

LAGUNA CREEK WATERSHED GRANT PROJECT

State Water Resources Control Board Grant Agreement 04-177-555-0

Final Report

for the
Laguna Creek Watershed Grant Project
(2005- 2009)

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and
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Funding provided by:



Introduction

This final report for the Laguna Creek Watershed Grant Project was prepared in compliance with State Water Board Grant Agreement 04-177-555-0. In addition to highlighting the work completed and assessing the results, this document discusses the ability of the project to satisfy the goals, address the problems the project was intended to address, and provide the desired outcomes. This report does not attempt to repeat all of the information contained in the 16 quarterly progress reports that were submitted to the Regional Water Quality Control Board (Regional Water Board) over the course of the project (2005-2009). Those quarterly reports should be consulted for details about work completed and copies of work products. In addition, many of the work products are available on the Laguna Creek Watershed Council web site: www.lagunacreek.org.

Project Goals

At its onset in March 2005, the Laguna Creek Watershed Grant Project (Project) had three main goals, all of which now have been met:

1. Conduct a watershed assessment to evaluate the environmental conditions, identify problems and sources, and recommend prioritized projects to address the problems.
2. Prepare a watershed management action plan that is practical and achievable, recommending projects to be implemented by the stakeholders over the next ten years or so.
3. Create meaningful, collaborative opportunities for the residents, schools and public agencies to engage in the practice of watershed protection and creek stewardship. By engaging watershed residents and youth, this Program will foster a watershed stewardship ethic that is cultivated from one generation to the next.

Problems This Project Was Intended to Address

The project made good progress in addressing these four main problems which were identified in March 2005:

Problem 1: Need Watershed Characterization/Assessment Data. The natural resource status of the Laguna Creek Watershed has received little attention to date. There is a critical need to collect environmental data and assess the health of the watershed, and there is an engaged citizenry and local schools that are willing to help with this effort. The watershed presents some unique water quality and urban runoff pollution problems that need to be studied and managed. These include problems with pesticides, sediment (the upper watershed has natural colloidal clays that do not settle out with conventional stormwater quality treatment methods) and nutrients/excessive algae build-up.

Progress Made, 2005-2009: A great deal of data (hydrologic, geomorphic, water quality, bioassessment, vegetation, wildlife species, etc.) was collected during the project, as

summarized in Table 2 and documented fully in Appendices E and F of the watershed management action plan. However, recognizing that data collection needs to continue into the future in order to provide statistically significant data for long-term characterization, a recommended water quality monitoring program was prepared for implementation in the future (see Appendix G of the action plan).

Problem 2: Require Funding to Support a Young, Motivated, Grassroots Watershed Council. A small amount of seed money was provided in 2002 through a 1999 319h Grant to organize the new Laguna Creek Watershed Council (LCWC), and Sacramento County and the City of Elk Grove contributed funds to keep the group going while alternative longer term funding was sought. The LCWC is remarkably diverse and its members are well educated. Many of the members have relevant professional experience and education in watershed management, water quality studies, land use planning, education and natural resource management. The LCWC is an energetic, broad-based citizen stakeholder group that is busy gathering information about ecosystem health and planned development within their watershed. The members are actively building working relationships with local government agencies and the development community. These efforts are the first step in establishing a common goal for protection and preservation of what natural resources remain in the rapidly urbanizing watershed.

A look at models of successful, sustainable watershed management processes in other areas (Portland, Oregon and Maryland) reveals that watershed planning and subsequent development benefit from the contributions of informed, broad-based citizen stakeholder groups. When a planning process is mainly agency-driven, watershed management practices remain contentious and difficult to sustain. However, even organized citizen groups are frequently marginalized by limited volunteer time and technical expertise. Grant funding helps citizens to hire technical experts needed to evaluate and create solution-oriented, engineering plans, and coordinators/facilitators to enable the group to clearly articulate its views and participate more effectively in government processes. This Project will benefit from the grass-roots nature, the qualifications, and readiness of the stakeholders in the Watershed Council.

Progress Made, 2005-2009: The project made it possible to fund a watershed coordinator who facilitated the process of building the Laguna Creek Watershed Council (LCWC) between 2005 and 2008, when the first Board of Directors was elected. The LCWC is now a 501c(3) non-profit organization governed by a 7-member Board of Directors; leadership is provided by several key energetic residents and there is still very much a “grass roots” feel to the organization, which was always the intention. The grant funding may be gone, but the Board of Directors continues to meet and host public meetings and is seeking funding and partnerships to pay for a new watershed coordinator and implementation of actions identified in the watershed management action plan.

Problem 3: Need to Engage the Local Residents and Schools in Meaningful Watershed Projects. The Watershed Coordinator has established strong relationships with the schools in the watershed and helped the Elk Grove Unified School District (EGUSD) secure a Service Learning Grant in past years. The local schools (elementary, middle, high school and Cosumnes River College) have been informed about this grant project and are eager to take part in helping

us achieve the goals. Several schools have already begun stewardship projects in partnership with the LCWC, and EGUSD teachers, parents, and administrators have been attending Council meetings since the LCWC began in 2002.

Progress Made, 2005-2009: As evidenced by annual World Monitoring Day student mentoring activities, several successful tree planting events (a few of which included students from a local continuation high school), and the installation of a River Friendly memorial garden at Monterey Trails High School, this project forged a strong relationship between the LCWC and the Elk Grove Unified School District (EGUSD). In fact, one of the EGUSD managers is now a member of the LCWC Board of Directors. In addition, a graduate student from UC Davis actively participated in the development of the Watershed Stewardship Program for this project. Additional details are provided in Table 3.

Problem 4: Need to Take Advantage of a Unique Opportunity to Minimize Impacts from Future Development. The LCWC is emerging at a “watershed moment,” in a planning process where timing is everything. The upper portion of the watershed will be developed over the next ten years and local government agencies are recognizing the need to try new approaches. Sacramento County is now undertaking pilot-level implementation of new drainage design techniques that move away from standard trapezoidal ditches towards corridors that integrate riparian and wetland habitats with flood control, water quality treatment and passive recreation.

In addition, the multi-agency Upper Laguna Creek Collaborative (ULCC) is taking an unprecedented step toward coordinated stream-friendly development of the Upper Laguna Creek watershed. Parks and public works agencies’ staff and representatives of the LCWC are examining ways to better meld the infrastructure needs of proposed development with the water quality, habitat and recreational needs of the new watershed community. All of the stakeholders share a common goal of achieving sustainable results that will ensure the health and beauty of the area’s natural resources for generations to come. The prospects for a successful outcome depend heavily on the continued advocacy role of the LCWC being funded through this grant. The results of this work will surely serve as a model for other growing communities in the Bay-Delta system and elsewhere in California.

Progress Made, 2005-2009: The consultant team on this project assisted the ULCC in securing a separate, DWR-funded grant in 2006 that allowed the group to expand and meet about 4 times a year between 2006 and 2008. Because the grant was awarded to the Urban Creeks Council (a non-governmental agency), the group was successful in attracting landowners to the table to talk about their concerns/issues and desires for the future of the upper watershed. Also, the group did not give preference to any particular governmental agency in this way. This additional grant also allowed us to conduct a much more detailed hydrogeomorphologic study than would have otherwise been possible. The study provides critical information for developers about the susceptibility of the Laguna Creek channel to change as development proceeds, and what actions need to be taken to control water quantity to minimize/avoid channel (and associated biological) degradation impacts in the future. The results of this 2-year

detailed analysis are presented in Appendix E of the watershed management action plan.

