about
watershed management plans

world

Handbook for State of the Watershed Reporting:

photo: Travel Alberta

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rshed Reports in Alberta

water for life

Alberta

Sydney Catchment Authority **Corporate Plan 2007 - 2012**

SYDNEY CATCHMENT AUTHORITY

OUR VISION

Healthy catchments, quality water — always

OUR ROLE

Capture, store and supply quality raw water from well-managed catchments

OUR VALUES

Safe - we ensure the health, safety and wellbeing of people at the SCA

Professional - we seek to adopt the highest professional standards in all our dealings

Ethical - we are honest and fair in all our dealings

Accountable - we are accountable for our decisions and actions

GOAL 1
High quality water supply

Intended outcomes	Performance indicators and targets	Corporate strategies
Raw water deliveries meet agreed quantity and quality specifications	Compliance with specified water quality characteristics (Target: 95%) Compliance with health-related 2004 Australian Drinking Water Guidelines (Target: 100%) Continuity of water supply (Target: 100%)	Operate our raw water supply system in accordance with Sydney Catchment *Management Act 1998* operating licence, water management licence, bulk water supply agreements and Sydney Catchment Authority (SCA) procedures Monitor and analyse dam inflows and stored water quality and quantity
Our dams and delivery systems are safe, efficient, well operated and maintained	Standard system operational procedures are current (Target: 100%) Compliance with NSW Dams Safety Committee requirements (Target: 100%) Percentage of time water supply systems are available for use versus scheduled availability (Target: 100%)	Develop and implement the asset maintenance strategic plan for water quality assets Water supply system configuration plan developed and implemented Review and implement Dams Safety Management Program
Successfully operate our water supply system during droughts, floods, fires and other extreme events	Compliance with SCA Corporate Incident Management Framework during extreme events (Target: 100%) Compliance with water supply agreements with Sydney Water and Shoalhaven City Council during major incidents (Target: 95%)	Enhance response protocols and contingency plans to manage droughts, floods, fires and other extreme events
Water supply planning and asset investment keep pace with our current and future requirements	SCA's water supply – future options document developed and implemented (Target: June 2008) Number of Metropolitan Water Plan delivery targets met and projects completed within budget (Target: 100%)	Develop and implement the SCA's water supply – future options document Align our long-term asset investment strategy with the SCA's water supply – future options document

GOAL 2
Sustainable catchments

Intended outcomes	Performance indicators and targets	Corporate strategies
Reduced environmental degradation to improve water quality	Rectification action plan is completed (Target: December 2008) Compliance with annual identified catchment action priorities (Target: >95%)	Develop and implement rectification action planning Deliver the Healthy Catchments Program (HCP)
Reduced priority pollutants	Percentage of priority pollution sources where risk to water quality has been reduced (Target: 30% of identified sources)	Maintain currency of water quality risk assessment Implement relevant strategies from the HCP to reduce priority pollutants
Reduced environmental impacts of our operations	Compliance with water management licence environmental flow conditions (Target: 100%) Compliance with SCA's Environmental Plan 2006 - 2010 (Target: Full)	Modify and operate dams and transfer systems to meet water management licence requirements Undertake environment impact assessments, where required, for SCA activities
Development and activities comply with *Sustaining the Catchments: The Regional Plan* for the drinking water catchments of Sydney and adjacent regional centres	Percentage of assessments that require determination by the SCA (Target: 70% by 30 June 2012) Annual targets: 25% by 30 June 2007, 20% by 30 June 2008, 15% by 30 June 2009, 10% by 30 June 2010, 10% by 30 June 2011	Implement *Sustaining the Catchments: The Regional Plan* in partnership with local councils and other consent/determining authorities Maintain current recommended assessment practices and standards for development applications
Our lands are managed to contemporary standards	Meet Special Area Strategic Plan of Management (SASPoM) and Wingecarribee Swamp and Special Area Plan of Management (WSSAPoM) annual implementation targets (Target: >80%) Develop and implement Access and Recreation Policy (Target: 30 June 2008)	Implement SCA Lands Strategy, SASPoM, WSSAPoM and Braidwood Land Management Plan
Improved awareness about how the catchment communities contribute to protecting water quality	Communications plan to increase awareness of catchment communities' roles in contributing to water quality is developed and implemented (Target: 30 June 2008)	Establish a communications plan to increase awareness of the catchment communities' roles in contributing to water quality

