California American Water Company (Cal Am)
- City of Seaside

Each of these entities will be individually contacted early in the Planning Phase of the GRP to brief them and solicit any issues of concern that will need to be addressed in the project. They will be updated periodically during the Planning, Design, and Construction Phases to ensure that their concerns are being satisfactorily addressed.

Members of the general public are also stakeholders, as a portion of their water supply comes from the Seaside Groundwater Basin. MRWPCA has already hired an experienced firm to develop a Strategic Outreach Plan with recommendations for implementing a comprehensive public outreach program that includes the GRP. That Plan will serve to define the outreach program for the next several years and beyond.

Potential obstacles to implementation may be regulatory agency and/or public perception issues. Regulatory agencies will be involved early in the Planning Phase of the GRP in order to ensure they have all of the technical information they need to make informed permitting and approval decisions. Public perception issues will be a key focus of the outreach program mentioned above. Orange County Water District's experience with their Water Factory 21 and Groundwater Replenishment Projects will be heavily drawn upon to identify and properly address these types of issues. The firms and consultants MRWPCA is hiring for the GRP all have extensive groundwater recharge project experience, either with Orange County or other California water agencies. Their hands-on experience in dealing with these types of obstacles will greatly benefit the GRP.

Project 3 – CSUMB Storm Water Percolation and Education: Many stakeholders will benefit from the project such as: CSUMB and regional students, CSUMB staff and faculty, Monterey Bay National Marine Sanctuary recreational users, fishermen, scientists as well as ocean water quality and habitat health. The CSUMB Campus Planning and Development department holds public workshops to request outside input out on its SWMP development. Meetings are and SWMP information is posted on the campus planning website http://cdo.csumb.edu/site/x5189.xml, posted on shared campus email folders and sent to local agencies. Utilizing the Watershed Institute's Return to the Natives Program (RON) program as part of our ecosystem restoration strategy insures ongoing stakeholder involvement with a high watershed education value. RON brings K-12 students, primarily from disadvantaged communities, to the University to perform environmental service (watershed restoration), to learn about their local watershed and to expose children of immigrant farm workers to university life for the first time.

Since its establishment in 1917, until the inactivation of the 7th Infantry Division in 1994, Fort Ord was primarily training and staging facility for the infantry. Many areas of the base had been used for ordnance training. Although the area designated for asphalt removal has not been identified as a Munitions Response Site, there is always the possibility of uncovering an area unknown to be contaminated with ammunition, explosives or chemical agents, which may be an unforeseen obstacle.

CSUMB coordinates with many private and public agencies on a daily basis. Public agencies include the Fort Ord Reuse Agency (FOR A), the Bureau of Land Management (BLM), University of California, Monterey Bay Area Science and Technology Center (UCMBEST), the United States Fish and Wildlife Service (USFWS), the California Department of Fish and Game (CDFG), the cities of Marina, Seaside and Monterey County. Together these agencies are working on a Habitat Conservation Plan, which includes provisions to maintain storm water runoff within each jurisdiction.

Project	Project Title
4	Restoration of the Carmel River Floodplain (at Garland Park)
6	Restoration of Hatton Canyon Creek
7	Project Monitoring
8	Watershed and Water Supply Protection Through Use of Conservation Easements
9	Removal of Del Monte Resort Dam
11	Restore Roads with Sedimentation Problems in Regional Parks
12	Farm Water Conservation and Best Management Practices
14	Carmel River Parkway Trails, Restoration, and Education
15	Uplands Grazing Management and Monitoring Plan for Sediment Reduction and Habitat Protection - Phase II

BSLT has identified the following stakeholders for these projects:

- NOAA Fisheries
- California American Water
- Monterey Peninsula Water Management District (MPWMD)
- Carmel River Watershed Council
- Monterey Bay National Marine Sanctuary (MBNMS)
- U.S. Fish & Wildlife Service
- National Marine Fisheries Service
- California Department of Fish and Game
- Monterey County Water Resources Agency
- Monterey County Public Works Department
- Monterey County Emergency Services
- Carmel River Watershed Conservancy
- Carmel Valley Property Owners Association
- California Fire Safe Council
- Salmonid Restoration Federation
- Carmel River Steelhead Association
- Private Property owners in the Carmel River Watershed (to be identified)
- California State Parks
- California State University Monterey Bay (Watershed Institute, Return of the Natives)
- Cal Poly
- Rising Leaf Watershed Arts
- Carmel Unified School District
- Audubon Society
- Monterey County Agriculture and Historical Land Conservancy
- Private farmer/s
- Monterey County Resource Conservation District
- UC Cooperative Extension
- California Department of Parks & Recreation
- California Department of Transportation

