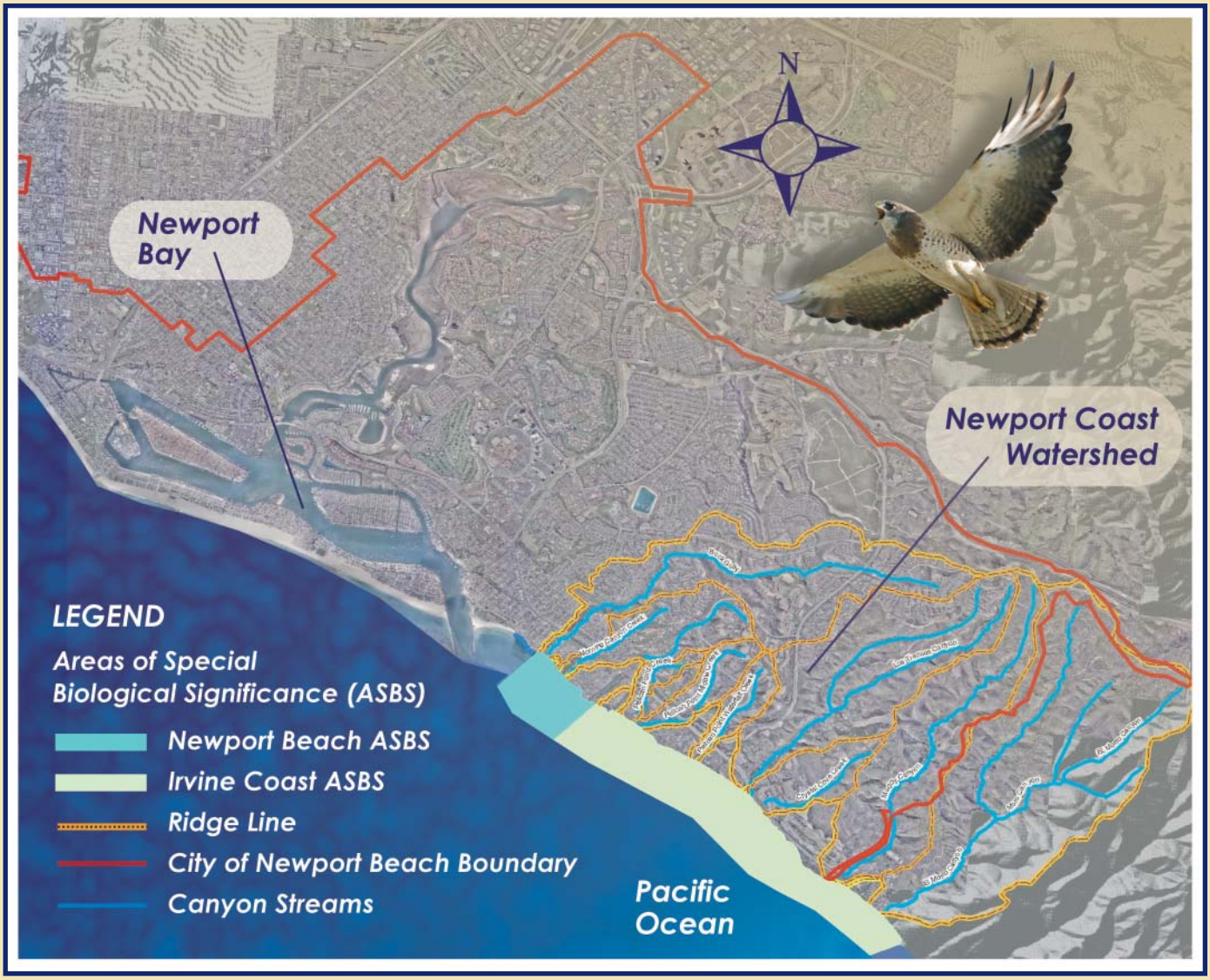
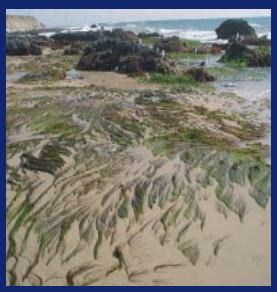
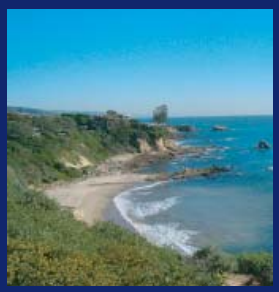
City of Newport Beach

Newport Coast Watershed Management Plan

PLAN HIGHLIGHTS







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October 2007

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VISION

The management, restoration and preservation of a sustainable watershed that is ecologically balanced, economically vibrant and aesthetically-pleasing.

THE AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE along Newport Coast are the receiving waters for the adjacent Newport Bay Watershed. Therefore it is meaningful to consider the Newport Coast Watershed as a planning area within the Newport Bay Watershed Basin. Stakeholders within the Newport Coast Watershed planning area are meeting with the larger group of stakeholders within the Newport Bay Watershed Basin to discuss opportunities for working together to meet the challenges Basin-wide and within each of the Planning Areas.

BASIN-WIDE GOALS

- **Providing for Adequate Water Supplies**
- **Providing for Safe Management of Floods**
- **Improving Water Quality**
- **Restoring the Watershed Basin Ecology**

Process for Creating a Watershed Management Program

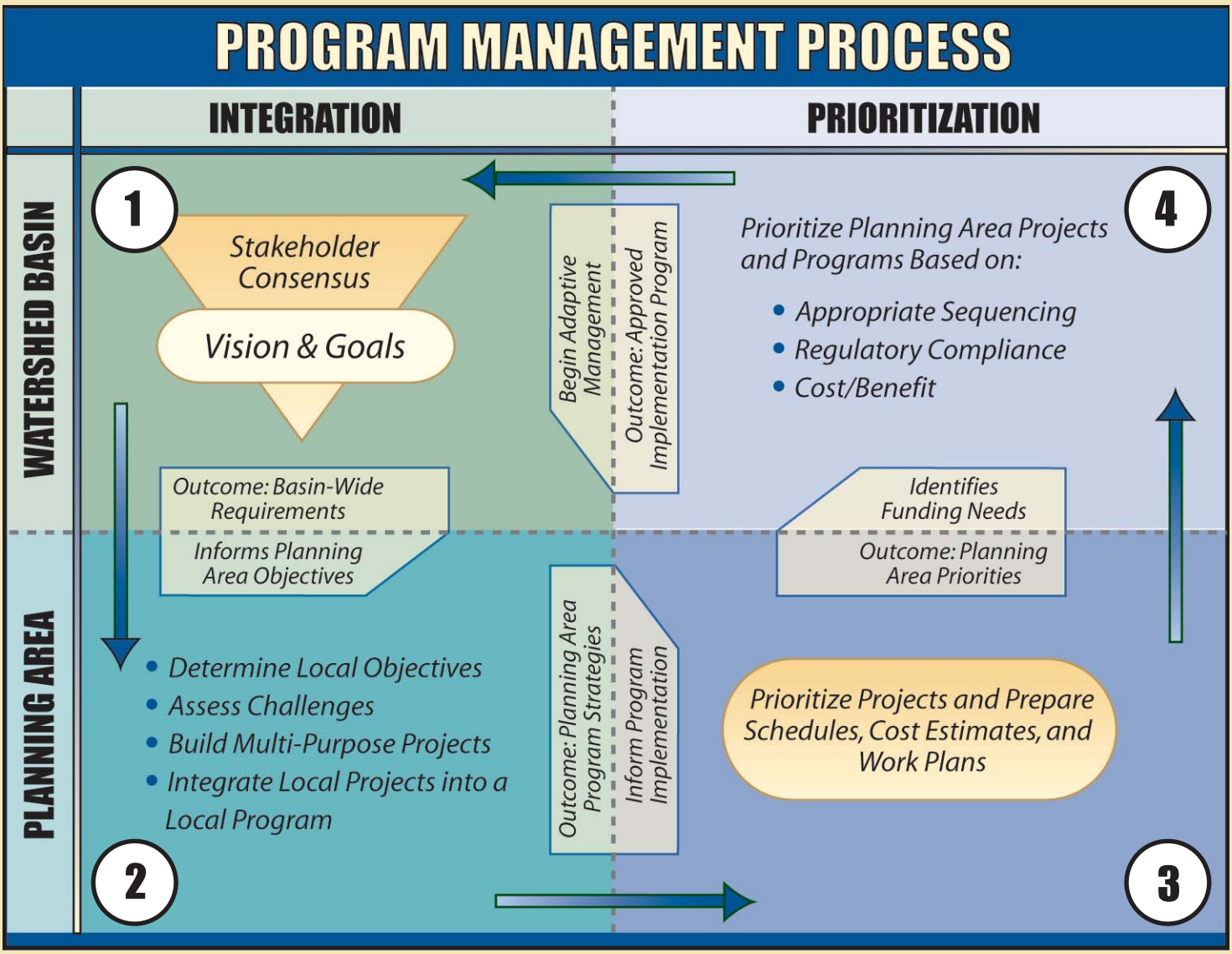
The following figure shows the process for developing a watershed plan that integrates and prioritizes projects to meet the objectives of the local area as well as the larger basin-wide objectives.

Box 1: Watershed stakeholders caucus and formulate a consensus Vision and a suite of integrated watershed Goals based on regulatory agency requirements, ecological requirements and community demands. These in turn determine basin-wide objectives.

Box 2: Each local Planning Area (in this case, the Newport Coast Watershed) formulates its own objectives based on the local issues of concern as well as basin-wide objectives. Projects for each canyon subwatershed are defined and integrated into a program for each canyon.

Box 3: Cost estimates and work plans for each subwatershed program are generated. Then, subwatershed programs are prioritized based on front-loading those programs that solve the most critical issues first to create a list of prioritized projects for the Planning Area (Newport Coast Watershed)

Box 4: All planning area programs are reviewed by a Technical Advisory Committee appointed by the watershed-wide stakeholders to advise on proper sequencing of programs. A Watershed Executive Committee reviews the final programs and makes final recommendations which are then forwarded to each agency governing body for approval.