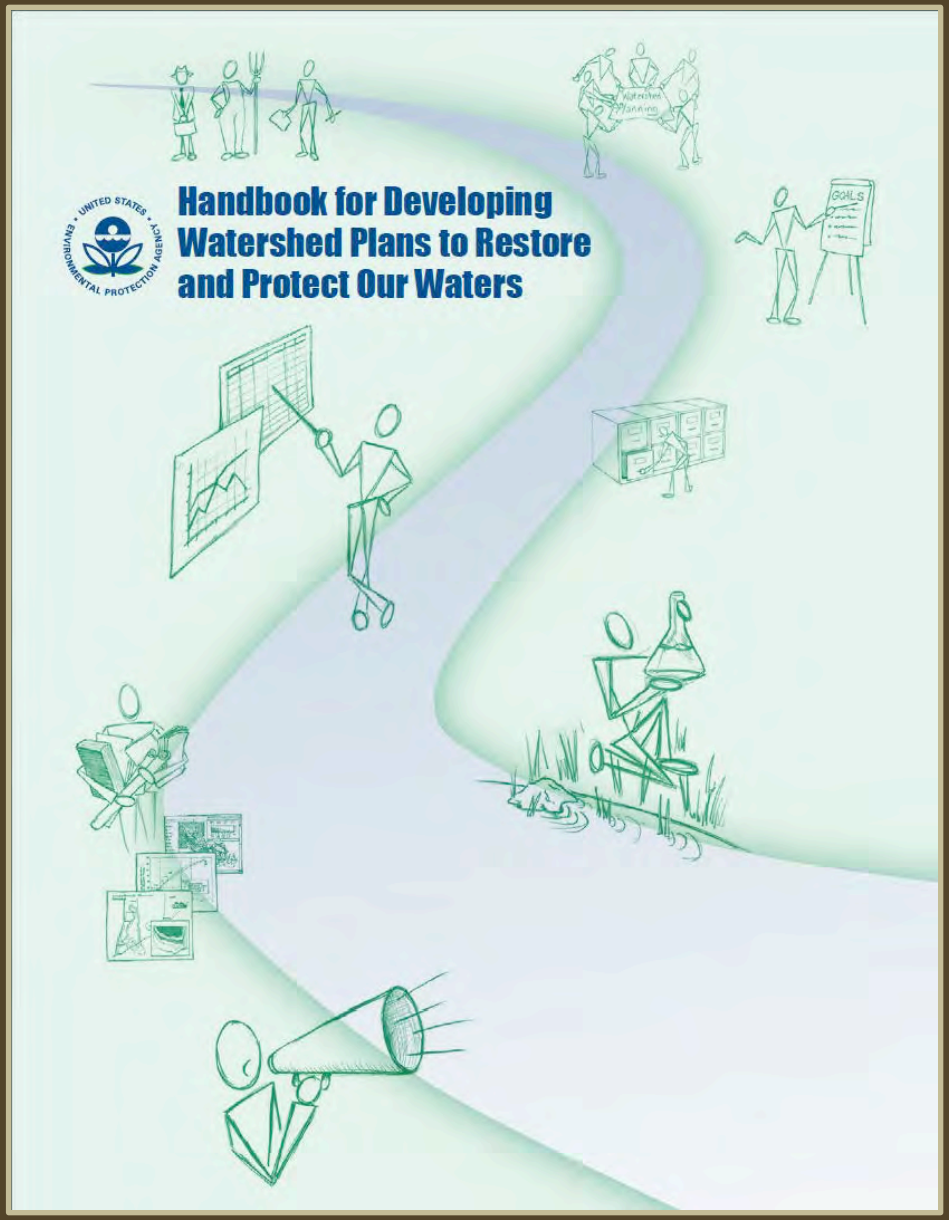
GOAL 3
Strategic partnerships

Intended outcomes	Performance indicators and targets	Corporate strategies
Working with local government to implement *Sustaining the Catchments: The Regional Plan* for the drinking water catchments of Sydney and adjacent regional centres	Date by which strategic land and water capability assessments (SLWCAs) are developed (Target: December 2008) Percentage of local environmental plans (LEPs) that incorporate recommendations provided by the SCA in relation to SLWCAs and LEP review guidelines by 31 December 2011 (Target: 100%)	Implement partnership programs with local councils for implementing *Sustaining the Catchments: The Regional Plan*
Working with the catchment management authorities, local government and catchment communities to implement our Healthy Catchments Program (HCP)	Nature and extent of partner involvement and contribution to agreed catchment outcomes (Target: SCA and partner contributions are commensurate with respective priority outcomes in 3s and kind)	Develop and implement broad community engagement strategies for implementing our HCP
Working with other government agencies to deliver the Metropolitan Water Plan	Projects are completed on time and within budget (Target: 100%)	Deliver SCA Metropolitan Water Plan projects on time and within budget
Working closely with the Department of Environment and Climate Change to manage the Special Areas for water quality and biodiversity	Percentage compliance with SCA's contribution and implementation of Special Area Strategic Plan of Management (SASPoM) annual workplans in partnership with NPWS (Target: >90%) Nature and extent of partner involvement and contribution to agreed catchment outcomes (Target: SCA and partner contributions are commensurate with respective priority outcomes in 3s and kind)	Implement joint management projects identified within the SASPoM Develop and implement further partnership strategies for consultation with the Department of Environment and Climate Change

GOAL 4
Successful business

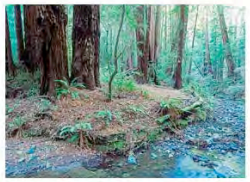
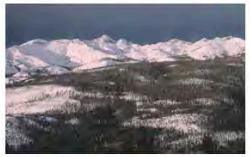
Intended outcomes	Performance indicators and targets	Corporate strategies
People are safe at the SCA	Compliance with *Working Together - The Public Sector OHS and Injury Management Strategy 2003-2008* obligations (Target:100%)	Review and implement the occupational health and safety management system Develop and implement service standards for our visitor and recreational facilities
We have the right people with the right skills at the right time	Percentage of staff with current performance and learning agreements (Target: >95%) Percentage of findings in annual review of the SCA's workforce plan that are addressed within agreed timeframes (Target: 100%)	Develop and implement the SCA workforce plan
We have a rigorous risk management framework	Percentage of risks identified in the corporate risk register that are addressed within agreed timeframes (Target: 100%)	Review and implement SCA Corporate Risk Management Framework once in the life of this corporate plan
Tools, systems and knowledge keep pace with our business	Percentage of time corporate systems are operating (Target: 99%)	Review and update the SCA Business Management System
We meet the Statement of Financial Framework targets	Compliance with the Statement of Financial Framework (Target: Full)	Provide accurate revised, operating expenditure and capital expenditure projections annually
The community is confident about how we make our business decisions	Percentage full – to right compliance with audited operating licence obligations (Target: >80%)	Develop and implement a community awareness program in relation to the SCA's decision-making procedures

nation


Handbook for Developing
Watershed Plans to Restore
and Protect Our Waters
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
GOALS

state

The California Watershed Assessment Manual Volume I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CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

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Office of Governor
Edmund G. Brown Jr.
Visit his Website

- CAL/EPA
- State & Regional Water Boards' Map
- Laws/Regulations
- Plans/Policies
- Programs
- Decisions Pending and Opportunities for Public Participation

RESOURCES

- Paperless Office
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Water Boards

Regional Programs

Regional Programs

- Watershed Management
- Information Technology
- Standards and TMDLs
- Nonpoint Source Program

WATERSHED MANAGEMENT

To protect water resources within a watershed context, a mix of point and nonpoint source discharges, ground and s
be considered. These complex relationships present considerable challenges to water resource protection programs.
Watershed Management Initiative (WMI). The WMI is designed to integrate various surface and ground water regulat
watershed. It is also designed to focus limited resources on key issues and use sound science.