A great deal of progress was made working in the City of Elk Grove throughout this project. Many letters were written to the City outlining environmental concerns and providing recommendations/suggestions for proposed development projects throughout town. In 2008, the LCWC was invited to be a member of a new City community development advisory committee. Also, this project made it possible to assist the City to study Elk Grove Creek in a more focused way, to ensure that as development in the headwaters of the creek (as well as on various commercial infill sites along the creek) is planned, consideration is made of not only flood control concerns, but biological and water quality impacts as well. A workshop and creek tour were held in March 2008 with the city planners and engineers, as well as key experts. This experience paved the way for the City's decision to engage an expert advisory committee in the preparation of their Drainage Master Plan.

Summary of Work Completed

Table 1 describes the work completed for this project in conformance with the grant requirements. In addition, the project team took advantage of many opportunities to develop a number of extra work products, as described in Table 2, without impacting the project budget. This was possible in large part, to the incredible volunteer participation and strong partnerships established with the various governmental agencies and school district in the watershed, as well as help provided by a UC Davis graduate student (discussed later in this report). Copies of all work products can be found as attachments to the various quarterly progress reports, and many are also available on the Watershed Council web site: www.lagunacreek.org.

All work was completed for about \$3,000 less than the grant agreement budget. A total match (in-kind services) of over \$122,000 was provided by Sacramento County and other stakeholders; this was 125% of the required match for the project.

In fall 2008, the Laguna Creek Watershed Council was recognized with the Sacramento River Watershed Program's 2008 Watershed Excellence Award. This award is evidence of the good work accomplished and underway to protect and restore this valuable resource for generations to come.

Table 1. Summary of Work Completed – Laguna Creek Watershed Project - Required Work Products

This table summarizes work completed since the start of the project (May 2005). Copies of all work products were provided in 16 quarterly progress reports submitted to the Regional Water Board.

Work Item	Items for Review	Est'd % of Work Complete
Grant Agreement Exhibit A		
1.1	Draft QAPP	100%
1.1	Final QAPP	100%
1.2	Draft Monitoring Plan	100%
1.2	Final Monitoring Plan	100%
2.1	Project Assessment and Evaluation Plan	100%
2.2	LAGUNA CREEK WATERSHED COUNCIL	
2.2.1/ 2.2.2	Meeting announcements, agendas, minutes and handouts from meetings (18 general meetings, 6 subcommittee meetings)	100%
2.2.3	Open house agendas, handouts, attendance	100%
2.2.4	Draft Informational brochure watershed map	100%
2.2.4	Final Informational brochure with watershed map	100%
2.2.5	Draft Laguna Creek Watershed Web Site	100%
2.2.5	Final Laguna Creek Watershed Web Site	100%
2.3	LAGUNA CREEK WATERSHED MGMT ACTION PLAN (WMAP)	
2.3.3	Advisory Committee membership list; meeting agendas, minutes and handouts from meetings	100%
2.3.4	Agendas and minutes/handouts for 10 ULCC meetings	100%
2.3.5	WMP-related website postings and open house materials; informational presentations to agencies (<i>for open house materials, see Item 2.2.3; for web site materials, see Item 2.2.5</i>)	100%
2.3.6/ 7	Various Technical Memoranda produced during preparation of the WS Mgmt Action Plan	100%
2.3.8	Maps Showing problem/opportunity areas	100%
2.3.9	Fact sheets for recommended projects/activities	100%
2.3.10	Draft Watershed Management Action Plan	100%
2.3.10	Final Watershed Management Action Plan	100%
2.4	BELL SOUTH/DEL MEYER PARK EDUCATION PROJECT	
2.4.1	Community preferences survey results	100%
2.4.2	Minutes of meetings/e-mail correspondence with project proponents	100%

Work Item	Items for Review	Est'd % of Work Complete
2.4.3	Alternative draft design sketches/prints	100%
2.4.4	Results of votes re: designs from meetings/open houses	100%
2.4.5	Final designs for kiosks; construction information for Del Meyer Park kiosk	100%
2.5	K-14 WATERSHED STEWARDSHIP PROGRAM	
2.5.1	Watershed-centered lesson plans and student artifacts	100%
2.5.2	Invasive weed location database/map	100%
2.6	WATERSHED STEWARDS (ADOPT A CREEK) PROGRAM	
2.6.1	Maps and descriptions of adopted reaches, leaders for each reach, menu of stewardship activities for volunteers to conduct on any reach, and documentation of supply storage site (location, inventory list and checkout procedures)	100%
2.6.2	Community workshops: agendas, handout materials	100%
2.6.3	"Caring for Your Creek" Guide	100%
2.6.4	Documentation of Planned and Completed Activities	100%
2.7	FINAL PROJECT REPORT	
2.7.1 2.7.2	Final Project Report (Draft Final version submitted to State Water Board 8/5/09; if no revisions are requested, it will serve as the final version for the record)	100%
Grant Agreement Exhibit B		
5	Standard Requirement Certification Form	
5	Standard Requirement Certification Form - updated	100%
6.1	Progress Reports by the 20 th of the month following each Qtr	133%
6.1	Final Progress Report (<i>see Note 1</i>)	100%
6.2	Expenditure/invoice Projections (Use "Grant Program Invoice" template provided by Dan Little)- by the 20 th of the month following each Qtr	133%
6.2	Final Grant Program Invoice Submittal (through end of contract period)	100%
6.3	Grant Summary Form (submit with 1 st Progress Report)	100%
6.4	Natural Resources Projects Inventory project survey form	100%
Grant Agreement Exhibit C		
6	Copy of CEQA/NEPA Documentation; copy of DFG environmental permit application materials	100%

Table 2. Summary of Work Completed – Laguna Creek Watershed Project - Extra Work Products (not required by the grant)

Copies of all work products were provided in 16 quarterly progress reports submitted to the Regional Water Board.

Work Item	Item	Included in Progress Report:
NA	Copies of MOUs between Sacramento County and Cities of Elk Grove and Rancho Cordova to demonstrate commitment to the Laguna Creek Watershed project.	1 (Att 7)
2.3	9/30/05 Preferred Future Field Trip Attendance and Materials (Values Exercise and completed Field Trip Worksheets)	2 (Att 6)
NA	Article about the Laguna Creek Grant Watershed Project: Written by Janet Parris, Sac County and published in September 2005 Sacramento River Watershed Program's "Waterways" Newsletter	2 (Att 6)
2.3	11/14/05 Preferred Future Field Trip Attendance, 12/05 PowerPoint Presentation Re: Watershed Assessment and Preferred Future Field Trips	3 (Att 5)
2.5	Information and photos from October 2005 World Monitoring Day events in the Laguna Creek Watershed	3 (Att 6)
2.6	Stream Steward Program activities: Oak Tree Planting article, "Muddy Waters" article	3 (Att 7)
2.3	Community Survey	4 (Att 4)
2.3	Initial Flow data results, February – April 2006; Laguna Creek at Eagles Nest Rd and Bond/Waterman Roads	4 (Att 5)
2.3	Maps showing data collection sites for field monitoring work.	5 (Att 4)
2.3	Results of jet test (channel shear stress measuring tool to determine erosion potential) along portion of Laguna Creek.	6 (Att 4)
2.3.4	Presentation created by C. Brown for delivery at 10/06 ULCC meeting	7 (Att 3)
2.3	Presentations related to watershed assessment findings at LCWC meetings: 10/06 GeoSyntec presentation RE: geomorphic assessment findings, and 12/06 EDAW presentation RE: preliminary biological resources assessment findings.	7 (Att 4)
2.3	LCWC comments on 11/06 Draft Elk Grove Drainage Master Plan	8 (Att 4)
2.2.1	Article from Sacramento Tree Foundation Newsletter about George Waegell, LCWC volunteer, upper watershed landowner and winner of the 2007 McClatchy Award.	10 (Att 8)
2.3.4	Presentation by C. Brown and K. Schmitz on Upper Laguna Creek Collaborative Process, to Calif Stormwater Quality Association (CASQA), September 12, 2007.	10 (Att 8)
2.6	Draft Final Interpretive Signs (2) for Pinkerton Park*	11 (Att 5)
2.3	Summary of Elk Grove Creek Workshop, March 4, 2008	12 (Att 5)
2.6	Draft Final designs for Laguna Springs Trail interpretive signs (4), Elk Grove Creek (already approved by Dan Little)*	12 (Att 6)