- Carmel Valley Property Owners Association
- Barnyard and Crossroads business centers
- The Nature Conservancy
- Monterey Peninsula Regional Park District
- NRCS
- Santa Lucia Conservancy
- Other possible partners include
- USDA
- Regional Water Quality Control Board

Project 5 – Carmel River Watershed Water Quality Volunteer Monitoring Program: The Volunteer Monitoring Program (VMP) will develop a stakeholder-based Technical Advisory Committee (TAC) that will include representatives of jurisdictional agencies, community groups and organizations, educational and research organizations, and individuals with interest in watershed management processes, wildlife protection, and beneficial uses for the community. Agency representatives that cannot actively participate in the TAC will receive regular updates and be given opportunities to review the VMP as it develops, including training manuals and QAPP documents, in order to assure an effective VMP strategy and program feasibility.

- NOAA Fisheries
- US Fish & Wildlife Service
- California Department of Fish & Game
- Central Coast Regional Water Quality Control Board
- California Coastal Commission
- California Coastal Conservancy
- Monterey Peninsula Water Management District
- Monterey County (Water Resources, Public and Environmental Health)
- Monterey Peninsula Parks District
- Resources Conservation District
- Natural Resources Conservation Service
- CSUMB Watershed Institute
- CSUMB Sea Lab
- Carmel Valley Middle School
- Carmel River Watershed Conservancy
- Carmel River Steelhead Association
- Rising Leaf
- Public and private land owners
- California-American Water Co.

Project 10 – Lower Carmel River Flood Control: the following stakeholders have been identified: Monterey County Water Resources Agency, Monterey County Public Works, and County Services Area 50.

Project	Project Title
13	Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove
16	Implementation of Solid Waste Removal Technology
17	Microbial Source Tracking, Cities of Monterey and Pacific Grove

The following stakeholders have been identified: the Cities of Monterey and Pacific Grove.

12.0 Disadvantaged Communities

No disadvantaged communities were identified in this Region.

13.0 Relation to Local Planning

Project	Project Title
1	Aquifer Storage and Recovery
2	Seaside Basin Groundwater Replenishment Project - Planning and Design

As noted in Section 5.3 Water Supply Planning in the IRWM/ICWM Plan, there are several concurrent efforts to augment water supplies ongoing in the Region. The Boards of Directors and subcommittees at MPWMD and MRWPCA are comprised of representatives from throughout the Region. Thus, the decision-makers in each of these entities will be directly involved in assuring that these projects comply with local planning efforts. It should be noted that MPWMD is also involved in efforts to update projected water needs throughout the Region and in developing a Groundwater Management Plan for the Seaside Groundwater Basin.

MRWPCA's Technical Advisory Committee, with representation from the Public Works and Planning Departments of each of its member entities, will meet periodically to keep those representatives abreast of GRP developments and activities. This will ensure that coordination of the GRP with any local plans including city General Plans will occur.

These projects are also consistent with recommendations made in the recently completed Carmel River Watershed Assessment and Action Plan.

Project 3 – CSUMB Storm Water Percolation and Education: The CSUMB Storm Water Percolation and Education Project and all subsequent projects are designed to be consistent with the Fort Ord Reuse Authority Storm Water Master Plan (FORA SWMP) (2004) and the Fort Ord Habitat and Management Plan (1994) and Fort Ord Habitat Conservation Plan (Pending). The FORA redevelopment area addressed in the SWMP includes the jurisdictions of Marina and Seaside, the CSUMB campus and the Monterey County. This SWMP is intended to be the advisory document for storm water management for the Fort Ord regions. As mentioned throughout the SWMP, FORA is obligated to manage storm water to eliminate ocean discharges and provide alternative disposal of storm water in keeping with NPDES Phase II, best management practices.