For initial implementation of the WMI, each Regional Board identified the watersheds in their Region, prioritized wate
strategies and the State Board's overall coordinating approach to WMI are contained in the Integrated Plan for Imple
Regional Boards have continued to build upon their early efforts to utilize this approach. The full version of our WMI
ongoing efforts to continue implementation of the WMI. Any questions about the WMI can be directed to Shirley Birc

For information about a specific watershed (extracted from the WMI Chapter), please click on the watershed map be

local

INTEGRATED
WATERSHED
PROTECTION
PLAN

FISCAL YEAR 2005
ZONE 1

PREPARED BY:
VENTURA COUNTY WATERSHED PROTECTION DISTRICT

VENTURA COUNTY, CALIFORNIA

MAY 16, 2005

Ventura River

watershed management plans

- Cross-jurisdictional
- Defined by watershed boundaries, not political or institutional boundaries
- Multi-stakeholder
- Non-regulatory

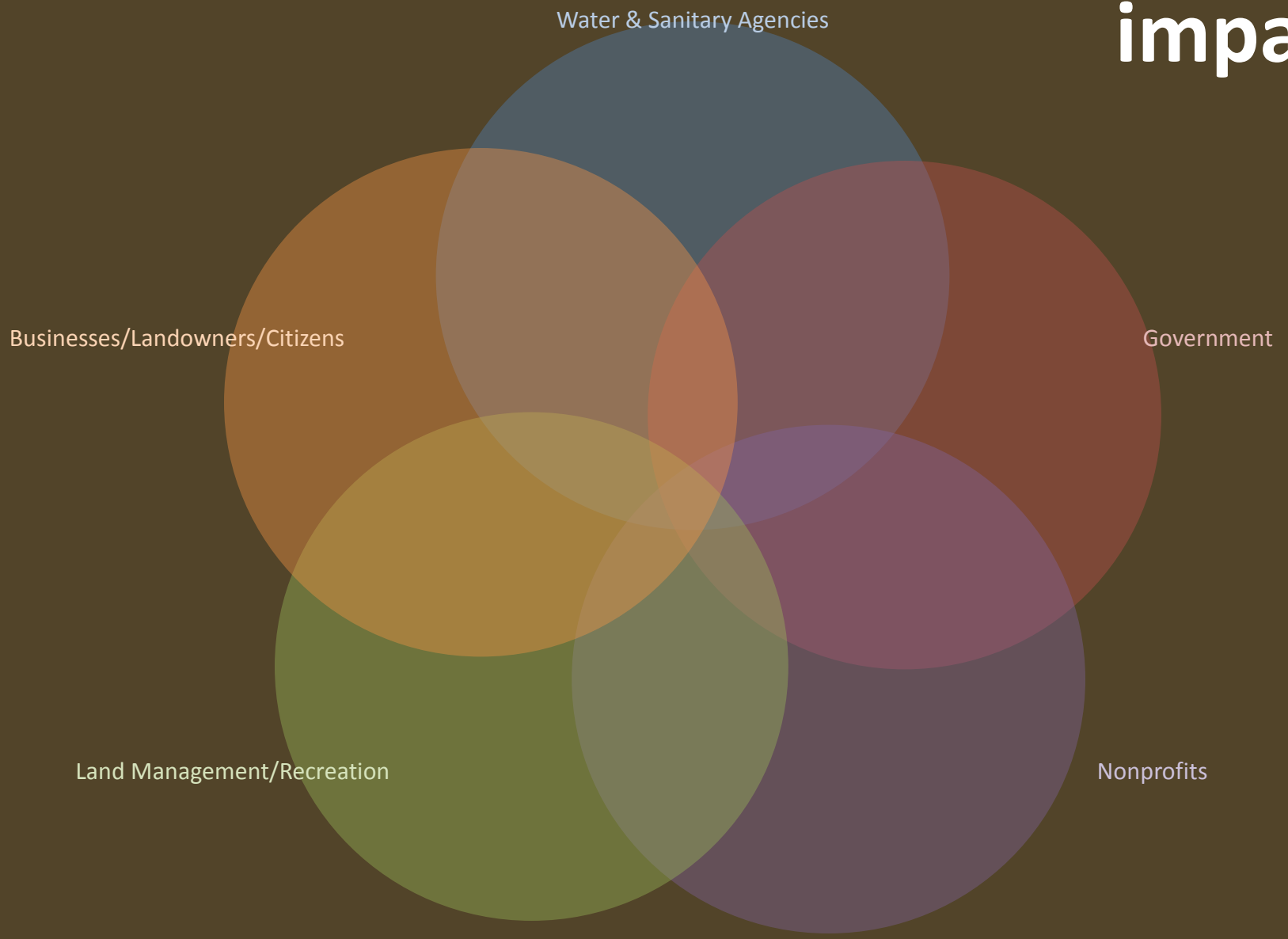

33
1
33
101
Pacific Ocean
Jurisdiction
Cities - 3%
Santa Barbara County - 3%
National Forest - 52%
Ventura County - 42%
N
Miles
0 1 2

what are the benefits of developing a watershed management plan?

the value of a plan

1. Tells the watershed story/compiles the facts.
2. Explains interrelationships and encourages integrated solutions.
3. Clarifies stakeholder values and concerns.
4. Prioritizes management strategies.
5. Helps guide and influence decisions that affect the watershed.
6. Better positions us for funding and agency support.
7. Facilitates collective impact.

collective impact



what are the drawbacks of developing a watershed management plan?

Watershed management plans court controversy

what are the drawbacks of developing a watershed management plan?

- Not binding.
- Difficult to fund for the long-term, so establishing continuity/authority is problematic.
- Weak record of implementation success.

Although the Ballona Creek plan was a broad attempt to address the stakeholder-identified issues and forge a comprehensive vision for the future of the watershed, few of the actions and projects identified in the plan have been implemented. With a wide range of policy recommendations, the plan did not adequately anticipate the issues required to work across jurisdictional boundaries. The demonstration projects were proposed to be located on various public sites, but the entities responsible for those sites were not involved in their selection or conceptual planning, and thus, there was little impetus for project implementation. Because no single entity is responsible for implementation of the plan, many of the recommended actions have not been implemented, or have been implemented in other forums (e.g., TMDL implementation is discussed via a process established by the Regional Water Quality Control Board). The watershed coordinator hired after

The Tujunga-Pacoima Watershed Management Plan was funded by a grant from the CALFED Watershed Program to The River Project, a non-profit organization. It also relied upon in-kind contributions from various groups and companies to extend the scope and content of the plan. Development of the plan was supported by various stakeholder-focused activities, including a Tujunga "Watershed U" (supported by the University of California Cooperative Extension). The development and subsequent implementation of the plan was not supported by a watershed coordinator. Since completion of the plan, the stakeholder group involved in the plan development has not continued to meet.