Refer to Section 1 in the Report

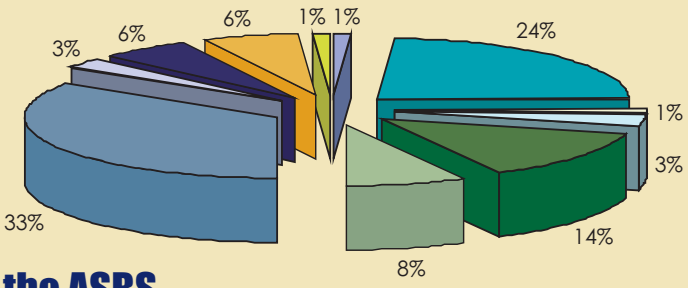
Newport Coast Watershed Today

NEWPORT BEACH is a southern Californian coastal community located approximately 50 miles south of Los Angeles. Newport Beach is recognized for its nine miles of coastline along the Pacific Ocean and for one of the largest small-yacht harbors in the world. The Newport Coast Watershed covers approximately ten square miles and extends from just south of Corona Del Mar to El Morro Canyon. The majority of the watershed was annexed by the City of Newport Beach on January 1, 2002.

Vegetation

Coastal sage scrub

Newport Coast's native vegetation predominantly consists of Coastal Sage Scrub with some Chaparrel and Riparian Scrub. The non-native vegetation comprises mostly ornamental landscaping with annual grasslands and iceplant.

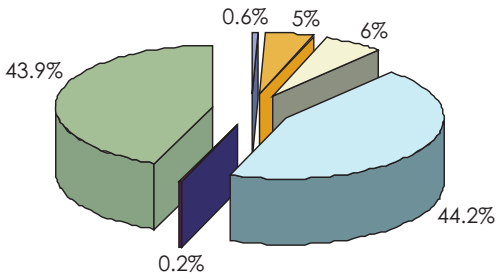


Vegetation Community

- Coastal Freshwater Marsh
- Mexican Elderberry Woodland
- Disturbed Mexican Elderberry Woodland
- Perennial Rivers and Streams
- Parks and Ornamental Plantings
- Ruderal
- Sagebush
- Disturbed Sagebrush
- Sagebrush-Grasslands
- Southern Willow Scrub
- Urban

Ice Plant

Land Use Impacting the ASBS



- Commercial and Public
- Mixed Use/Under Construction
- Open Space and Recreation
- Residential
- Transportation and Utilities
- Vacant

Residents

- Approximately 38,390 housing units
- 70,000 people in the City of Newport Beach
- Predominantly ethnically White followed by Hispanic, Asian, Black, Native American, and Native Hawaiian/Islanders (Census 2000)
- The median age of residents was 41

Biological Resources

Refer to Section 2

Coopers Hawk

California gnatcatcher

Western snowyplover

Racoon

Western fence lizard

Mourning cloak butterfly

Newport's Climate & Water Resources

Coastal Creeks in the Watershed:

- Buck Gully
- Morning Canyon
- Pelican Point
- Pelican Point Middle
- Pelican Point Waterfall
- Los Trancos (Crystal Cove)
- Muddy
- El Morro

Nuisance Dry Weather Flows

Imported water leads to groundwater recharge which exfiltrates into the canyon creeks.

Climate

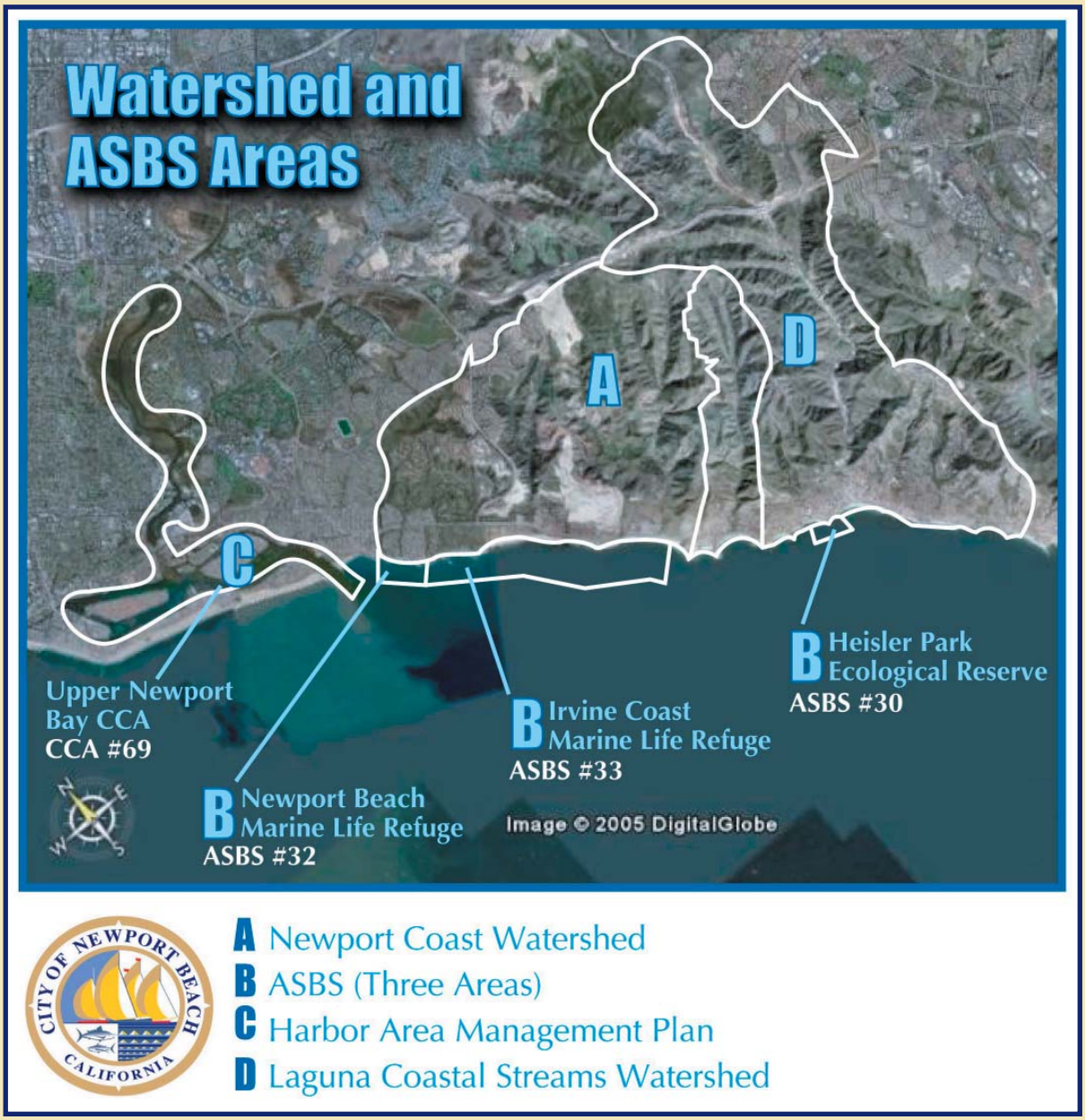
Warm, dry summers, cool wet winters. Approximately 11 inches of rain each year.

Potable Water

- Total water importation averages 2,697 acre-feet per year (AFY)
- This exceeds the average rainfall within the watersheds of 2,352 AFY
- Water importation, combined with increased urbanization, has resulted in an increase in groundwater recharge from an estimated 66 AFY, prior to extensive development within the watershed, to an estimated 269 AFY currently.

Refer to Section 2

Areas of Special Biological Significance (ASBS)



THE CALIFORNIA STATE WATER RESOURCES CONTROL BOARD CREATED AREAS OF BIOLOGICAL SIGNIFICANCE in order to maintain high water quality within some of the most pristine and biologically diverse sections of California's coast.

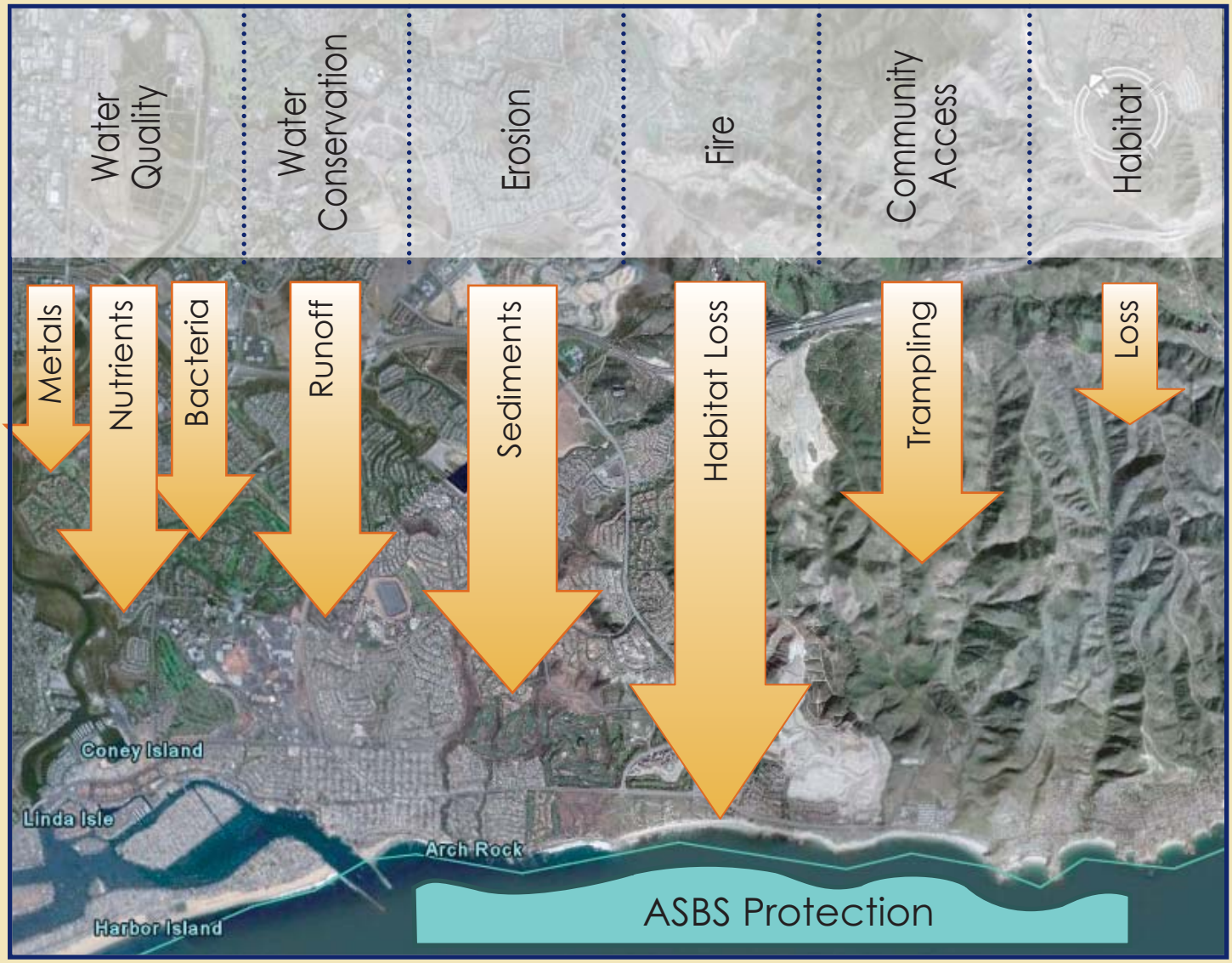
The Newport Coast Watershed coastline has two Area of Special Biological Significance (ASBS) designations; the Newport Beach (Robert E. Badham) Marine Life Refuge (ASBS No. 32) and the Irvine Coast Marine Life Refuge (ASBS No. 33). The two ASBS within the watershed each have Critical Coastal Area (CCA) designations for the adjacent land. The Newport Beach Marine Life Refuge (CCA #70) and the Irvine Coast Marine Wildlife Refuge (CCA #71) are designated areas requiring protection of species or biological communities. Point and non-point source discharges of waste into these areas are prohibited.