CSUMB is working to meet and adopt FORA's goals. University shall implement a SWMP that contains the United States Environmental Protection Agency NPDES Phase II MS4 Permit components as listed below:

- Best Management Practices for the Six Minimum Control Measures
    - Public Education and Outreach
    - Public Participation and Involvement
    - Illicit Discharge Detection and Elimination
    - Construction Site Stormwater Runoff Control
    - Post-construction Stormwater Management in New Development and Redevelopment
    - Pollution Prevention and Good Housekeeping
- Measurable Goals for Each Minimum Control Measure
- Estimated Timeline for Implementation
- Persons Responsible for Implementation
- Assessment of SWMP Effectiveness
- Reporting

Sharing Fort Ord's storm water system and infrastructure with multiple jurisdictions (the cities of Marina and Seaside, the US Army and Monterey County) requires regular collaboration. To remain consistent with FORA's SWMP goals, specifically to percolate all storm water within its boundaries, CSUMB is working with the City of Marina and Marina Community Partners, LLC to capture our storm water onsite which currently runs west through the City of Marina's proposed University Villages (UV), a private housing and commercial development. CSUMB is working quickly to retain storm water onsite before scheduled development removes current shared storm water pipes. Like CSUMB, the UV project plans to abandon the storm water piping system and percolates its runoff within its boundaries.

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Carmel River Watershed Assessment 2004

The most important issues identified by a public outreach process and included in the Carmel River Watershed Assessment are water quality, declining water quantity, declining riparian habitat for native species, erosion, excessive sediment transport, infiltration, runoff, and flooding/drainage. Big Sur Land Trust (BSLT) has identified nine projects that address these watershed issues. Of these projects, 3 directly relate to decreasing sedimentation, 3 will improve water quality in the Carmel River, 2 will reduce erosion, 6 will restore an/or improve riparian habitat, 3 will restore wetland habitat, 1 will reduce flood impacts, and 1 project will inclusively address all of these issues through project monitoring. The cumulative efforts of these projects will reduce non-point source inputs in the Carmel Bay Area of Special Biological Significance (ASBS).

This Watershed Assessment recognized threatened species that inhabit the Carmel River Watershed. The current steelhead population is below historic numbers for the Carmel River and is well below populations found in Northern California coastal streams due in part to habitat fragmentation and degradation. In addition, the California red-legged frog is found in many areas of the watershed but not much is known about the population structure. All of Big Sur Land Trust's projects support environmental and habitat protection and improvement. Three restoration projects will improve California red-legged frog habitat and tiger salamander habitat, also an endangered species. The Carmel River Parkway Trail, Restoration, and Education project also proposes to restore natural habitat at the mouth of the Carmel River. A project to remove the Del Monte Resort Dam will improve steelhead habitat by removing partial barriers, allowing fish passage at a wider range of flows and decreasing the chances of injury during passage. A watershed and water supply project using easements, a farm water conservation project, and a grazing management and monitoring project will also improve steelhead habitat by reducing sediment load into the Carmel River.

Erosion, bank instability, and many other sediment contributors have been accelerated by land development for residential and agricultural purposes. The Watershed Assessment identified that proper landscaping and restoration of the riparian-wetland habitat could help to mitigate these impacts. Many projects proposed by BSLT address riparian and wetland restoration. The Carmel River Parkway Trails, Restoration, and Education project will restore natural riparian and wetland habitat at the mouth of the Carmel River. Restoration of the Carmel River Floodplain,

Restoration of Hatton Creek, and the Farm Water Conservation and Best Management Practices project will also contribute to riparian habitat restoration and protection.

Carmel River Action Plan 2004

Eight action categories were identified in the Carmel River Action Plan, which include: flows, groundwater, habitat, sedimentation, steelhead, education, public safety, and water quantity. 57 total actions were recommended and those that most closely coincide with the Big Sur Land Trust projects are discussed here. *Note that BSLT's project to conduct overall project monitoring applies to all the recommendations below.*

Action Plan # CC-2 recommends the Carmel River Watershed Conservancy, in cooperation with appropriate local agencies, seek funding for watershed wide habitat restoration projects including permanent California red-legged frog habitat, restoration of riparian areas, and upland habitat. Integrated Regional Watershed Management Plan grant funding will support this action by providing financing for Big Sur Land Trust to execute restoration projects that will restore and protect sensitive habitat in the Carmel River Watershed. All of Big Sur Land Trust's projects support environmental and habitat protection and improvement. Three restoration projects will improve California red-legged frog habitat and tiger salamander habitat. The Carmel River Parkway Trail, Restoration, and Education project also proposes to restore natural habitat at the mouth of the Carmel River. Removal of the Del Monte Resort Dam will improve steelhead habitat since it is a partial barrier to fish passage. In addition, implementation of a watershed and water supply protection project using easements, a farm water conservation, and a grazing management and monitoring project will improve steelhead habitat by reducing sediment load into Carmel River. Action plan # Hab-7 also calls to enhance habitat appropriate for the California red-legged frog along the main stem, as well as in tributary drainages and upland locations.