** A total of nine (9) large watershed interpretive signs were designed and constructed at various high profile locations along the creekside trail system (the grant agreement required 3 signs to be installed).*

Success Toward Meeting Desired Outcomes

The desired outcomes of this Project were designed to help the residents and other watershed stakeholders achieve the vision put forth by the LCWC. This vision evolved during the course of the project (see www.lagunacreek.org), but the desired outcomes remained the same:

- Increased awareness by all stakeholders that the creeks and associated riparian corridors are a natural resource to be protected.
- Increased understanding by residents of how their everyday actions can adversely affect the creeks, and how they can modify their behavior to practice pollution prevention.
- A sense of pride and “ownership” of the creek system by residents, schools and community groups.
- Visually enhanced water quality in the creeks due to stewardship activities such as cleanups, planting activities, invasive weed removal and urban runoff pollution prevention efforts.
- Meaningful data regarding environmental conditions (e.g., habitat, water quality) found in the creeks today.
- Increased collaboration between government agencies to plan and implement programs to protect, restore and enhance the watershed.
- Solid partnerships between the schools and the local community for engaging students in meaningful watershed projects that provide environmental benefits, inspire further study and build character.
- Model stewardship, planning and collaboration tools and projects that can be applied in other developing communities throughout California.

Table 3 reports on how each of the desired outcomes were achieved.

In addition, since the project received funding through the CALFED/State Water Resources Control Board’s Consolidated Grant Program (Prop 50), every effort was made to satisfy the goals of those two organizations (see Appendix A), and the CALFED outcomes were aligned with this project’s outcomes (see Table 3).

Assessment of Results and Effectiveness

Table 3 shows the methods and tools that were proposed in 2005 to ensure continued progress towards meeting the desired outcomes of this Project. A column has been added to report on success. The CALFED performance measures matrix was used as a model in developing this table. ***Perhaps the greatest measure of success for this project came in fall 2008, when the Laguna Creek Watershed Council was awarded the Sacramento River Watershed Program’s 2008 Watershed Excellence Award.*** This award is evidence of the good work underway to protect and restore this valuable resource for generations to come.

Table 3. Project Assessment Results

Desired Outcome (2005)	Project Actions (Task No.)	Performance Measurement Tools/Methods (2005)
<p>Increased awareness by all stakeholders that the creeks and associated riparian corridors are a natural resource to be protected.</p> <p>Increased understanding by residents of how their everyday actions can adversely affect the creeks, and how they can modify their behavior to practice pollution prevention.</p> <p><u>CALFED Desired Outcomes</u></p> <p>Informed Citizenry</p> <p>Sustainable watershed programs</p>	<ul style="list-style-type: none"> ✓ Bimonthly Watershed Council Meetings (2.2.1) ✓ Community Open Houses (2.2.3) ✓ Watershed Brochure/Map (2.2.4) ✓ Interactive Web Site (2.2.5) ✓ Bell South/Del Meyer Park Interpretive Signage (2.4) ✓ “Expert Lecture” Community Workshops and Watershed Tours (2.6.2) ✓ “Caring for Your Creek” Guide (2.6.3) ✓ “Adopt a Creek” Stewardship Events (2.6.4) ✓ Local Media Advertisements for All of the Above Activities 	<p>Conduct surveys via web site to measure increased awareness and understanding and inquire about changed behaviors.</p> <p>Give quizzes before/after workshops and presentations.</p> <p>Use evaluation forms for workshops and presentations. Include “what did you learn?” questions.</p> <p>Track increases in reports of illegal dumping, erosion, etc. to local officials.</p> <p>Track numbers of people attending various activities: meetings, open houses, creek events/tours</p> <p>Track numbers of products (e.g., watershed brochure, creek guide) distributed and diversity of stakeholders reached</p>
<p>Assessment Results (2009)</p> <p>The most significant demonstration of how this project built community awareness and stewardship was the growth and development of the Laguna Creek Watershed Council. This project started in 2005 with a handful of interested residents and government agencies and grew to include about 50 active participants, with bimonthly meeting attendance of about 25. The mailing list is comprised of over 100 interested parties. The LCWC is now a 501c(3) non-profit organization governed by a 7-member Board of Directors.</p> <p>The growth in community awareness can be attributed to opportunities that were provided to: attend meetings, participate in watershed tours and Creek Walks with expert guest speakers, visit the Laguna Creek Watershed web site (which was widely advertised on all work products), and enjoy the beautiful creekside interpretive signs installed at 4 key locations in the watershed. Also, starting in 2006, the LCWC started sponsoring a booth at local annual community events such as the Harvest Festival and Sheldon Days. Outreach was provided to schools and community groups, resulting in tremendous student, teacher and parent participation in key projects (see more details later in this table). Presentations were made at various Elk Grove City Council and Planning Commission public/televised meetings, which heightened awareness, and partnerships were forged with government agencies (for instance, tree planting projects with the City of Elk Grove) which attracted in a wider segment of the community and resulted in media coverage in the local Elk Grove Citizen and Sacramento Bee newspapers (a local TV station interviewed/filmed group leaders and volunteers during one of the Laguna</p>		

Creek Bypass Area tree planting events).

The project resulted in many more times the amount of meetings that were originally described in the project scope, including approximately bimonthly general membership meetings from Fall 2005-Spring 2008, meetings of the grant oversight committee and the watershed management action plan advisory committee, and attendance by a LCWC representative at all Upper Laguna Creek Collaborative meetings through the end of 2008. The numbers of people attending the general membership meetings, tours, etc. were reported in the quarterly progress reports (for volunteer documentation purposes).

A written survey /values assessment conducted during Year 1 of the project indicated that: 1) people willing to complete a survey of this nature were already engaged and somewhat or very knowledgeable about the creek and watershed issues (including how their everyday actions can impact the creek), 2) those participating in the survey valued wildlife habitat, flood control and pollution/sediment control the most. The survey comments, along with comments received at the Year 1 general membership meetings and 2006 watershed tours, provided good information about problem areas along the creeks as well as ideas for/locations where there were opportunities to restore or enhance a section of the creek. In order to generate more public input, the project team decided to conduct an on-line survey on the home page of the new web page, but this proved less useful than face-to-face contact with residents in meetings and email communications (see discussion under "lessons learned" below).

It was not possible to quantifiably track the number of reports of pollution, dumping, etc. to the local agencies, but the City of Elk Grove staff did notice a increase in calls and inquiries (about general concerns, but particularly about specific development projects in proximity to the creek) as the project went on. The local agencies asked the LCWC to add information to one of the panels of the watershed brochure to tell residents how to report problems along the trails, in the creeks, with flooding, etc. This information was also added to the Creek Care Guide on the web site.

5000 copies of the watershed brochure were printed in spring 2009 in time for Creek Week cleanup activities. To date, about 500 have been distributed to cleanup volunteers, meetings attendees, government agencies and schools. The LCWC Board of Directors will continue distribution of the brochure, and it will be a valuable tool for fundraising. 50 hard copies of the May 2009 watershed management action plan were printed and are being distributed at this time. It is not possible to track the number of visitors to the 9 interpretive signs that have been installed along the creekside trails. The web site has been set up to track the number of hits to certain work products on the "library" web page.

Lessons Learned:

The 2005 written community awareness survey did not receive good participation/response and the brief on-line survey conducted later on the web site home page (2006-2008) was not successful. These types of surveys are not recommended as a tool for gathering information and gauging awareness or effectiveness. Rather, the project team found it more effective to spend the time to meet face-to-face with residents (particularly landowners) and busy government agency staff, and record the concerns/issues/ideas directly. If surveys are desired, we recommend conducting them during the course of the meeting or event verbally with a show of hands, or as a quick written survey before participants leave the room. Alternatively, immediately following the event, use an on-line simple questionnaire such as Survey Monkey™, but only expect a 20% response.