Refer to Section 3

Key Challenges in the Watershed

- Restore Habitat
- Fire Prevention
- Improve Canyon Stability
- Protect ASBS
- Improve Canyon Water Quality
- Promote Water Conservation/ Protecting Water Supply
- Enhance Community Resources

The challenges with the greatest beneficial potential were ***fire prevention*** *and* ***erosion control****.*



Refer to Section 3

Watershed Challenges

Fire

With increased private landscaping adjacent to canyons, over irrigation, and the rise in invasive plant species, many areas of the watershed are now at risk from fire. This threat, in its catastrophic nature, would impact both human and ecological habitats and cause wide spread and long term damage.

Erosion

With increased irrigation and hence increased dry weather flows leading to bank instability has caused erosion along the canyons. Increased development of residential communities adjacent to the canyons has also meant increased grade controls and bank stabilization is required.

Water Quality

Water quality in the watershed is impacted with metals (cadmium and copper), bacteria and sediments. Dry weather runoff, caused by over-irrigation of landscaping, leads to an increase in groundwater levels which in turn causes recharge into the canyons.

ASBS

Newport contains a number of protected marine habitats. Complex and diverse impacts on these marine environments include cross contamination and impacts from the adjacent watersheds. Physical impacts from public access and natural events also have a significant impact on these marine areas.

Water Conservation

Newport Beach currently imports a large proportion of its potable water. This puts an added strain on the natural resources of both Newport and adjacent communities. Groundwater recharge is also adding to water quality impairment and erosion.

Community Resources

Lack of public awareness and understanding of impacting practices has lead to many of the issues the City currently faces, such as over irrigation and use of pesticides. Public access to many parts of the ASBS and canyons leads to trampling and erosion. Public impact on the shoreline of the ASBS is significant with trampling, collection and scavenging practices occurring frequently.

Habitat

Much of the natural habitat in the Newport Beach Coastal Watershed is threatened by the invasion of non-native species associated with landscaping practices and increased irrigation.

Refer to Section 4

Watershed Goals

Projects Identified by Stakeholders

Fire Prevention

- Fuel modification in Reach 2 of Buck Gully
- Targeted marketing strategies
- Smoking ordinances and prohibitions
- Invasive plant removal

Erosion Control

- Canyon stabilization and erosion control
- Increase perviousness of parking lots
- Allow course-grained material to deposit on beaches
- Prohibit the removal of sand or rocks
- Buck Gully Erosion Control and Water Quality BMP Project

Improve Water Quality

- Focused diversion to sanitary sewer
- Alternative fertilizer programs/integrated pest management program
- Infiltration, bioremediation, LID at targeted locations
- Municipal stormwater illicit discharge elimination program
- Street sweeping
- Pet waste management stations

Protect ASBS

- Implementing targeted community education for water conservation, pollution prevention, runoff reduction, and water quality
- Enforcement of violations for irrigation runoff and car washing
- Street sweeping and pesticide, herbicide, pet waste, and fertilizer management
- Incentive schemes for runoff reduction and pollution mitigation
- Implementation of grade controls, wetlands, and stream habitat enhancements

Water Conservation

- Irrigation control and runoff reduction
- Capture rainfall/increase water supply
- Install smart irrigation controllers
- Water use mapping

Community Resources

- Integrate watershed science into educational curriculum
- Maintain and provide defined trails with educational information
- Develop an interpretive center tied to accessible areas
- Provide educational outreach material to landscapers/residents on water use
- Train a tide pool docent

Habitat Restoration

- Removal of invasive plant species
- Outreach to garden centers, landscapers, etc.
- Trail improvements

Refer to Section 4

Understanding the ASBS... a series of special studies

Current Special Studies

Flow and current study *- for assessing pollution transport mechanisms and cross contamination.*

Toxicity and bioaccumulation study *- for assessing the potential for contaminant uptake by biological communities*

Public use study *- to assess the impact of humans (through trampling, scavenging, etc.) on the ASBS shoreline*

Restoration projects *- a pilot project aiming to reintroduce rockweed into the ASBS*

Biodiversity study *- for assessing the baseline ecological diversity in the Newport ASBS*

The Impact Metric

Managing Areas of Special Biological Significance (ASBS) is challenging. There are multiple potential impacts to the ASBS including:

- Public Use
- Dry- and wet- weather flows from the canyons
- "Cross-contamination" from Newport Bay

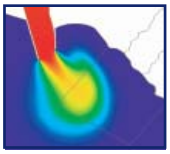
The City of Newport Beach is currently developing an innovative suite of biological methods and physical indicators to assess if any or all these impacts significantly stress marine life resources in the ASBS.

Each impact is weighted against an indicator to give an overview of stress in the system. The impact metric can then be used to determine appropriate management strategies for managing environmental stressors. This unique tool aims to protect ASBS from key impacts and measure the effectiveness of those management strategies.

Future Special Studies

Restoration projects *- removing invasive species such as brown algae and reintroducing eelgrass and perhaps abalone.*

Public impact mitigation *- expanding the tidal pool ranger program, designating high protection areas, partnering with local schools and community groups*



Cross Contamination mitigation *- implementing a suite of advanced studies to quantify impacts of toxics and nutrients emanating from Newport Bay, determine optimum growing conditions for eel grass, assess causes of algae blooms, and examine alternatives to copper boat paint.*

Refer to Section 3





Buck Gully Wetland Restoration: Building an Eco-Friendly, Multi-Purpose Restoration Project

The Poppy Lane wetland restoration area is located in Reach 2 of the Buck Gully subwatershed. As City-owned property, this site is a pilot project for building a multi-purpose restoration project. Project elements include:

Channel Stabilization using Eco-Friendly Materials

- Bank stabilization using gabions and green gabions (large wire cages with river rock or fabric wrapped soil)
- Gabion grade-control structures

Water Quality

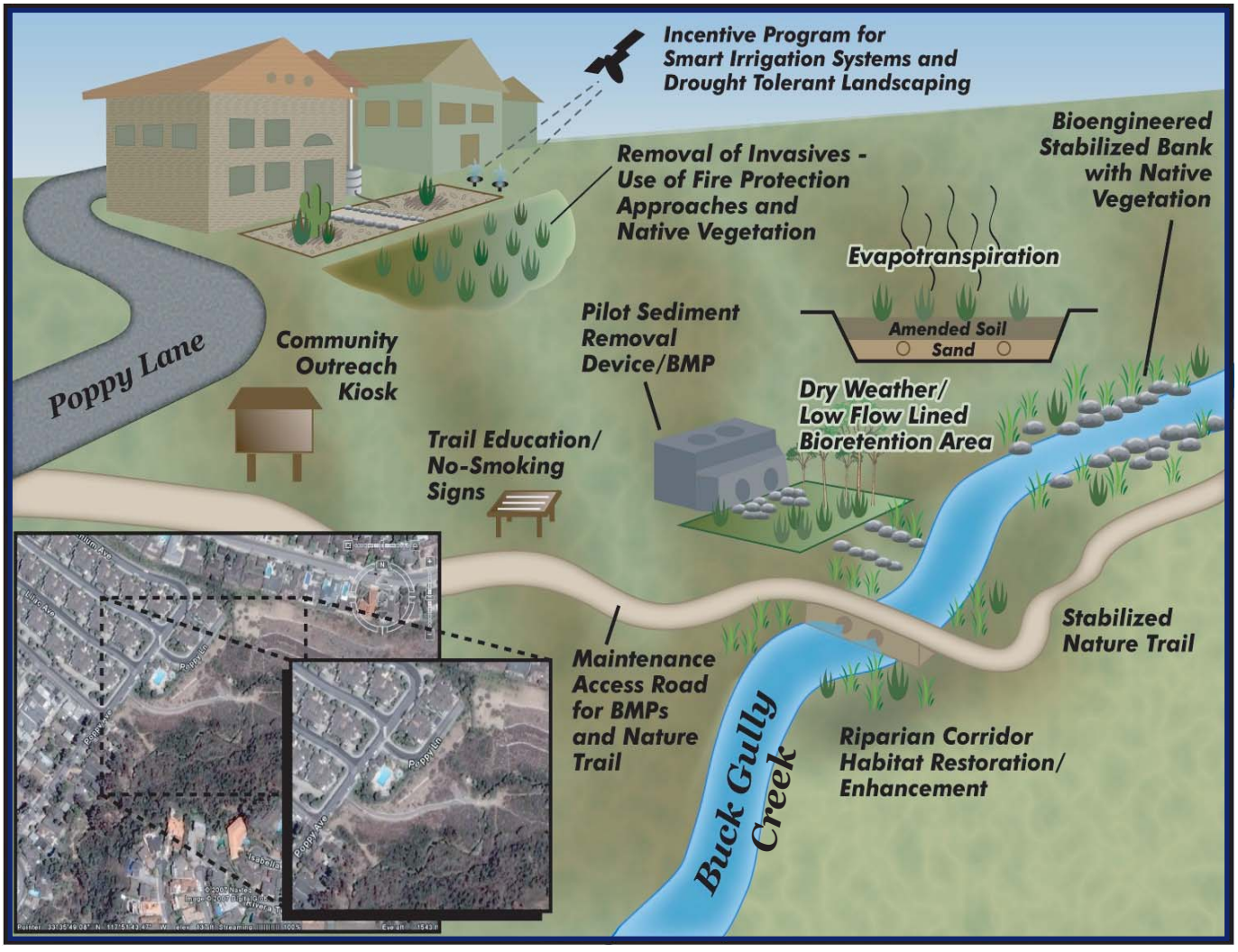
- Nutrient removal
- Sediment removal
- Removal of microbes