Action Plan # Hab-9 encourages agricultural operation, golf courses, and commercial and private residences to use native grasses and riparian vegetation as a buffer to the main stem and tributaries. The Farm Water Conservation and Best Management Practice project will use best management practices, as identified by Natural Resource Conservation Service and Resource Conservation District staff, to use less water-intensive irrigation methods in addition to including native habitat buffers around the Odello East farm.

Action Plan # Sed-6 calls for erosion prevention to reduce sediment deposition throughout the watershed including main tributaries and the main stem. Three of Big Sur Land Trust's projects will have direct sediment reduction impacts in the watershed. The Watershed and Water Supply Protection Through Use of Conservation Easements project will decrease erosion and sedimentation thereby protecting the integrity of downstream water quality. A second project, Restore Roads with Sedimentation Problems in Regional Parks will reduce soil erosion and subsequent sedimentation through design and restoration of former ranch roads. Uplands Grazing Management and Monitoring for Sediment Reduction and Habitat Protection will reduce sediment input into the Carmel River through implementation of plan recommendations. These projects will reduce harmful amounts of sediment from entering waterways, while maintaining natural hydrology and geomorphology of streams by eliminating channelization and hardscaping. This will protect the integrity of water quality and natural habitat while maintaining the natural

flow of sediment.

Action Plan # Pub-3 recommends development of a conservation education program for residents and landowners. Carmel River Parkway Trails, Restoration, and Education includes an education component of which the objective is to promote conservation of the overall watershed. A demonstration education site will be constructed to inform the public of the rich diversity in the Carmel River Watershed. This component will include learning, interpretation, and visitor services.

Project 5 – Carmel River Watershed Water Quality Volunteer Monitoring Program: The Carmel River Watershed Action Plan (Carmel River Watershed Conservancy 2005) recommends two critical types of monitoring necessary to quantify existing problems identified in the Carmel River Watershed Assessment (2004). Action (SED-4) to monitor sediment transport in concert with surface flow monitoring conducted by the MPWMD would provide understanding of the locales where erosion and other problems are producing high levels of sediment discharge, as well as other contaminants associated with nonpoint source pollution that are entering creeks and the main stem of the river. Monitoring flow (FLOW-7) of the Carmel River and its tributaries would also help to evaluate seasonal in-migration and out-migration of steelhead to provide critical data on barriers to fish passage.

Regional efforts to implement a range of programs in the Carmel Valley and in the coastal areas adjacent to the Monterey Bay are proposed as part of a collaborative action to establish an IRWMP for the Monterey Peninsula. Establishing an ambient water quality and flow monitoring program for the Carmel River and its tributaries as part of the IRWMP will provide critical data to evaluate impacts as well as other dynamic influences throughout the watershed that will occur during implementation of projects designed to improve water quality through reduction of nonpoint source pollution, improve fish passage, and restore aquatic habitats in the upper and lower watershed and river basin.

Project 10 – Lower Carmel River Flood Control: This flood control project will be consistent with the Monterey County Floodplain Management Plan of 2003, actions identified in the Lower Carmel River Flood Control Project Final Report, and County Code, Chapter 21.64.130 "Regulations for Land Use in the Carmel Valley Floodplain."

Project 13 – Sanitary Sewer System Repair and Replacement in the Cities of Monterey and Pacific Grove: This project will be consistent with the City of Pacific Grove Sewer System Asset Management Report.

Project 16 – Implementation of Solid Waste Removal Technology: This project will be consistent with the IRWM/ICWM Plan currently being developed for the Planning Region.

Project 17 – Microbial Source Tracking, Cities of Monterey and Pacific Grove: This monitoring project will be coordinated with the Urban Watch and First Flush monitoring programs around the Monterey Bay.

Appendix A – Project Summaries, Maps, Cost Estimates, and Schedules

See Att6_IG1_Proposal_2of3 for Project 1 - Aquifer Storage and Recovery

See Att6_IG1_Proposal_3of3 for Project Proposals from 2 through 17