Desired Outcome (2005)	Project Actions (Task No.)	Performance Measurement Tools/Methods (2005)
<p>A sense of pride and “ownership” of the creek system by residents, schools and community groups.</p> <p><u>CALFED Desired Outcomes</u></p> <p>Sustainable watershed programs</p>	<ul style="list-style-type: none"> ✓ Community Open Houses (2.2.3) ✓ Watershed Brochure/Map (2.2.4) ✓ Interactive Web Site (2.2.5) ✓ Watershed Projects for K-12 Students (2.5.1) ✓ Cosumnes River College Invasive Weed Maps (2.5.2) ✓ Adopted Creek Reaches (2.6.1) ✓ “Caring for Your Creek” Guide (2.6.3) ✓ “Adopt a Creek” Stewardship Events (2.6.4) 	<p>Solicit ideas and suggestions from the public at open houses and via the web site: “what are the opportunities, what are your issues/concerns?”</p> <p>Track no. miles adopted and no. residents/ community groups/students involved in adoption program.</p> <p>Track watershed projects completed by schools and survey students before/after projects to measure increased knowledge/understanding</p> <p>Track numbers of people attending various activities: meetings, open houses, creek events</p> <p>Encourage the creek groups to make presentations about their findings to LCWC meetings; use this as a means of soliciting feedback and suggestions for improved or new watershed projects.</p>
<p>Assessment Results (2009)</p> <p>The LCWC was initially led by the Watershed Coordinator and consultant team, with assistance by Sacramento County and the Urban Creeks Council (lead and partner applicant). Today, the LCWC is not managed by consultants or government agencies. Rather, the group is governed by a 7-member Board of Directors and leadership is provided by several key energetic residents as a volunteer effort. Despite the fact this grant funding is gone, the Board of Directors continues to meet and host public meetings and is seeking funds and partnerships to pay for implementation of actions identified in the watershed management action plan. This demonstrates that the community has taken on “ownership” of the resource and is not relying on a government agency alone to implement the action plan.</p> <p>Two Girl Scout troops have collectively adopted 3 miles of Laguna and Elk Grove Creeks in the vicinity of their neighborhoods and schools; they regularly conduct cleanup activities and report problems to the City of Elk Grove and Cosumnes CSD. One of the troops made a PowerPoint presentation about their program to the LCWC in fall 2008 and plan to present to the City Council as well. An elementary school was recognized for their volunteer activities related to stewardship of the North Laguna Creek Wildlife Area (a 1-mile stretch between Bruceville and Franklin Roads). Numerous farmers/ranchers, landowners and developers in the upper watershed (representing about 6 miles of creek) were engaged and informed through this project and are now participating in the development of the Upper Laguna Creek Master Plan. Calvine HS students have been studying and comparing 2 sections of the creek adjacent to their school for several years. Franklin HS science students adopted the waterway adjacent to their school, studied water quality in the channel as part of their class lesson, and renamed it after their school mascot: The Wildcat Waterway.</p> <p>Many local schools in the Elk Grove Unified School District were engaged throughout this project, with a unique collaboration made possible by a separate service learning grant obtained by the school district, with the help of the Laguna Creek Watershed Coordinator. See Chapter 3 in the watershed management action plan for details.</p>		

See the previous section of this table for information about numbers of people attending meetings and participating in events. Also see the 16 quarterly progress reports and Chapter 3 in the watershed management action plan for more details about the information presented here.

Lessons Learned:

Volunteer groups such as scouts need defined, interesting projects and some hand-holding at the onset; they will not be content to simply conduct creek cleanups each week/month. Our project team met with the troop leader and several of her older scouts and planned/scheduled activities and guest speakers to help make the project as meaningful as possible for the girls. Additionally, the scout leader provided an incentive to the girls by tying the project to the Bronze Award.

Desired Outcome (2005)	Project Actions (Task No.)	Performance Measurement Tools/Methods (2005)
<p>Visually enhanced water quality in the creeks due to stewardship activities such as cleanups, planting activities, invasive weed removal and urban runoff pollution prevention efforts.</p> <p><u>CALFED Desired Outcomes</u></p> <p>Bay-Delta tributary watershed assessments and monitoring</p> <p>Sustainable watershed programs</p>	<ul style="list-style-type: none"> ✓ Load Resident/School Photos and Findings on Web Site; Index by Creek Reach (2.2.5) ✓ Watershed Projects for K-12 Students (2.5.1) ✓ Cosumnes River College Invasive Weed Mapping and Reports (2.5.2) ✓ Adopted Creek Reaches with Photos, Journals and Maps for Each (2.6.1) ✓ “Adopt a Creek” Stewardship Events (2.6.4) 	<p>Document and track the level of effort expended by volunteers to improve water quality in the creeks: amount of debris removed during clean-ups, number of people participating in field trips to learn about water quality, number of reports/phone calls received by local agencies about visual pollution problems</p> <p>Compare before/after photos and observation records compiled by citizens through visual surveys, adopt-a-creek activities, tours and school field trips.</p> <p>Document the miles of creeks covered by the Cosumnes River College students in their invasive weed survey and track the amount of invasives removed during or after these efforts.</p>

Assessment Results (2009)

Because a large part of this project was watershed assessment/characterization in order to collect the environmental data that did not exist before the project, it is not possible to measure improvements in water quality yet. Also, before/after photos were not possible because on-the-ground restoration activities were not part of this project. However, visual assessments and observations can be useful and were employed, along with interviews with agency staff, to develop the following description.

Over the course of the project, several acres of riparian areas were planted with Valley Oak, shrubs and grasses in various locations in the watershed. These efforts were organized and led by the watershed coordinator and 2 motivated volunteers, in coordination with the Sacramento Tree Foundation. Several of the projects were done in partnership with the City of Elk Grove, which provided temporary irrigation for the saplings. In one of the planting project areas (Laguna Creek Bypass), students from 5 high schools participated in several events in 2005-2006 and planted about 2 acres of native oak, shrub, and grasses. It is too early to document increased canopy and water shading provided by these plantings, but the 2 LCWC volunteers continue to

monitor the installations to measure success.

Comprehensive weed maps were prepared for the watershed, resulting in the LCWC receiving a \$30K grant from USDA for aquatic weed eradication during 2009. That work is going on now, under the leadership of Frank Wallace, Weed Warrior Program, CNPS.

This project helped to promote and increase community participation in the annual Creek Week cleanup event, held in April each year. A new cleanup site was added in 2007 in the upper watershed, along the creek in the Vineyard area, with leadership provided by a LCWC member and Vineyard resident.

As reported earlier, the City of Elk Grove, County of Sacramento and Cosumnes CSD Parks Dept. received more calls and e-mails regarding issues observed in the watershed than in the years prior to the grant. These issues were typically related to pollution/garbage in the creek (e.g., shopping carts), vandalized creek signage, beaver dams, flooding, and erosion/pollution from construction sites. This required the local agencies to inspect the area and take care of the problem, presumably resulting in improved creek conditions (although the improvement could not be directly measured).