Ventura River Watershed Protection Plan Report, 2012
Cardno-Entrix

Watershed management planning is an evolving system.

Has evolved in different ways, for different reasons, in different contexts.

No mandated or preferred structure.

Bottom line: We get to decide what our plan looks like.

What is in a typical watershed management plan?

typical plan contents

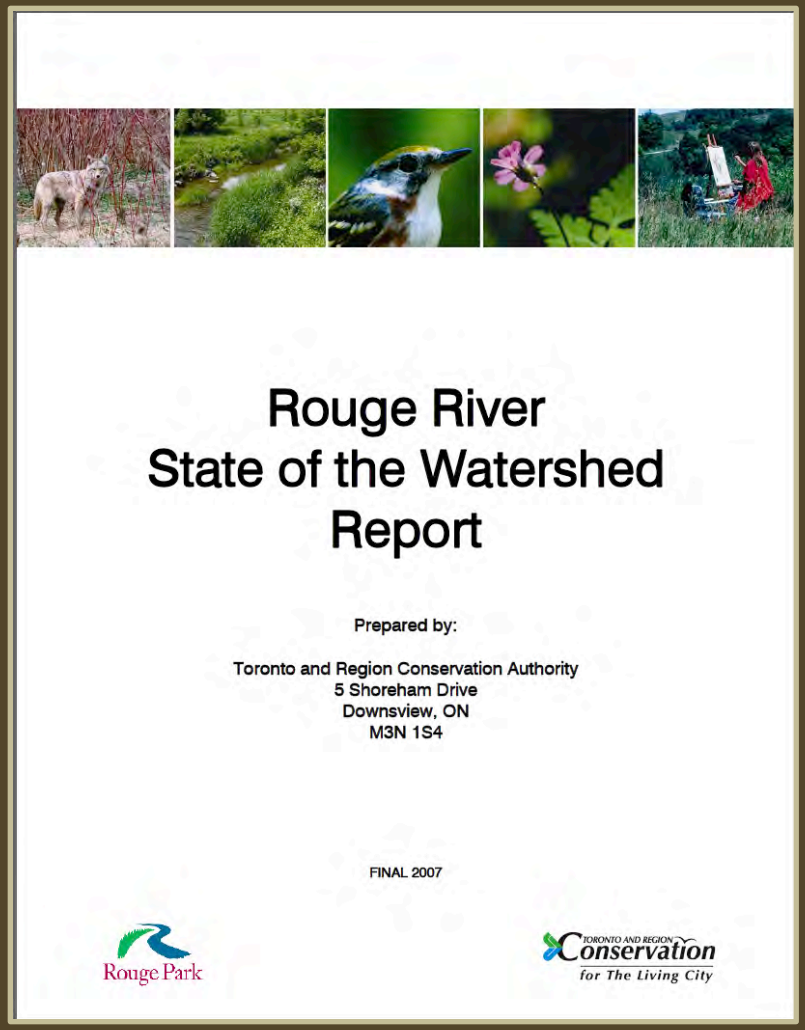
1. Watershed characterization
2. Description of watershed issues
3. Goals and objectives
4. Recommended projects
5. Implementation program

typical plan contents

Watershed Characterization

location, climate, subwatersheds, river reaches, estuary, ocean interface, water quantity, water quality, regional ecological context, terrestrial ecosystems, aquatic ecosystems, demographics, economic status, government jurisdictions, land use, public access opportunities, hazards

typical plan contents



Rouge River
State of the Watershed
Report

Prepared by:

Toronto and Region Conservation Authority
5 Shoreham Drive
Downsview, ON
M3N 1S4

FINAL 2007

Rouge Park

Toronto and Region Conservation for The Living City

Watershed Information Center & Conservancy of napa county

reports & data | planning | watershed groups | projects

Folders > Library > Assessments & Monitoring > Baseline Data Report

Baseline Data Report

Name	Type
/..	
02. Mineral Resources	
03. Climate & Air Quality	
03. Climate & Air Quality – Appendicies	
04. Biological Resources	
04. Biological Resources – Appendicies	
05. Energy Resources	
06. Figures	
06. Noise	
06. Noise – Appendicies	
07. Public Health	
08. Population & Housing	
09. Land Use	
10. Agricultural Resources	
11. Transportation	
12. Visual & Aesthetic Resources	
13. Public Facilities & Services	
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15. Surface Water Hydrology	
16. Figures	
16. Groundwater Hydrology	
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Agricultural Resources	
Carbon Monoxide "Hot Spot" Analysis	
Executive Summary	
Figure 2.1 Significant Aggregate Operations	
Figure 2.2 Mines and Mineral Deposits	
Figure 2.3 Aggregate Availability	
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Map 1.02 Physiography	
Map 1.03 Slope	
Map 1.04 General Geology	
Map 1.05 Surficial Deposits	
Map 1.06 Soil Texture Classes	
Map 1.07 Engineering Properties AASHTO	
Map 1.08 Landslides	
Map 1.09 Flood Zones	
Map 1.10 Liquefacation Susceptibility	
Map 1.11 Erosion K factor	
Map 10.1 Existing Agriculture	
Map 10.2 Napa County	
Map 10.3 Other Potentially Productive Soils	
Map 12.1 Viewshed	
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Map 2.1 Active Mines	
Map 3.1 Weather/Air Quality Monitoring Stations	
Map 3.2 Isohyteal Map	
Map 3.2 Sensitive Receptors & Populatoin Centers	
Map 3.4 Sensitive Receptors and Population Centers	
Map 3.5 Sensitive Receptors and Population Centers	

typical plan contents

Watershed Issues

- poor water quality
- inadequate water supply
- degraded habitat
- flooding
- lack of access to open space
- uninformed/unengaged citizens
- climate change

typical plan contents

Goals & Objectives

typical plan contents

Objectives often include indicators for measuring success.