Habitat Restoration

- Removing invasive plant species
- Creating wetland ponds
- Planting native wetland and riparian vegetation

Community Amenity and Education

- Trail definition to minimize disturbance of wetland and riparian areas
- Destination point for local hikers
- Demonstration restoration project



The Buck Gully Wetland Restoration project is part of a larger program to protect and restore the entire Buck Gully sub-watershed. Other projects for Buck Gully and the other canyons are listed on the following pages.

Refer to Section 6

Prioritization Process

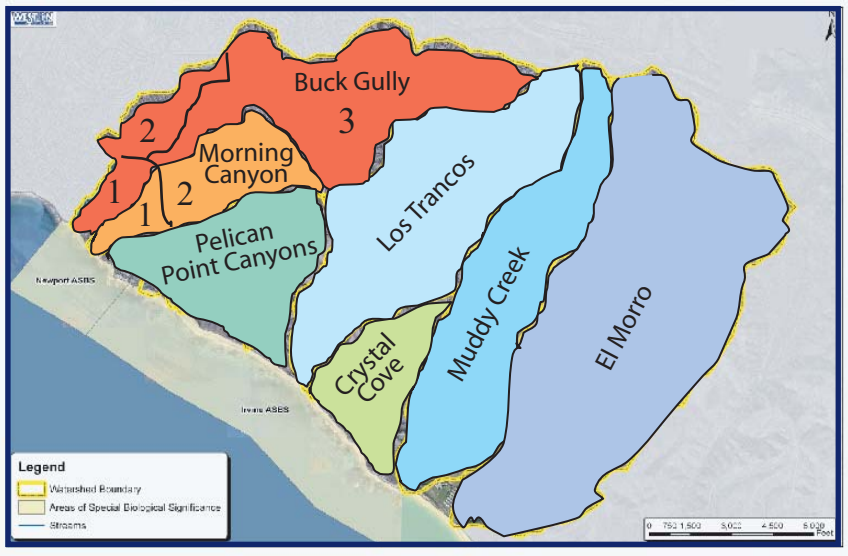
Challenge	Score
Fire Prevention	100
Water Quality	25
Canyon Stability & Erosion Control	50
ASBS Protection	25
Habitat Restoration	5
Community Access	10
Water Conservation	25

Watershed Prioritization

Newport Coast contains a number of subwatersheds, each with unique challenges, needs and potential project concepts. In order to focus on those subwatersheds with the greatest needs, a prioritization process was undertaken using a unique "impact scoring" system. Impact scores were determined based on the magnitude of the potential impact. For this watershed, fire risk is the most significant risk and therefore has the most potential points. Each subwatershed was then ranked based on the number and magnitude of challenges as outlined in the table below.

Key Subwatersheds

The key subwatersheds were identified and an impact score determined based on the challenges each watershed faced as shown in the figure to the right. For example, Reach 1 of Buck Gully faces risk from fire, impaired water quality, erosion, loss of habitat, poor public access, and low water conservation practices. It also directly impacts the ASBS. As such, it is identified as the highest ranking watershed and also as the watershed in greatest need of remedial works.



Canyon		Buck Gully			Morning Canyon		Pelican	Los Trancos	Crystal	Muddy Creek	El Morro
Priority Issues	**Points**	**Reach 1**	**Reach 2**	**Reach 3**	**Reach 1**	**Reach 2**					
Fire Prevention	**100**	100	100		75	100	0	0	5	5	0
Water Quality	**25**	25	25	25	25	25	25	25	5	25	15
Erosion Control	**50**	50	25	0	40	0	5	5	0	25	10
ASBS Protection	**25**	25	25	25	25	25	25	25	5	25	5
Habitat Restoration	**5**	5	5	5	5	5	5	5	0	5	3
Community Access	**10**	10	10	10	0	0	10	10	0	0	5
Water Conservation	**25**	25	25	25	25	25	25	25	0	0	10
TOTAL SCORE	**240**	**240**	**215**	**90**	**195**	**180**	**95**	**95**	**15**	**85**	**48**

Refer to Section 5

Best Management Practices (BMPs)

Watershed Goals

Fire Prevention

Improve Water Quality

Controlling Erosion

Improve ASBS Protection

Restoring Natural Habitat

Improving Public Access

Water Resource Conservation

Best Management Practices (BMP)

CATEGORIES

Potential projects were identified by City staff and watershed stakeholders at a facilitated meeting. Projects were then assessed in terms of quantitative benefit toward addressing watershed issues, proper project sequencing and cost. Projects were then grouped into Tiers as follows.

Tier I

Tier 1 contains projects which are low cost, easily implemented and have a long term gain (such as outreach).

Tier II

Tier 2 contains projects which are more expensive and make moderate improvements (such as street sweeping).

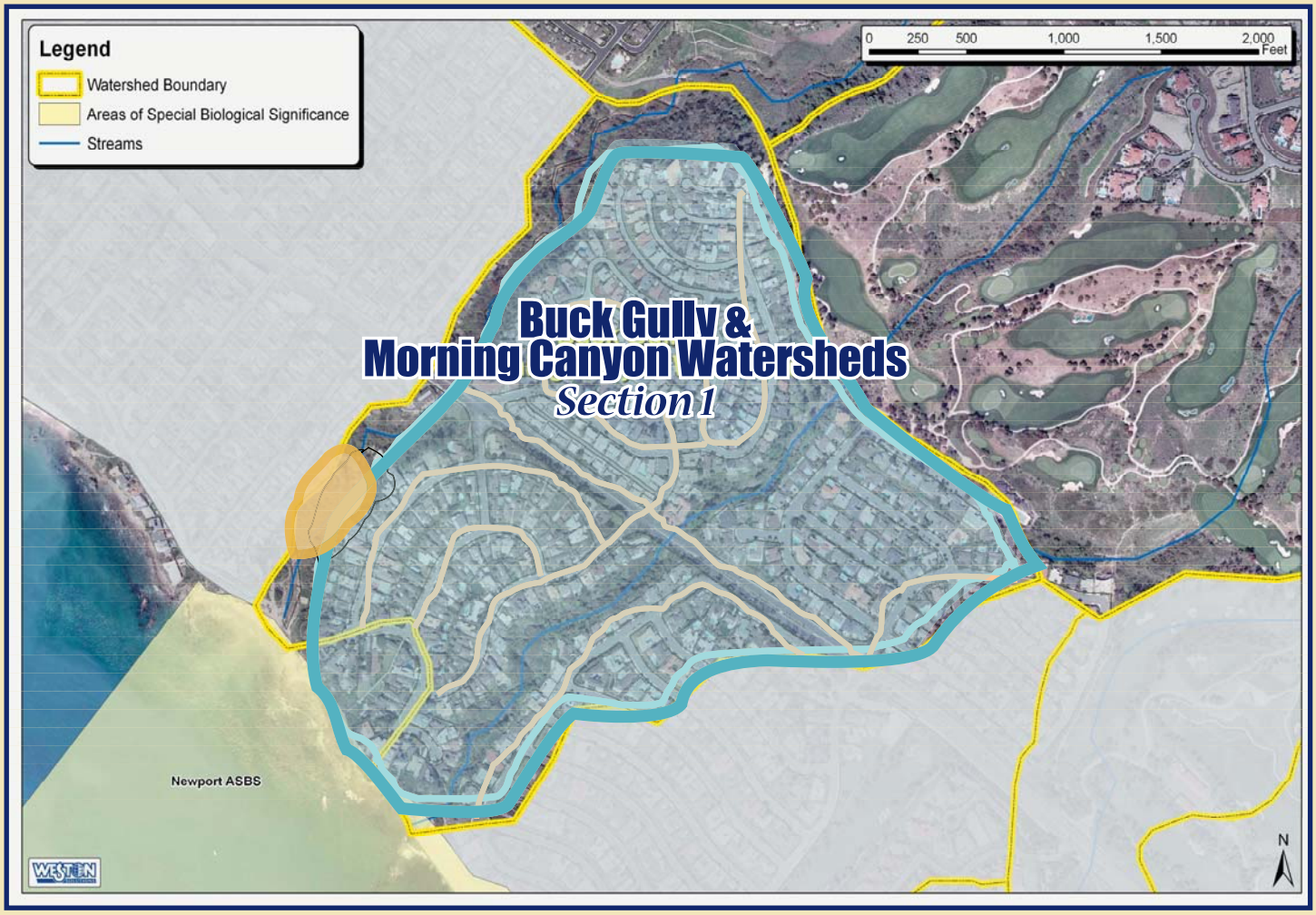
Tier III

Tier 3 includes projects which have high capital cost with immediate benefits (such as Buck Gully Erosion Control).

Projects are then scheduled in conjunction with priority watersheds.