Desired Outcome (2005)	Project Actions (Task No.)	Performance Measurement Tools/Methods (2005)
<p>Meaningful data regarding environmental conditions (e.g., habitat, water quality) found in the creeks today.</p> <p><u>CALFED Desired Outcomes</u></p> <p>Bay-Delta tributary watershed assessments and monitoring</p>	<ul style="list-style-type: none"> ✓ Prepare/utilize State-approved Monitoring Plan and QAPP (1.1, 1.2) ✓ Involve experts and key stakeholders in the design of the data collection effort to ensure data is meaningful (2.3) ✓ Compile baseline data (2.3.6) ✓ Collect field data: geomorphic, bioassessment, water quality, habitat (2.3.7) ✓ Maps showing problem areas and opportunities (2.3.8) ✓ Data from K-12 Watershed Projects (2.5.1) ✓ Cosumnes River College Invasive Weed Maps (2.5.2) 	<p>Conduct watershed assessment and monitoring work according to guidelines of State-approved QAPP and Management Plan.</p> <p>Use data to help identify and guide development of watershed management projects as part of the Watershed Management Plan.</p> <p>Post information from K-12 Watershed Projects and Invasive Weed mapping projects on website. Track numbers of students, teachers, parents, and administrators participating in projects.</p>

Assessment Results (2009)

Data was collected for this assessment to characterize current conditions in the Laguna Creek channel including the upland riparian buffer areas along Laguna Creek, and some tributaries to Laguna Creek, primarily Elk Grove Creek and Toad Creek (a.k.a. Tributary #1). Data used in the assessment were obtained from direct field measurements and observations, from review of existing data and reports, and from interviews with agency staff and

landowners with experience working in and around the watershed's stream system. All fieldwork, existing data research, and interviews were conducted by members of the consultant team.

The watershed presents water quality and urban runoff pollution problems that need to be studied and managed. These include problems with pesticides, sediment (the upper watershed has natural colloidal clays that do not settle out with conventional stormwater quality treatment methods) and nutrient loading that may contribute to excessive algae and macrophyte build-up.

In terms of water quality assessment, the Sacramento regional wastewater treatment plant has established a long-term water quality database for the terminal reach of lower Laguna Creek which was incorporated. Some water quality data were collected in Elk Grove Creek, due to its presence on the State's 303(d) list for diazinon. Sacramento County's stormwater monitoring data from other local creeks provided evidence of the potential adverse impacts of urban runoff, in the absence of effective water quality treatment.

Hydrology and geomorphology assessment work focused on developing a hydrologic model for the upper watershed (headwaters to Bond Road) that will provide scientific guidance during development of stormwater quality management practices in the currently largely undeveloped upper watershed. Water quality monitoring, benthic macroinvertebrate (BMI) bioassessment, habitat surveys, and hydrogeomorphic analysis were performed by professional field biologists, hydrologists, and geomorphologists. Protocols, equipment, field data sheets, and quality assurance measures associated with professional monitoring projects are discussed in the Laguna Creek Watershed Monitoring Program Quality Assurance Project Plan provided in Appendix C of the watershed management action plan.

The assessment identified several stresses relating to stream channel conditions, water quality, and riparian/upland habitat quality throughout the Laguna Creek Watershed that include:

- low dissolved oxygen levels throughout Laguna Creek and tributaries;
- elevated water temperatures throughout Laguna Creek and tributaries;
- elevated fecal coliform counts in the lower reaches of Laguna Creek;
- impaired benthic macroinvertebrate populations relative to other Sacramento Valley floor streams;
- unchecked and overpopulated beaver populations and activity in the lower, urbanized watershed with populations occurring also in less-developed upper watershed reaches;
- excessive aquatic macrophyte growth (filamentous green algae and yellow primrose);
- excessive bulrush and cattail growth across midchannel locations of Laguna Creek and some tributaries causing a barrier to the free flow of midchannel water;
- entrenched and unstable channel conditions in some reaches of upper Laguna Creek and tributaries;
- channel bank and toe erosion exceeding background conditions in some reaches of upper Laguna Creek, and
- aggressive, invasive non-native weed species occur in the lower watershed but currently at relatively low amounts.

A comprehensive water quality monitoring plan was prepared and is included in the watershed management action plan (Appendix G) for use by the LCWC in obtaining additional funding for implementation. Also, various recommendations were made to address the above listed problems; these recommendations were incorporated into the 40+ actions identified in the management action plan (see Chapter 5 of the plan for more detailed discussion).

Lessons Learned:

Flow data was not originally part of the project scope, since we assumed that the local agencies already had such data. But we found that this data only existed at the terminus of Laguna Creek, near the wastewater treatment plant. Since it was critical to have flow data to calibrate the hydrologic models, particularly in the area where development will occur in the future, the project team collected the data during the first winter storms at key bridge crossing locations in the upper watershed. In hindsight, budget should have been requested/allocated to collect more flow data during the assessment, not only on Laguna Creek, but on key tributaries such as Elk Grove Creek as well.

It was beneficial to work with the local stormwater agencies (the Sacramento Stormwater Quality Partnership) when planning the data collection, so that the bioassessment work could be coordinated with sampling they were conducting every other year. Our project team used the same sites and same methods so that all the data could be combined for a more continuous record.

Desired Outcome (2005)	Project Actions (Task No.)	Performance Measurement Tools/Methods (2005)
<p>Increased collaboration between government agencies to plan and implement programs to protect, restore and enhance the watershed.</p> <p><u>CALFED Desired Outcomes</u></p> <p>Improved collaboration between public and private parties</p> <p>Sustainable watershed programs</p>	<ul style="list-style-type: none"> ✓ Periodic Presentations to local government agencies (e.g., Elk Grove Planning Commission) (2.2) ✓ Bimonthly Watershed Council Meetings (2.2.1) ✓ Community Open Houses (2.2.3) ✓ Participate in Upper Laguna Creek Collaborative meetings (2.3.4) ✓ Create and facilitate a WMP Stakeholder Advisory Committee which includes representation of key government agencies (2.3.3) ✓ Solicit input and feedback from local agencies about issues/problems/concerns to be addressed in WMP (2.3.6) ✓ Bell South/Del Meyer Park Interpretive Signage (2.4) ✓ “Expert Lecture” Community Workshops and Watershed Tours (2.6.2) 	<p>Invite key public agency managers and elected officials to open houses and other events, and solicit/document their input and feedback at various points throughout the project, via letters and interviews (this group is not expected to do the on-line surveys).</p> <p>Continue to track the success of the ULCC in bringing a diverse group of agency representatives together to achieve common goals in the upper watershed. Track projects where collaboration was demonstrated.</p> <p>Distribute evaluation forms after community workshops and watershed tours.</p>

	✓ Local Media Advertisements for All Activities; Periodic Stories/Articles in Local Paper	
<p>Assessment Results (2009)</p> <p>Prior to this project, each of the government agencies with planning, land use, drainage/flood control, water supply, parks and other jurisdiction in the watershed were for the most part working independently on issues related to watershed health and protection. The one exception to this was the Sacramento Stormwater Quality Partnership, which involves Sacramento County and the cities of Elk Grove, Rancho Cordova and Sacramento (with a focus on water quality and hydromodification). Also, departments within the County (e.g., planning, transportation, water resources) were not necessarily coordinating on issues related to infrastructure improvements in the upper watershed, and as a result, some landowners were confused by multiple and sometimes conflicting messages about road improvements, storm drain projects and the like.</p> <p>Now, four years later, thanks to this project and the Upper Laguna Creek Collaborative process, the agencies are working more collaboratively. The first step in improving coordination came with the MOUs signed by the County and the Cities of Elk Grove and Rancho Cordova at the start of this project. Through these agreements, the three agencies agreed to work together to support and provide in-kind services to the grant. In 2006, the three agencies agreed to fully and actively participate in the Upper Laguna Creek Collaborative process to ensure a win-win solution to watershed protection as development proceeds in the future. Here are some recent examples of collaborative success in the watershed:</p> <ul style="list-style-type: none"> • In July 2009, Sacramento County partnered with Southgate Recreation and Park District to submit an EPA grant application for expansion of the successful River Friendly Landscaping program in the watershed. • The City of Elk Grove and Cosumnes CSD are working together to plan future creekside trails in the lower watershed. • Sacramento County has begun meeting with the Cosumnes and Sloughhouse Watershed coordinator (RCD staff) to identify ways to address pollution and other environmental impacts from small agricultural operations (e.g., horse farms, ranchettes) in the watershed. • The LCWC is working collaboratively with the City of Elk Grove to develop the City’s Drainage Master Plan as a more holistic document that addresses not only flood control, but water quality and biological issues as well. The LCWC is also partnering with the City to pursue grant funding for rain garden projects (water efficient landscaping) in the watershed. • Sacramento County worked with the LCWC to pursue grant funding in fall 2008 for water efficient demonstration gardens in the watershed. • The City of Elk Grove and the local vector control district are working together on improved procedures for beaver management in the local creeks. Technical expertise is being provided by a consultant recommended by the LCWC. <p>Coordination has been facilitated over the years through active participation by the County, cities, parks districts and sanitation district in meetings of the LCWC, grant oversight committee and watershed plan advisory committee. In addition, this coordination has been made possible in part by the many presentations made by the watershed coordinator and project team manager to Elk Grove City Council and Planning Commission and Cosumnes CSD Board. There were also innumerable meetings held with representatives of all the agencies throughout the planning and development of the watershed assessment and watershed management action plan. One of the criteria for including an action in the plan was that the action was consistent with, and complimented, one or more local governmental agency programs. Finally, local elected officials from the Elk Grove City Council and Planning Commission (those with district jurisdiction in the watershed) were sent letters and e-mails requesting support in various ways. One of these elected leaders was</p>		