Objective: Protect, restore and enhance groundwater recharge[1] and discharge.		Overall Rating Good
Indicator	**Measure**	**Targets**
Recharge/discharge	Water level trends in reference wells	Maintain long term stable aquifer water levels as evidenced by hydrographs[2] for reference monitoring wells.
	Average annual watershed groundwater discharge volumes	Maintain stable average annual baseflow rates[3] as determined by baseflow separation of long term stream flow gauges.

typical plan contents

Recommended projects/actions

GOAL: Ensure that agriculture (farming and ranching) remains a vibrant and economically viable part of these watersheds.

OBJECTIVE 1: Encourage and support the efforts of landowners, farmers, and ranchers to protect soil, water, and air resources critical for keeping agricultural operations a productive part of the economy through the promotion of research, education, and outreach.

Implementation 1A: Monterey County Water Resources Agency (MCWRA) UC Cooperative Extension, Resource Conservation Districts, Farm Bureaus the "Ranch Water Quality Short Course" periodically to existing leaseho land and to other, local rangeland owners / operators. Prepare and distri November 2007 course conducted in the San Antonio watershed.

Implementation 1B: The Monterey and San Luis Obispo County Farm Bur with UC Cooperative Extension, Resource Conservation Districts, County d agencies and others to offer water quality protection trainings and worksh ranchers in these watersheds on a regular basis. Both implementation 1A and bringing in innovative researchers and land managers to share their knowled with local farmers and ranchers.

Implementation 1C: Encourage watershed specific research through collabo private and public landowners to develop strategies to protect natural re profitable agricultural operations.

Implementation 1D: Assist the Natural Resources Conservation Service Conservation Districts and others with outreach to ensure information on cons programs through the Farm Bill and other mechanisms are well known to farmers, and ranchers.

Implementation 1E: Utilize the Resource Conservation District of Monterey and Lands program to provide educational workshops, materials, and plan qualified livestock owners in these watersheds.

Goal: Maintain ecological and watershed functions that support water quality by increasing awareness of all stakeholders

Objective 1: Establish scientific basis for recognizing cumulative impacts to watershed health.

Coordinate with private and public land owners/managers, Camp Roberts, Fort Hunter Liggett, Los Padres National Forest, RCDs, county planning staff, county Agricultural Commissioners' Weed Management Area efforts to do the following:

Implementation 1A: Identify suitable models for tracking and calculating cumulative impacts of human activity and natural changes upon plant and animal communities.

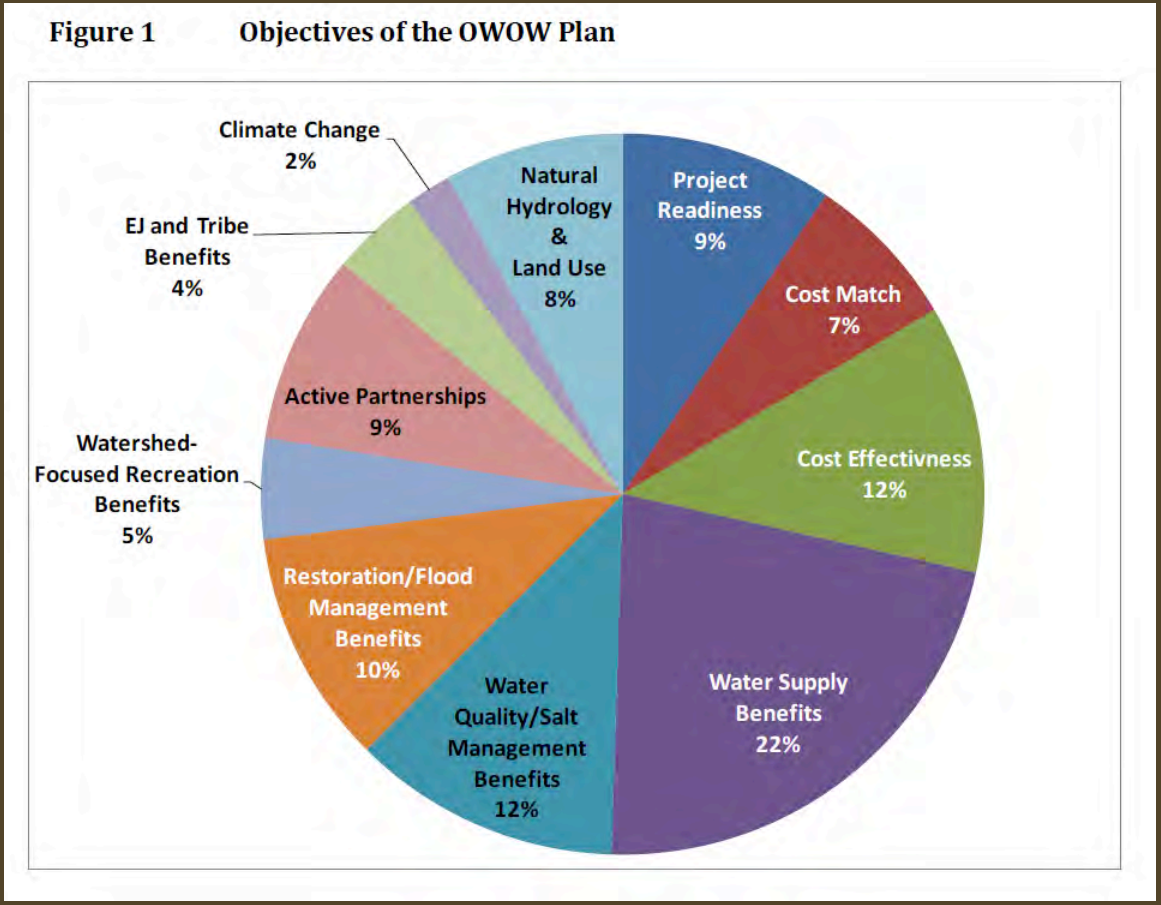
Implementation 1B: Develop and maintain an inventory of plants and animals in these watersheds.

Implementation 1C: Provide biological surveys on lands owned by parties interested in scientifically documenting the present status as part of the above-mentioned inventory.

Implementation 1D: Recognize the effectiveness of Monterey County's oak tree ordinance and work with San Luis Obispo county landowners and planners to determine possible protection needs in Nacitone watersheds in that county.

typical plan contents

Objectives and/or projects are often ranked according to established criteria.



typical plan contents

Priority projects are often identified.