Refer to Section 5

Buck Gully: Reach 1 *Project Prioritization*



Reach 1: Priority Projects

Tier 1: Water use mapping/analysis, directed outreach for water use (person to person), enforcement. Targeted outreach for ASBS: cleaning, runoff, etc. (BLUE AREA)

Tier 2: Pollution source studies, flow monitoring and water quality testing, vacuum assisted and frequent, pilot street sweeping, ET controller incentive program (PEACH LINE)

Tier 3: Erosion Control, wetland treatment, canyon restoration (YELLOW AREA)

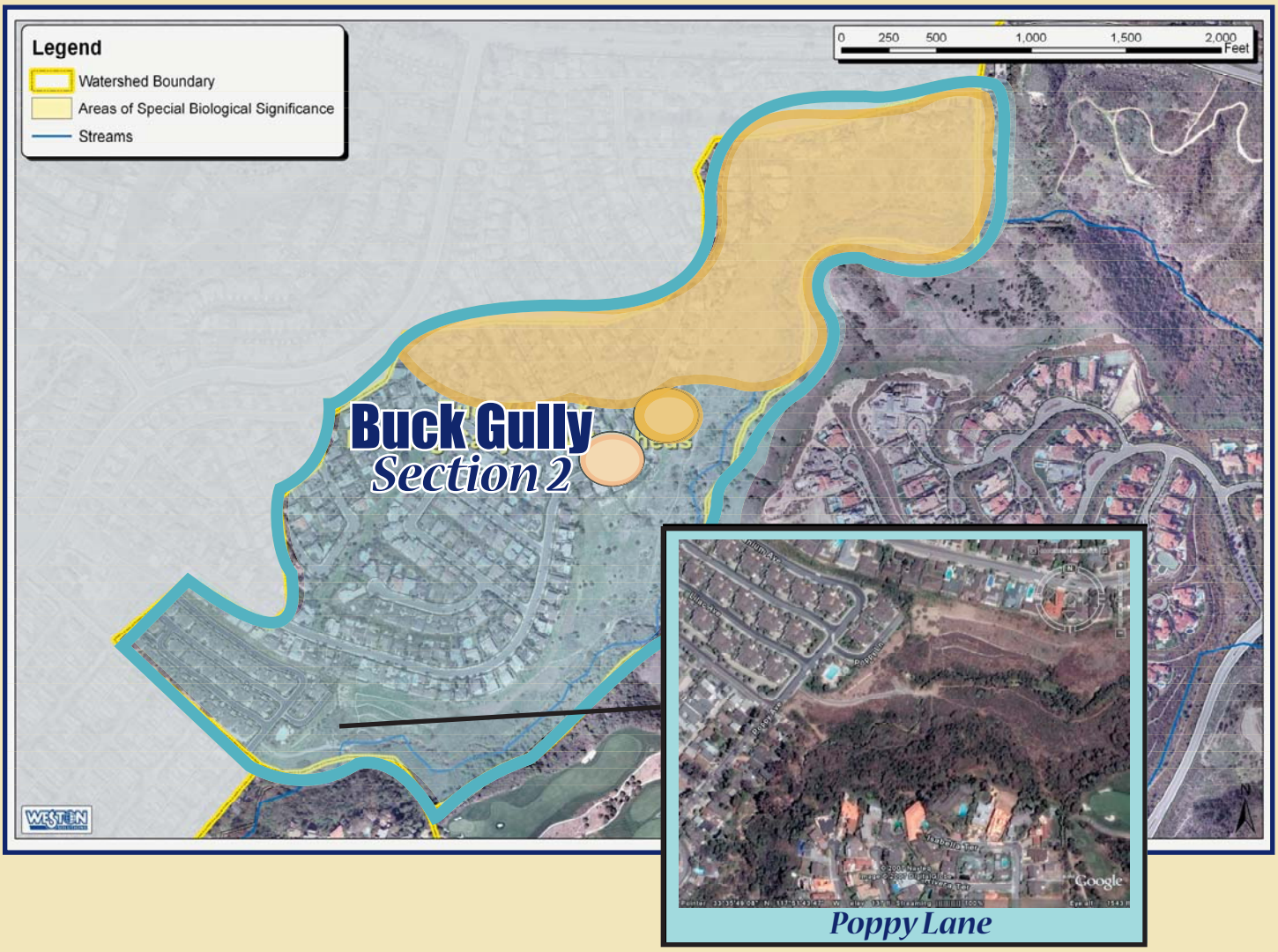
Reach 1
Impact Score: 240

(See table on page 7.)

Buck Gully had the highest impact score. As such, these subwatersheds were the focus of key project integration strategies. **Reach 1, with an impact score of 240,** requires the most significant and focused works including targeted outreach and aggressive street sweeping. A significant erosion control project at the mouth of Buck Gully is a priority.

Refer to Section 6

Buck Gully: Reach 2 *Project Prioritization*



Reach 2: Priority Projects

Tier 1: Runoff reduction, outreach, enforcement, residential and golf course. (BLUE AREA)

Tier 2: Fuel modification for fire prevention, pilot study for sediment removal, pet waste management, invasive plant removal, new trails. (PEACH AREA)

Tier 3: Erosion control, bank stabilization, riparian restoration, bioretention at Poppy Avenue (City-owned property). (YELLOW AREA)

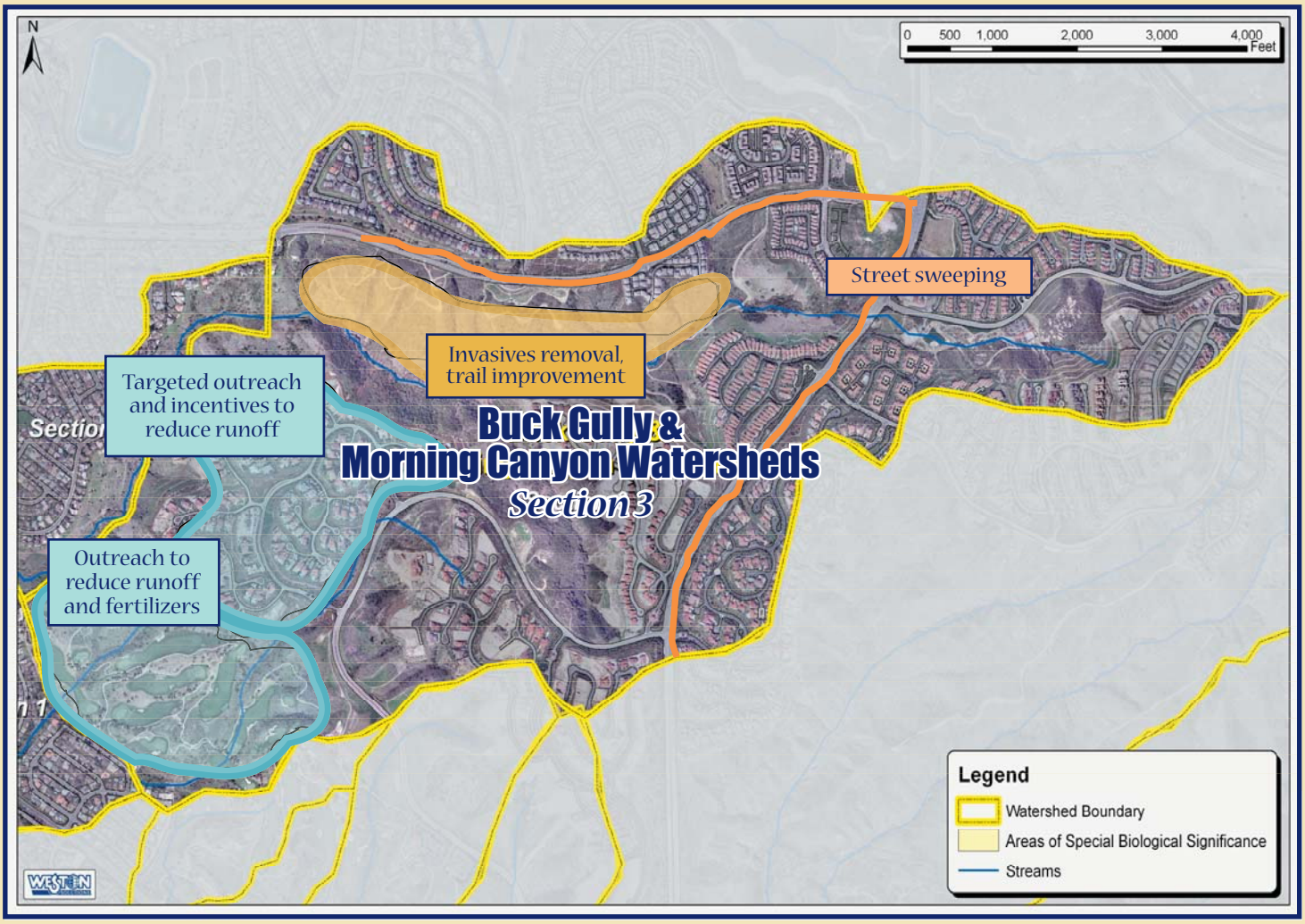
Reach 2
Impact Score: 215

(See table on page 7.)

Reach 2, had an impact score of 215. As such, it was identified as an area requiring runoff reduction (through the use of smart irrigation), outreach to golf courses, and fire prevention strategies including fuel modification in the northern area. Poppy Lane, as City-owned property, was identified as a location to showcase project integration.