instrumental in forming a partnership between the LCWC, the Rotary Club and the Cosumnes CSD for the successful Del Meyer Park interpretive signage project.

The Laguna Creek Watershed Council has become known in the City of Elk Grove as the “voice for the creek” due to the many public appearances, comments provided in letters on key creekside development proposals, and continued education and outreach to local elected bodies.

Lessons Learned:

It is critical to get local government agencies involved in watershed protection efforts from the beginning and keep this engagement strong throughout the project. MOUs typically require adoption of a resolution by the elected officials and are therefore a good way to get a written commitment from local leaders to support the project and provide in-kind services. Face-to-face check-in meetings/briefings with key managers and elected officials is a good way to keep people informed, but public presentations are also recommended (even just 3-5 minute updates during the public comment period of a meeting).

The project team pursued small community grants offered by the local agencies to supplement funding for the watershed coordinator, but found that the agencies typically prefer to allocate such funding for social programs and in this case, were more willing to donate facilities, supplies and staff support as in-kind services to the watershed project.

It is helpful to form a committee of watershed council members to keep track of development proposals moving forward in the watershed. Comment letters written by the Council are a useful way to make sure the local planning authority is aware of the environmental concerns about the proposed development. However, the letters should be written in a positive tone and should reflect and balance the concerns of the diverse group of stakeholders in the watershed, including agricultural, residential and development interests. Rather, than anti-growth, it is recommended that the focus be on sustainable growth that minimizes environmental impacts.

Desired Outcome (2005)	Project Actions (Task No.)	Performance Measurement Tools/Methods (2005)
<p>Solid partnerships between the schools and the local community for engaging students in meaningful watershed projects that provide environmental benefits, inspire further study and build character.</p> <p><u>CALFED Desired Outcomes</u></p> <p>Improved collaboration between public and private parties</p> <p>Sustainable watershed programs</p>	<p>✓ K-14 Watershed Stewardship Program (2.5)</p>	<p>Track numbers of school sites, students, teachers, staff, and parents participating in watershed stewardship projects.</p> <p>Inform public of nature, location of projects via website.</p> <p>Track number and types of community partners collaborating with LCWC and EGUSD to develop, implement, and maintain projects.</p>

Assessment Results (2009)

The LCWC Watershed Education Program (WEP) has made existing watershed-related curriculum (developed by Sacramento SPLASH) available to local high schools, and coordinated stream-related activities with local K-12 schools. Both the curriculum and projects focus on raising awareness of the connections between land use, and water and habitat quality. In November 2002, a small group of Elk Grove Unified School District (EGUSD) teachers and administrators, Sacramento Splash staff, and LCWC members formed a network upon which to build the WEP. During the course of this grant project, the WEP network expanded to include other partners. From 2002 through the end of the 2008-2009 school year, there have been 28 EGUSD teachers from 11 school sites (six high schools (HS), five elementary schools) who have participated in one or more watershed education projects. Several more teachers are currently developing project ideas with LCWC but have yet to implement them with their classes. Of the teachers who have participated at least one year since the program began in 2002–2003, some have left the teaching profession, some no longer participate, and some continue to involve their students in on-going and/or new projects. Identifying and recruiting additional teachers is an important and continual challenge for the WEP. The following is a list of past and current LCWC WEP projects (described in more detail in Chapter 3 of the watershed management action plan).

Splash Lessons

LCWC adopted the use of the Splash high school curriculum, *Life in the Watershed: Investigating Streams and Water Quality*, as a recruitment tool for WEP high school teachers because it is familiar to LCWC members, free of charge, focused on the local streams of Sacramento County, and introduces the concepts of watersheds, aquatic ecosystems, non-point source pollution, and water quality monitoring. The Splash concepts lay the foundation for further watershed education field projects. Through April 2008, the Splash high school curriculum has been taught by teachers at 6 EGUSD sites.

World Water Monitoring Day

LCWC has involved schools in World Water Monitoring Day since 2005. To expand upon the Splash lessons, LCWC, in partnership with FRCD, recruited several high school teachers to participate in World Water Monitoring Day. This international outreach event builds public awareness about water resources by having people monitor their local streams. Participants measure certain water quality parameters (dissolved oxygen, pH, temperature, and turbidity) using very basic kits. High school students at half of the first year's event sites were paired with elementary school students in the field, and were tasked with mentoring their younger partners on the concept of a watershed, some natural history about their creek site, the purposes for monitoring water quality, and how to use the monitoring kits. Other sites were monitored by high school students alone.

Post-event evaluations concluded that sites monitored by high school-elementary school student teams provided a richer, more challenging experience for participants than sites monitored by high school students alone. In addition, involving elementary schools increased the number of participants. For these reasons, the student mentor team model was adopted for all monitoring sites in subsequent years. There were four teams of elementary-high school students in October 2006, three in October 2007, and two in October 2008.

Tree Planting Projects

LCWC has partnered with the City of Elk Grove and STF to fund native oak, shrub, and grass planting events along the banks of the Laguna Creek Bypass Channel between Hwy 99 and Lewis Stein Road. Students from five high schools participated in plantings in December 2004 and January 2006.

Wildcat Waterway Project

In 2005, LCWC worked with science teachers from Franklin HS to develop activities focused on monitoring water quality, vegetation conditions, and channel morphology within the East Franklin Drainage Channel (renamed the Wildcat Waterway by Franklin HS students - after their school mascot).

River-Friendly Memorial Garden

Students and teachers at Monterey Trails HS designed and planted a memorial garden for a colleague and classmate. LCWC, Monterey Trails HS, and UC Davis partnered together to review plans for the garden.

Strawberry Creek Project

Teachers and students at Calvine HS have been comparing water quality, wildlife, and vegetation conditions between two reaches along Strawberry Creek for several years. One study reach is a concrete-lined trapezoidal channel bordered by cyclone fencing, and the other is a vegetated trapezoidal channel bordered by a small vernal pool preserve area and detention basin.

Barbara Comstock Morse Elementary Watershed Program

In August 2006, representatives from the EGUSD Service Learning Program, LCWC, and the Principal and B-Track teachers of Barbara Comstock Morse Elementary met to design a school program that would integrate at least one watershed-based lesson into every grade (K–6). That program was implemented during the 2006–2007 school year. K–6 B-Track teachers brought several Laguna Creek Watershed-centered activities to their school, including; a stormwater education school assembly in October, World Water Monitoring Day in October, Project WET (Water Education for Teachers, an internationally sponsored water resources curriculum) teacher training workshop in November, Splash Vernal Pool lessons and field trip in February and March, and Watershed Day in March. During Watershed Day, the K–6 grade classes taught one Project WET lesson per grade, and the entire school spent the day rotating from classroom to classroom to do each lesson. This program earned an achievement award in 2007 from the Sacramento Urban Creeks Council.