“High priority”

“Urgent”

“Catalytic”

“Short-term”

typical plan contents

Implementation

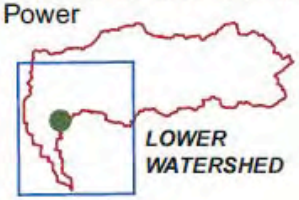
Schedule, funding, responsible parties, milestones, monitoring, evaluation

Tujunga-Pacoima Watershed Plan

PREFERRED PROJECT NUMBER
21
74
D.S.S. RECORD NUMBER

PROJECT TITLE:
Boulevard Pit
Stormwater Storage

PROJECT SUBMITTER:
City of Los Angeles
Department of Water and Power



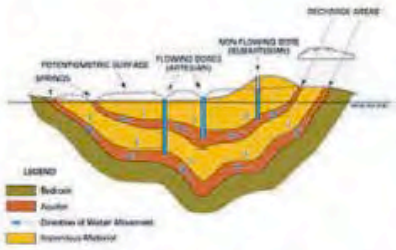
PRIMARY BENEFITS

Tujunga Watershed Project

Maps.Google.com

Boulevard Pit - Maps.Live.com/birdseye

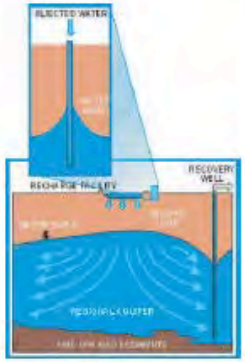
www.TheRiverProject.org



OPERATION OF AN ARTESIAN BASIN

www.onlineopinion.com.au

Boulevard Pit - Maps.Live.com/birdseye



www.hoses.co.za

Operational groundwater recharge basin photo by John Moore, SCGA

PROJECT DESCRIPTION:

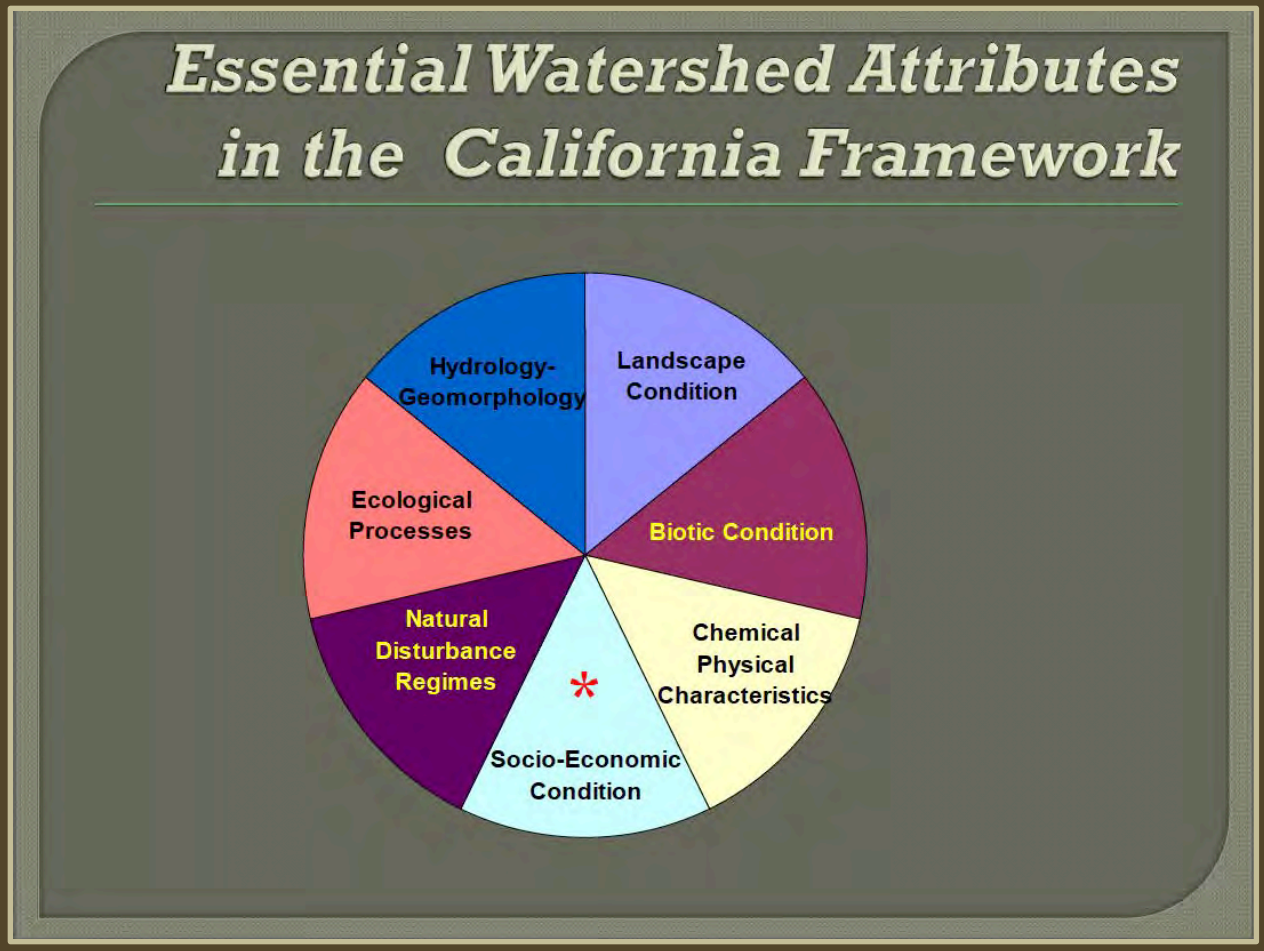
Acquire and develop the Boulevard Pit as a multi-use retention and recharge facility to enhance stormwater conservation.