Refer to Section 6

Buck Gully: Reach 3 *Project Prioritization*



Reach 3: Priority Projects

Tier 1: Runoff reduction, water use mapping, outreach, enforcement, residential and golf course. (BLUE AREA)

Tier 2: Aggressive street sweeping. (PEACH LINE)

Tier 3: Trails improvement, invasives removal (YELLOW AREA)

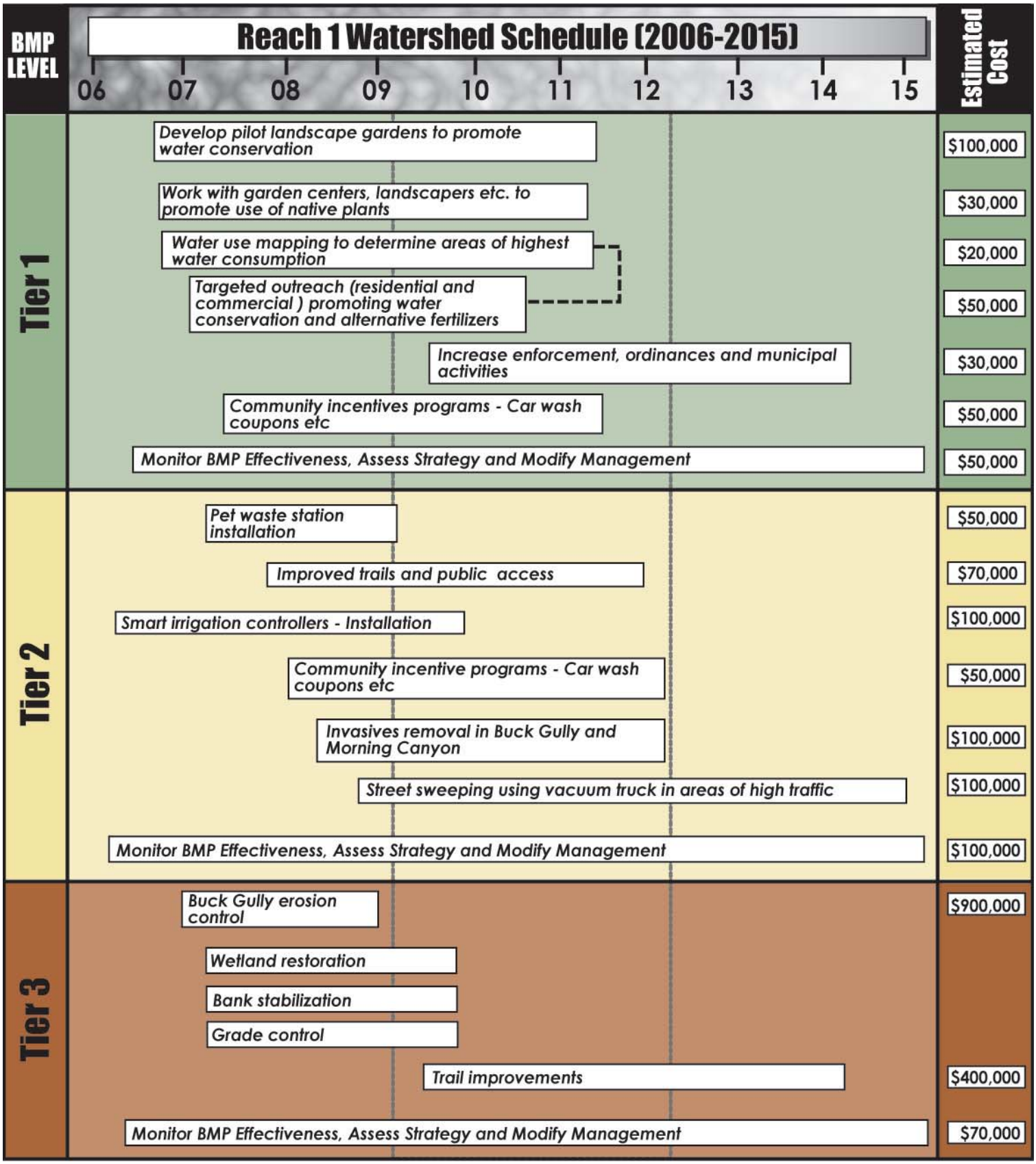
Reach 3
Impact Score: 90

(See table on page 7.)

Reach 3 had an impact score of 90. The projects identified in this reach included runoff reduction (through the use of smart irrigation controllers) and improvements to public access through the construction of trails. Aggressive street sweeping, using vacuum assisted vehicles, in high traffic areas is proposed.