Other Projects

In addition to participating in LCWC-coordinated projects, many schools in the watershed have participated in watershed projects hosted by other education and stewardship organizations. Networking between EGUSD teachers and other watershed education partners was often the result of LCWC-hosted and/or EGUSD Service Learning Program-hosted meetings and events. Examples of additional projects include on-going plant restoration projects at both the Cosumnes River Preserve and the Stone Lakes National Wildlife Refuge, and the California Waterfowl Association's Marsh Mentors Program.

Lessons Learned:

It helped immensely that the Laguna Creek watershed coordinator had a background in education (middle school science teacher). This enabled the forging of a strong partnership with the local school district. The coordinator helped the school district obtain a service learning grant which was related to environmental/watershed education. He also ensured that the watershed projects and products were aligned with the State's standards (an important criteria for teachers and administrators in determining whether or not to let their school/classes participate).

Desired Outcome (2005)	Project Actions (Task No.)	Performance Measurement Tools/Methods (2005)
<p>Model stewardship, planning and collaboration tools and projects that can be applied in other developing communities throughout California.</p> <p><u>CALFED Desired Outcomes</u></p> <p>Improved watershed planning and management</p>	<ul style="list-style-type: none"> ✓ Use of the Calif. WS Assessment Manual (CWAM) to “pilot” its usefulness and applicability to watershed programs of this nature (2.3.7) ✓ Watershed Brochure/Map (2.2.4) ✓ Interactive Web Site (2.2.5) ✓ Innovative Watershed Planning Process involving stakeholders in “preferred futures” field trip and in advisory committee (2.3.3) ✓ Coordination of watershed projects with Service Learning Program and other school curricula (2.5) ✓ “Expert Lecture” Community Workshops and Watershed Tours (2.6.2) ✓ “Adopt a Creek” Program (2.6) ✓ “Caring for Your Creek” Guide (2.6.3) 	<p>Document comments regarding usefulness and applicability of CWAM in LCWC quarterly reports.</p> <p>Track number of hits and survey responses on the LCWC website.</p> <p>Track numbers of field trip participants, document participant stakeholder comments. Document advisory committee meeting attendance lists, agenda, and meeting minutes.</p> <p>Document coordination and partnership between LCWC and EGUSD in stewardship projects via news articles on website.</p> <p>Track numbers of workshop and tour participants, event announcements, and agenda.</p> <p>Track numbers of miles, identity of adopting groups, and locations of reaches adopted as part of the Adopt a Creek Program. Track numbers of participants in program, amount of debris removed from reaches, and document nature and results of Adopt a Creek activities via news articles on website.</p> <p>Track number of Guides distributed to watershed residents and document questions and comments received from resident Guide users.</p>
<p>The LCWC Watershed Stewards Program, established during this grant project, develops and coordinates activities and events for watershed residents to educate residents about watershed issues and foster community involvement. The following are some of the many activities sponsored by the LCWC during the grant project:</p> <p><u>Creek Walks</u></p> <p>LCWC currently provides three types of Creek Walk opportunities as part of the Watershed Stewards Program. Jr. Creek Keepers walks are stream-centered nature walks for preschool and kindergarten children. Trail Trekkers is a similar type of nature walk for 1st–3rd grade children. Saturday Creek Walks are theme-based interpretive walks open to the public and typically led by an expert in a particular field. Past walks have focused on aquatic and upland insects, riparian birds, beavers, riparian vegetation, and the natural history of Laguna Creek.</p> <p><u>Community Event Booths</u></p>		

LCWC members staff booths at many community events to distribute outreach materials and engage interested passers-by in discussions of the natural history of the Laguna Creek Watershed. LCWC has staffed booths at the Elk Grove Harvest Festival, Elk Grove Creek Week, Sheldon Heritage Days, and Bufferlands Walk on the Wildside events. For most events, the LCWC strives to place its booth next to the Urban Creeks Council or City of Elk Grove stormwater program, so that the public gets complimentary messages. For example, the City typically hosts a stormwater booth including the interactive watershed model for kids.

Adopt-a-Reach

One of the LCWC's ongoing goals is to identify and recruit community groups to adopt sections of their local creeks. Local scout groups have adopted portions of Laguna Creek and Elk Grove Creek, and members of local neighborhood associations regularly help with Creek Week activities along their local reaches. These activities were described previously.

Tree Planting Projects

The tree planting events described previously were also open to the public. In addition to student participants, residents of all ages have participated.

Other Tools and Work Products

The methods used in Year 1 of this grant project to involve the community in the "visioning" process were the first demonstrations of successful community involvement and could be easily adapted by other communities. Watershed tours were organized with visits to sections of the creek that were undeveloped and had been developed in different ways (e.g., manicured riparian zones vs. more natural open space; large protected floodplains vs. backyard fences at the top of the creek embankment; engineered creek channels vs. natural meandering channels). This provided the opportunity for the residents to see the features close-up and determine for themselves their preferences for future development. The participants were given clipboards and worksheets and asked to rank and describe their preferences. This provided valuable information to the watershed management action plan. In addition, a large map was brought to all the early LCWC meetings so that residents could mark on the map locations of problem areas, as well as locations where there were opportunities to restore or enhance a section of creek. Other products developed during the grant project should be of interest to other watershed programs in the state and can serve as models; these include the interpretive signage designs, watershed brochure with fold-out map, and the on-line "Creek Care Guide". These products and more can be found on the web site: www.lagunacreek.org.

APPENDIX A
LAGUNA CREEK WATERSHED GRANT PROJECT
CALFED AND REGIONAL WATER QUALITY CONTROL BOARD GOALS MET BY THIS PROJECT
(excerpt from 2005 Project Assessment and Evaluation Plan)

CALFED AND REGIONAL WATER QUALITY CONTROL BOARD GOALS MET BY THIS PROJECT

CALFED GOALS AND PRIORITIES

Overall CALFED Bay-Delta Program Goals

This project is primarily designed to meet two of the four overall CALFED goals: 1) improve ecological functions to support sustainable populations of plant and animal species, and 2) provide good water quality for all beneficial uses. This will be accomplished by assessing water quality and habitat conditions, identifying sources of urban runoff pollution, and recommending projects to protect, restore and/or enhance water quality and habitat watershed-wide. In addition, the ongoing stewardship projects will result in an informed citizenry that can assist with assessments, identification of problems and implementation of solutions for many years to come.

CALFED Watershed Program Plan (WPP)

The Laguna Creek Watershed lies within the CALFED solution area, since water from Laguna Creek and its tributaries feeds into Morrison Creek and from there, to the Lower Sacramento River. By adding their watershed management efforts to those already in place within the CALFED solution area, the Laguna Creek Watershed Council hopes to assist the CALFED Watershed Program in its iterative efforts to define successful watershed processes and relate these processes to the broader CALFED goals.

This Project addresses all three of the CALFED Watershed Program implementation priorities:

- The interrelated set of tasks builds the local community's capacity to assess and effectively manage a watershed that affects the Bay-Delta system.
- The Project includes a task to assess watershed conditions and problems and develop a comprehensive, multi-objective watershed management plan.
- The collaborative watershed planning process will recommend specific watershed conservation, maintenance and restoration actions.

In addition, the Project addresses four of the six CALFED WPP goals and objectives:

- ***Foster Collaboration.*** Coordination, collaboration and assistance among a diverse group of government agencies, organizations and watershed groups will be facilitated and improved throughout the process. This is almost guaranteed, since the spirit of collaboration is already strong among stakeholders.
- ***Develop Assessment Protocols.*** Environmental professionals involved in this Project will work with and train citizen volunteers to use proven watershed monitoring and assessment tools and methods based on sound science. The professionals will review assessment results and provide feedback for continuously improving the quality of the data compiled. It is anticipated that the collaborative experience will result in recommendations for new or improved protocols for implementing assessment and monitoring which can serve as a model for the CALFED science and monitoring program and other CALFED watershed programs.