Preferred Project No. 21

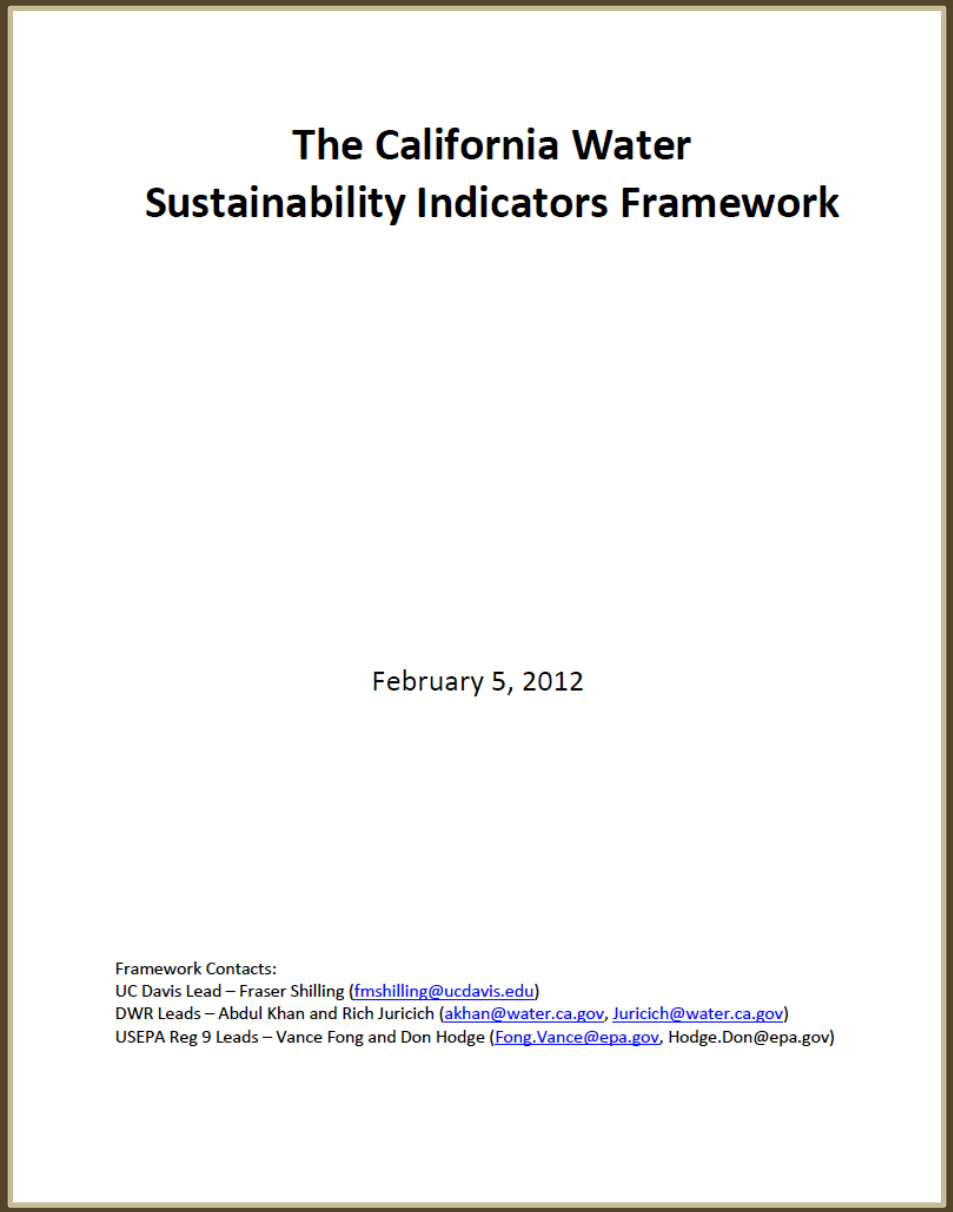
Project Information Summary	Integration Opportunities
Boulevard Pit Stormwater Storage	Project will seek to balance water conservation, water quality, open space, and habitat restoration in an integrated fashion; project complements other efforts in the area to better utilize our local water resources.
Project Submitter	
City of Los Angeles Department of Water and Power	
On-line information	**Project Benefits**
	Increases local water supply by more than 4,000 to 6,000 acre-feet annually. Goals of the Tujunga Watershed Management Plan not specifically addressed by submitter; appears to satisfy as many as five of the nine goals.
Contact Information	
Mario Acevedo, (213) 367-0932 Mario.Acevedo@LADWP.com	
Jurisdiction	
City of Los Angeles	
Latitude and Longitude Coordinates	**Additional Considerations**
N 34 deg 14' 53.2," W 118 deg 24' 10.9"	(None reported by submitter.)
Estimated Capital Cost	
$50 Million	
Estimated Annual O&M Costs	**Work Product or Deliverable**
$100,000 to 500,000	(None reported by submitter; likely to be similar to open mining pit reclamation projects proposed by DWP and L.A. County: soil stabilization and erosion control plans to be prepare by civil engineer, perimeter landscape treatment)
Status	
Conceptual	
Target Date for Implementation	**Jurisdictional Areas**
2015	City of Los Angeles, Council District 6 (Sun Valley Neighborhood Council) - Located in CRA Project Area and EJ Area
Anticipated Date of Completion	California State Assembly District 39
2019	California State Senate District 20 U.S. House of Representatives, 28th District, California

typical plan contents

New Focus: Social and Economic Issues



"The California Water Sustainability Indicators Framework …, being developed as part of the California Water Plan (CWP) Update 2013, brings together water sustainability indicators that will inform us about water system conditions and their relationships to ecosystems, social systems, and economic systems."