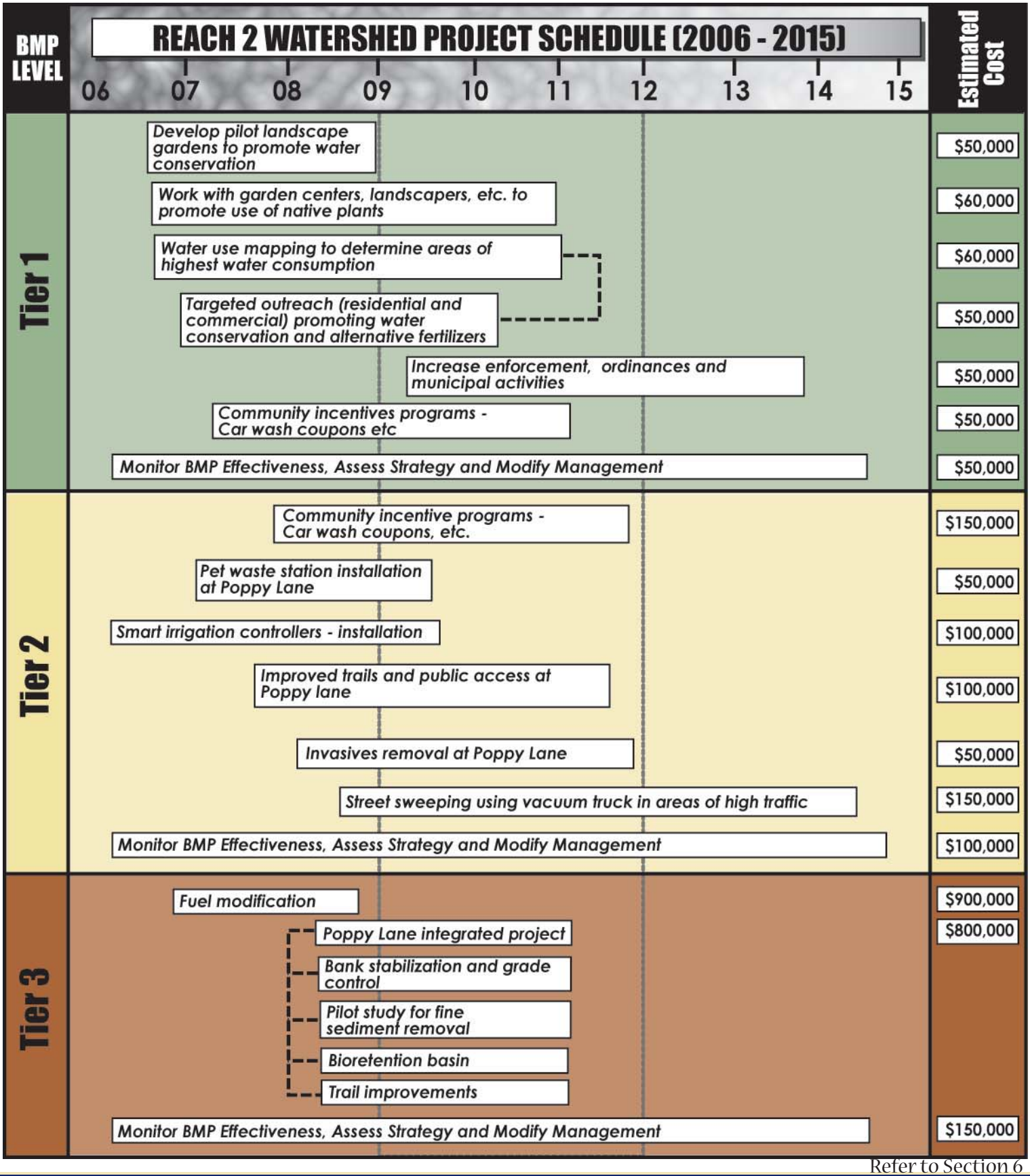
Refer to Section 6

Buck Gully - Reach 1: Tiered BMPs & Schedule



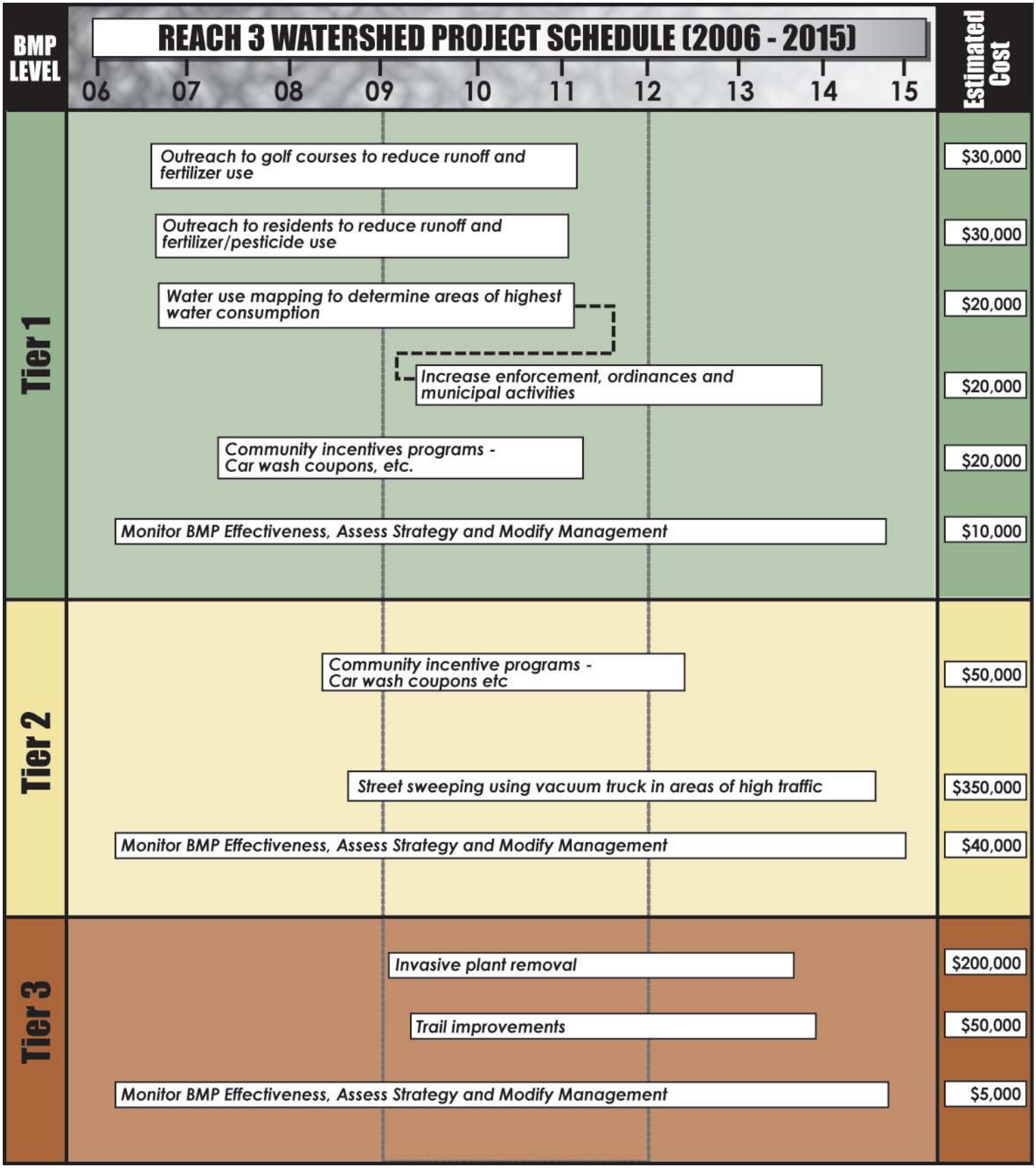
Refer to Section 6

Buck Gully - Reach 2: Tiered BMPs & Schedule



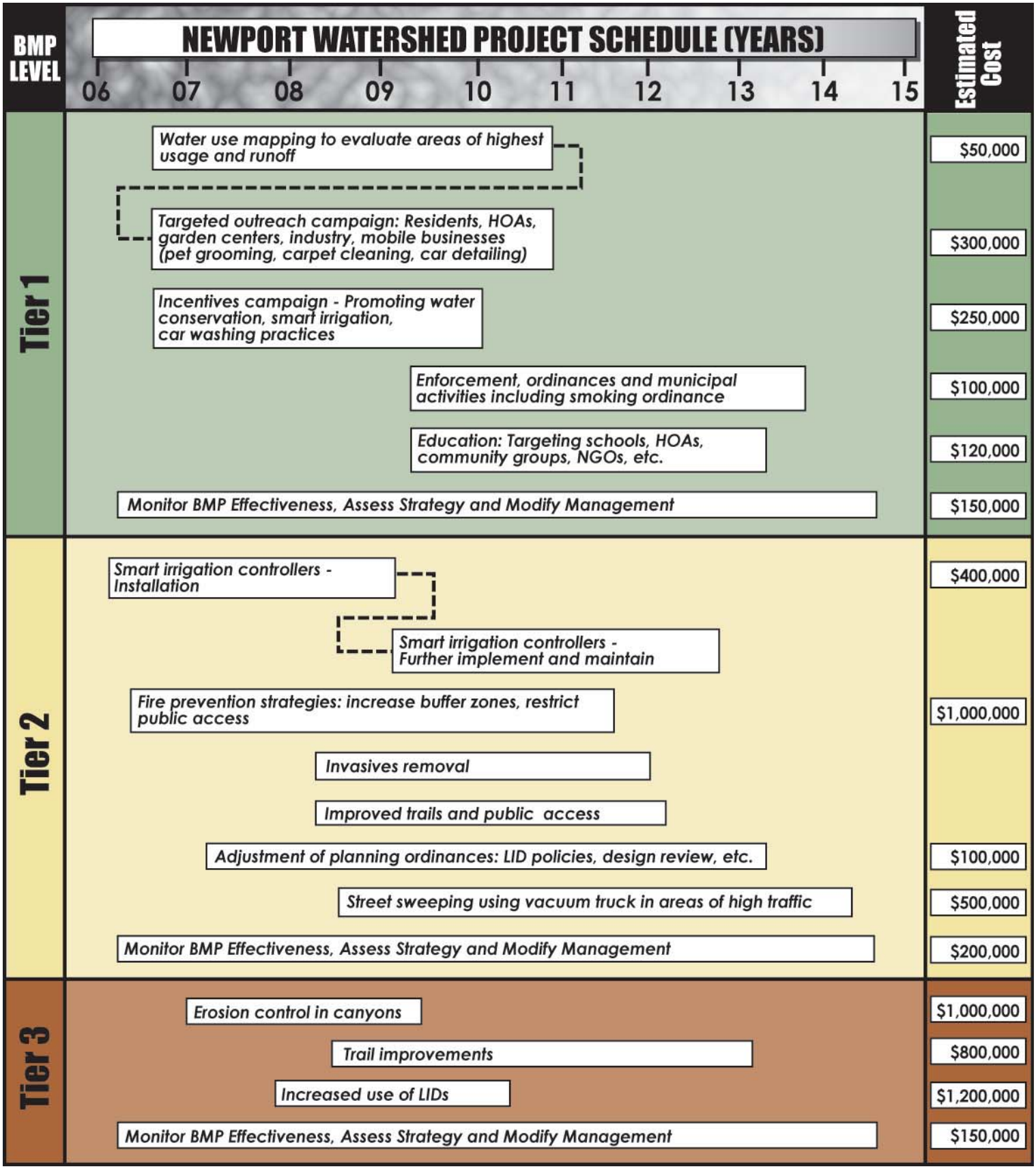
Refer to Section 6

Buck Gully - Reach 3: Project Priorities & Schedules



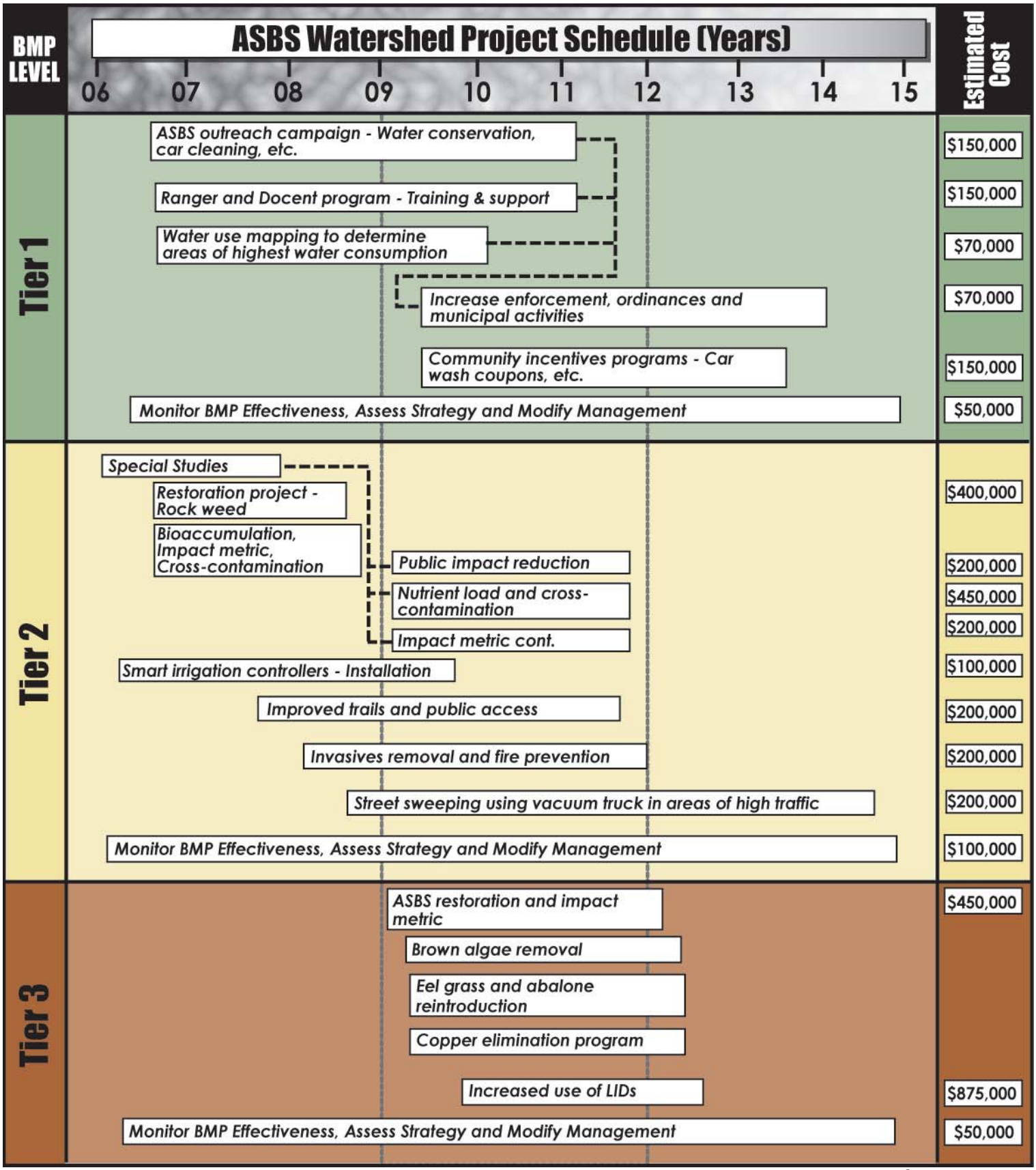
Refer to Section 6

Other Subwatersheds Tiered BMPs & Schedule



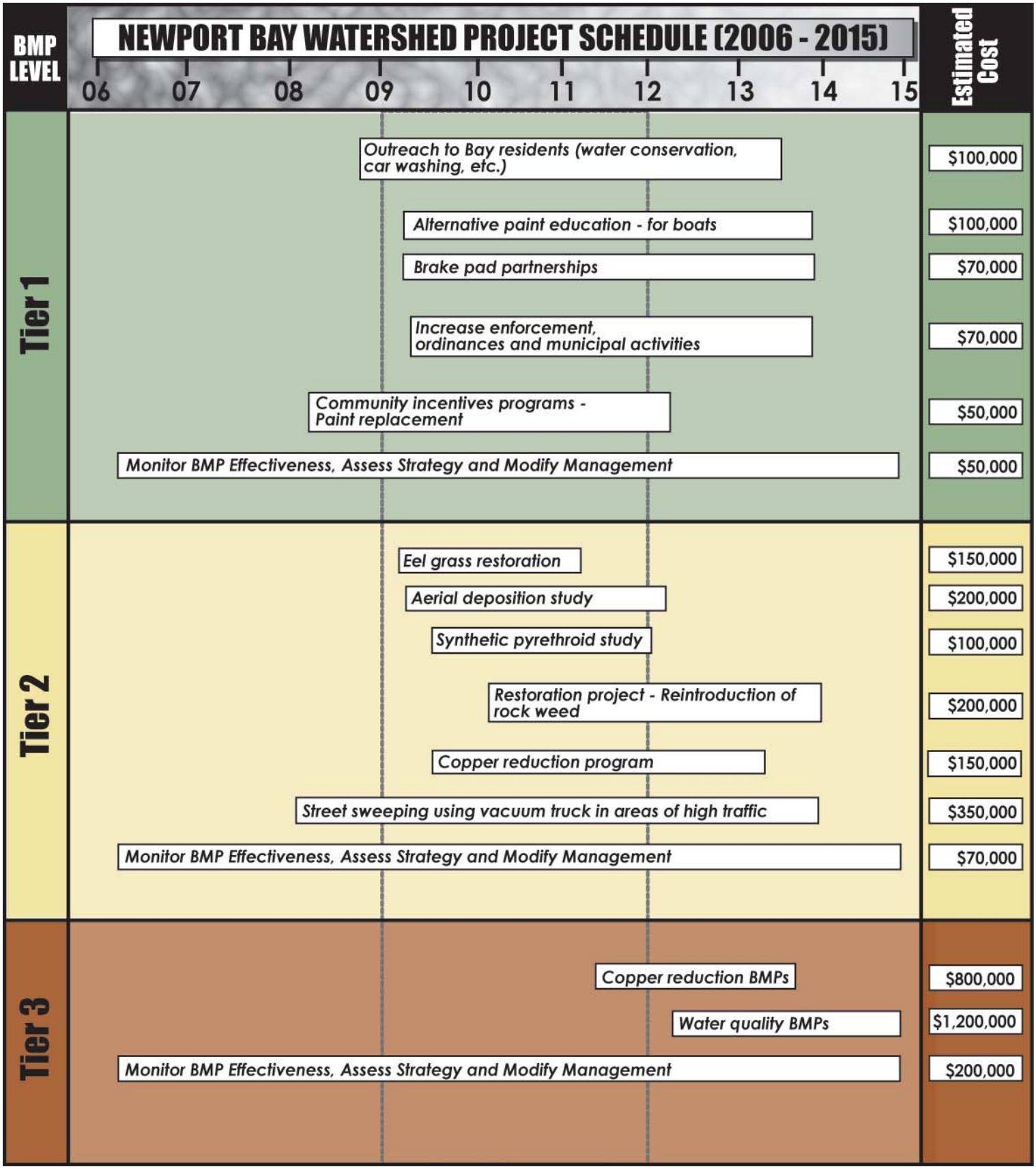
Refer to Section 6

ASBS Tiered BMPs & Schedule



Refer to Section 6

Newport Bay BMP Priorities and Schedules



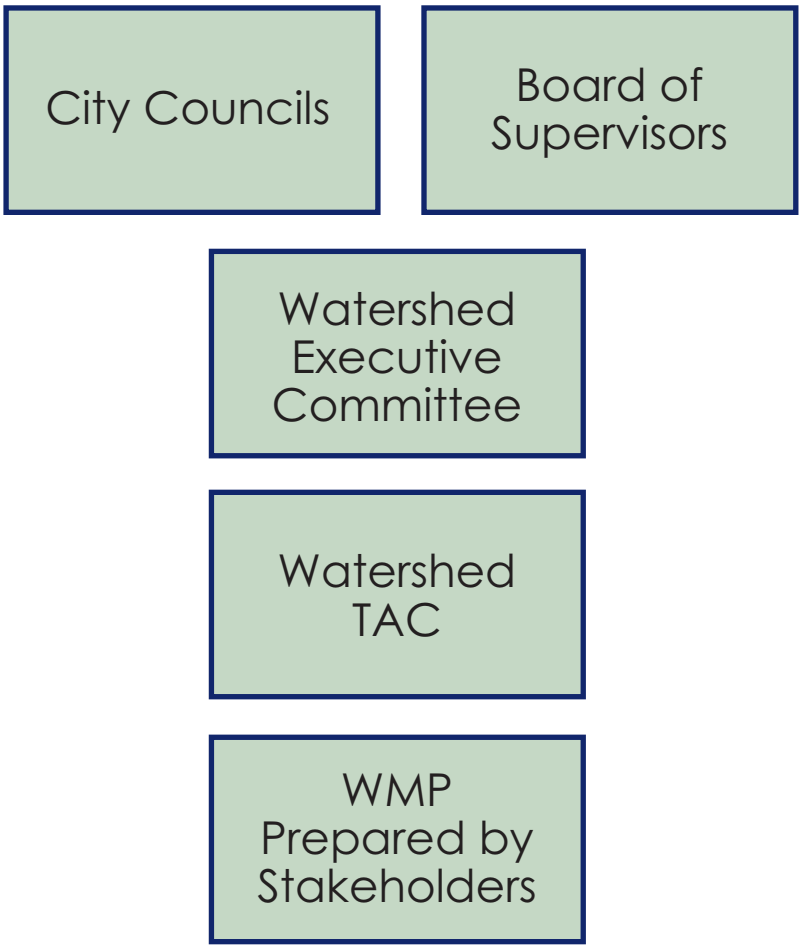
Refer to Section 6

Watershed-Wide Priorities

The previous pages have shown how projects that have been defined to address particular concerns for each of canyon subwatershed are integrated into a watershed program for Newport Coast. Pages 15-20 show the schedule (and priorities) for project implementation.

As the ASBS areas along Newport Coast are the receiving waters for the Newport Bay Watershed, proposed studies and projects for the Newport Coast Watershed should be integrated into the larger basin plan. A technical advisory committee (TAC) appointed by the Newport Bay Watershed Basin Executive Committee (Executive Committee) will assess how the proposed studies and projects for the Newport Coast Watershed should be properly sequenced with the studies and projects proposed within the Newport Bay Watershed. As an example, programs to remediate certain toxic materials in the Newport Bay Watershed should be followed by appropriate monitoring programs in the ASBS to measure changes in the toxic contaminant concentrations.

Recommendations by the TAC are forwarded to the Executive Committee for review. Final approval of the basin-wide plan is required by the governing body of each agency in the watershed.



Roles and Responsibilities

Lead:

- City of Newport Beach
- County of Orange Watershed and Coastal Resources Division
- Irvine Ranch Water District
- Newport Harbor Management Group

Advisor:

- California Coastal Commission