- ***Support Education and Outreach.*** Every task in the Project requires and supports education and outreach. Information will be shared and exchanged throughout the Project through meetings of the Watershed Council and the Watershed Management Plan Advisory Committee, updated web site postings, watershed tours and workshops, and advertisements in local newspapers. To ensure that the community's needs are met by the Watershed Management Plan, the Watershed Council will host open houses to inform the public and solicit their input.
- ***Ensure Sustainability.*** The Project will build/maintain relationships between the grassroots Watershed Council, local government agencies and the development community. This will ensure support and long-term sustainability of local watershed activities. This watershed effort has a higher probability of long-term success than other agency-driven efforts because of the groundswell of citizen involvement, agency support and breadth of expertise already present at the Watershed Council meetings, workshops, and tours. Several of the Council members have been involved in watershed management processes in other regions of California and the Pacific Northwest and are bringing their experience to this project. The educational and stewardship tasks will foster behavior that is necessary for long-term (multi-generational) commitment to watershed health.

CALFED Principles of Participation

This Project utilizes all of the seven CALFED principles of participation. It is community-based and consistent with the CALFED Bay-Delta Watershed Program Plan, as described above. The Watershed Management Plan being prepared for this Project will address multiple watershed issues, including water quality assessment/improvement, habitat protection, flood control, recreation and preservation of open space. The Project is supported at multiple levels within numerous stakeholder agencies. In order to ensure ongoing long-term implementation, the Watershed Management Plan will clearly define stakeholder roles and enough details to allow government agencies and other groups to adopt the Plan and implement its actions. The Project includes the use of standardized monitoring protocols and is expected to result in recommendations for improved protocols for use by other developing communities. Finally, the Project increases learning and awareness at many levels, of the creek and watershed ecosystem and strategies for protecting the resource for generations to come.

CALFED Performance Criteria

Table A-1 demonstrates how completion of the Project tasks will help CALFED achieve its desired outcomes and performance criteria.

REGIONAL WATER QUALITY CONTROL BOARD GOALS MET BY THIS PROJECT

This Project addresses several key water quality issues identified in Region 5's Chapter of the Watershed Management Initiative (WMI), notably: pollution from storm water (urban runoff) discharges, adverse impacts to beneficial uses, and degradation caused by sedimentation and erosion. Also, as discussed in the WMI, many problems remain unidentified in Region 5 waterways and monitoring and assessment data is needed to identify and prioritize protection

actions. This is particularly true in the Laguna Creek Watershed. The monitoring conducted to date in other urbanized creeks in the region is not entirely representative of the unique conditions in the rapidly developing Laguna Creek Watershed, particularly with respect to the problematic colloidal clay soils eroding into the local creeks, as discussed previously.

This Project fits well with several priorities identified by the Regional Board in Table 1, Appendix 4 of the WMI, including Priorities 3 and 4 related to the need for locally directed watershed management programs, watershed assessments/management plans and implementation of watershed education, including citizen monitoring and K-12 programs. As stated in the WMI, there are limited resources available at the state and regional levels to conduct watershed management activities outside of routine regulation, permitting and enforcement. Watershed stewardship groups such as the Laguna Creek Watershed Council, which offer local knowledge of watershed conditions, a grassroots focus, and high probability for long-term sustainability, are desperately needed to conduct and oversee the work in their own backyards. The Regional Board is working with many watershed groups, as listed in the WMI, but none are in the southern portion of Sacramento County.

The Project also addresses an important environmental protection problem identified in the WMI: loss of habitat (especially riparian) to encroaching development.

Table A-1. Integration of CALFED Performance Measures Into Laguna Creek Watershed Program

CALFED Performance Measure Track	CALFED Desired Outcome	Applicable Task in this Project	Applicability of Task to CALFED Performance Measure
Improved Coordination and Assistance	Improved collaboration between public and private parties	Task 2.2 – Watershed Council	The Watershed Council will provide a grassroots public forum where public agencies and private parties and residents can exchange information, share concerns, and collaborate on planning and implementing projects. This forum is vital to the success and sustainability of watershed efforts.
		Task 2.3 – Watershed Management Plan (WMP)	The collaborative public process proposed for developing the WMP will build strong partnerships that will be sustained during implementation of the recommended management actions for many years to come. The WMP will recommend projects that attempt to balance the needs/objectives of all stakeholders and address the most pressing environmental concerns in local creeks.
		Task 2.5 - K-14 Watershed Stewardship	The program provides meaningful opportunities for students and teachers to work with government agencies, environmental professionals and residents to learn from each other and successfully implement projects designed to improve watershed health.
Develop monitoring and adaptive management processes	Bay-Delta tributary watershed assessments	Task 2.3 – Watershed Management Plan	The watershed assessment will provide much-needed data for a 50-square mile area draining to the Sacramento River and will add more area coverage to that currently covered by Bay-Delta tributary watershed assessments.
	Bay-Delta watershed monitoring	Task 2.3 – Watershed Management Plan	Methods and standards used for field monitoring will follow methods and standards adopted and currently in use by other regional watershed groups (Arcade/Dry Creek/American River Conservancy/SYRCL). The monitoring plan and QAPP will be subject to Regional Board review and approval prior to implementation. This will help ensure its consistency with monitoring plans of other watershed groups.
		Task 2.5 - K-14 Watershed Stewardship Task 9 – Watershed Stewards Program	High school and college students and citizen volunteers will be taught by experienced environmental professionals about use of the standardized monitoring methods and standards, resulting in a growing convergence of open standards for monitoring of watershed conditions throughout the CALFED solution area, and ultimately, throughout the state.
Improved and Expanded Watershed Education and Public Outreach	Informed citizenry	Task 2.2 – Watershed Council	The Watershed Council’s activities will increase the level of awareness in the general public of watershed functions and characteristics, as measured by results of baseline and late project on-line awareness surveys conducted by the Watershed Council.

CALFED Performance Measure Track	CALFED Desired Outcome	Applicable Task in this Project	Applicability of Task to CALFED Performance Measure
		Task 2.3 – Watershed Management Plan	The WMP will be developed using a proven planning process that requires an open, public, collaborative effort to identify problems and their potential solutions. This will result in increased awareness of sources of pollution and related pollution prevention methods.
		Task 2.5 - K-14 Watershed Stewardship Task 9 – Watershed Stewards Program	The program will use the watershed as the integrating context in which to develop student and citizen projects. These projects will increase the awareness of watershed processes while cultivating this awareness in multiple generations.
	Sustainable watershed programs	Task 2.2 – Watershed Council	There is already a remarkably high level of local expertise in environmental science, watershed management and related fields in the current Watershed Council membership. The participation of experienced agency staff available to assist fellow residents contributes to the energy and enthusiasm the Council has for taking action. Also, some of the government agencies participating in the Watershed Council (e.g., County and EGCSO; County and Southgate) have a good track record of working together cooperatively and successfully on other projects for more than 10 years.
		Task 6 – Watershed Management Plan	The collaborative nature of the planning process will ensure multi-level agency buy-in and responsibility for implementing and funding the recommended actions in the WMP.
Improved Watershed Planning and Management	Improved watershed planning and management	Task 6 – Watershed Management Plan	The WMP will be developed using a proven planning model applied successfully to many watersheds in the Portland, Oregon metropolitan area. The planned collaboration between groups is an added dimension that will improve future master planning efforts in this and other Sacramento area watersheds and should serve as a model for other developing areas in California. The work will be done or supervised by qualified environmental professionals hired through the County's rigorous contracting process which will ensure that sound science is employed in the process.