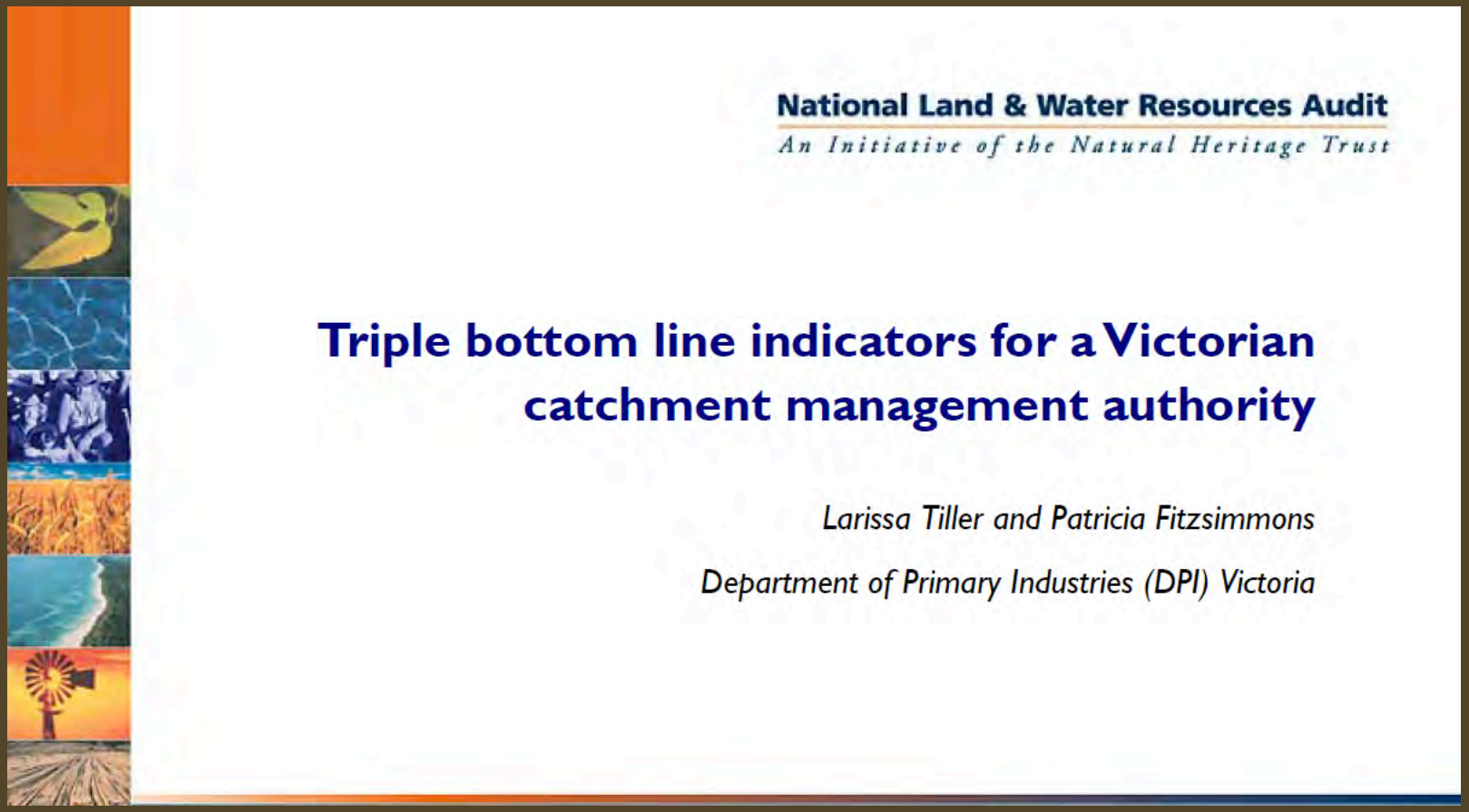
The California Water Sustainability Indicators Framework

February 5, 2012

Framework Contacts:
UC Davis Lead – Fraser Shilling (fmshilling@ucdavis.edu)
DWR Leads – Abdul Khan and Rich Juricich (akhan@water.ca.gov, Juricich@water.ca.gov)
USEPA Reg 9 Leads – Vance Fong and Don Hodge (Fong.Vance@epa.gov, Hodge.Don@epa.gov)

plan contents

Social and Economic data



plan contents

Ecosystem-based management is an integrated approach to management that considers the entire ecosystem, including humans. The goal of ecosystem-based management is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need. Ecosystem-based management differs from current approaches that usually focus on a single species, sector, activity or concern; it considers the cumulative impacts of different sectors. Specifically, ecosystem-based management:

plans from agricultural communities

plans from agricultural communities

The Nacimiento/San Antonio River Watersheds Management Plan should protect water quality and watershed uses for all stakeholders.

The following are guiding principles important for effective protection of water quality and watershed uses for all stakeholders.

- Manage human watershed uses and natural watershed resources and functions to co-exist over the long-term.
- Foster trust and a stewardship ethic among all watershed users.
- Encourage and facilitate voluntary and incentive-based efforts rather than additional regulation to protect water quality and watershed uses and functions.
- Protect the quality and quantity of surface water and ground water
- Seek to balance the use of watershed resources in order to protect those uses including homes and communities, infrastructure, farming, ranching, recreation, military, and others.
- Facilitate greater understanding within our communities of how watersheds function and how individuals, entities, and groups with jurisdiction can protect both watershed uses and watershed health.

our plan

What do you want from your plan?

If it were done now, what would be different?

If the Council has no staff in 2 years, what will you do with the plan?

What is the best use of the staff we have now?

our plan - recommendations

Give 3 things equal focus:

Developing a basic, but user-friendly, plan.

Positioning ourselves for actual, upcoming grants for projects.

Pursuing funding to continue staffing.

our plan - recommendations

1. Watershed characterization
2. Description of watershed issues
3. Goals and objectives
4. Recommended projects
5. Implementation program

our plan - recommendations

1. **Watershed characterization**
2. **Description of watershed issues**

- Very Important
- Present info so accessible to general public
- Fill in some data gaps; identify others.
- Give the social and economic context.

provides narrative for grant applications
builds social and political capital
a framework of baseline data to build upon

our plan - recommendations

3. Goals and objectives

4. Recommended projects

- Important
- Minimize analysis, assignment of indicators, and heavy ranking of objectives & projects. We just need a vision and a simple road map at this time.

our plan - recommendations

5. Implementation program

- Take a different approach.
- Instead of starting from the project list and hoping for a grant, start from real-world, upcoming grants.
- *Then*, using our project list, select & prioritize projects based on that specific grant's parameters.

our plan - recommendations

5. Implementation program (cont.)

- Form ad hoc partnerships to develop specific grant proposals. *Then* develop detailed project specifications and budgets.
- Modify our plan with the new, detailed information developed for the proposals.

Success oriented. We will learn more about real-world implementation constraints.

Public Meeting

October 3 Evening Meeting

- Use this meeting as an official public scoping meeting.
- Provide a brief overview of the watershed.
- Each Technical Committee provides a brief (10 min) summary of their recommended objectives and projects.
- Lots of time for members of the community to present their ideas and concerns.

www.venturawatershed.org