- Santa Ana Regional Water Quality Control Board
- Army Corps of Engineers
- California Department of Fish and Game
- California State Parks Department
- City of Newport Beach
- Technical Consulting Firms

Reviewer:

- California Coastal Commission
- Santa Ana Regional Water Quality Control Board
- Army Corps of Engineers
- California Department of Fish and Game
- California State Parks Department
- City of Newport Beach
- Community Support Groups
- Orange County Surfrider Association
- Orange County Coastkeeper
- Friends of Newport Coast
- MiOcean
- County of Orange Watershed and Coastal Resources Division
- The Irvine Company
- Irvine Ranch Water District
- Newport Harbor Management Group
- Technical Consulting Firms

Participant:

- City of Newport Beach
- Community Support Groups
- Orange County Surfrider Association
- Orange County Coastkeeper
- Friends of Newport Coast
- MiOcean
- County of Orange Watershed and Coastal Resources Division
- The Irvine Company
- Irvine Ranch Water District
- Newport Beach Chamber of Commerce
- Newport Harbor Management Group

Refer to Section 9

Resource Acquisition

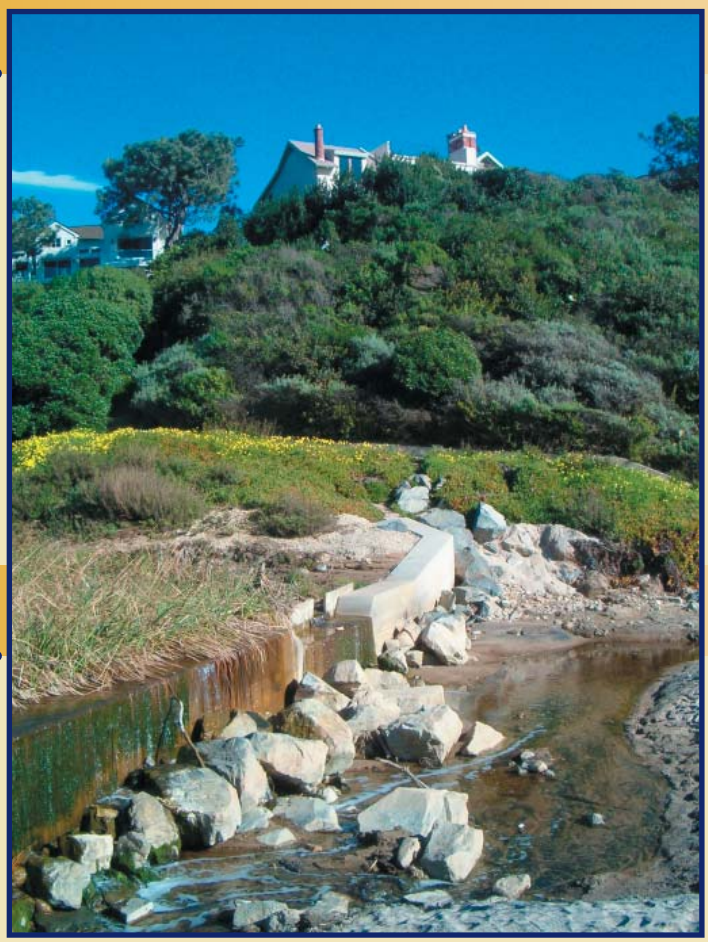
Existing Resources:

There are a number of existing resources for implementation of the WMP. These include:

- City of Newport Beach staff
- Newport Beach General Funds
- Assistance from NGOs/volunteer groups
- ASBS Technical Advisory Committee

Potential Funding Sources:

- An imposed fee for excess runoff
- Illicit discharge or illegal connection fines



Grants:

A variety of State or Federal Grants could be applied for to implement WMP projects. These might include:

- **Prop 84** - BMP implementation grants
- **Prop 50** - IRWMP grants
- **Prop 40** - Clean Beaches Initiatives grants
- **Prop 13** - Coastal Non-Point Source Program, Watershed Protection Program, etc.
- **Prop 12** - Riparian Habitat Program

Other Funding:

Other potential funding sources might include:

- Donations from private citizens or businesses
- Academic research funding for special studies

Refer to Section 13

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