JESUSITA FIRE
Emergency Watershed Response Plan

Santa Barbara County Operational Area
Operations Section

Santa Barbara County Public Works Department
Santa Barbara County Flood Control District

June 2009

The Jesusita Fire started on May 5, 2009 along the Jesusita Trail above Santa Barbara. The fire ended up burning approximately 8,700 acres above Eastern Goleta and Western Santa Barbara. The fire area map is shown below in Figure 1.

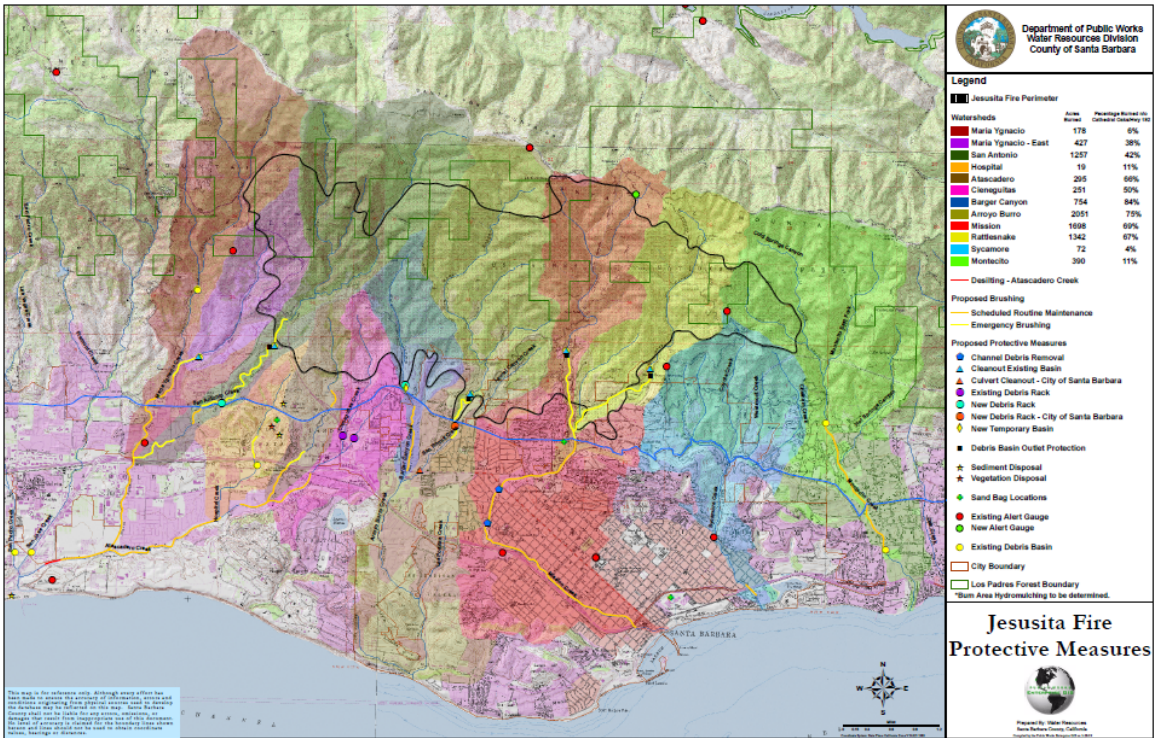


Figure 1 – Jesusita Fire Location

The fire burned portions of the following watersheds; Maria Ygnacio, San Antonio, Atascadero / Cieneguitas, Barger Canyon, San Roque, Mission, and Rattlesnake. A small portion of Maria Ygnacio (Main Branch), Hospital, Sycamore, and Cold Springs Creek Watershed also burned, but the percentages are not significant and thus no remediation actions are proposed. A summary of acres burned and proportion of the watershed burned is given in Table 1. Unless otherwise noted, the percent of watershed burned was calculated based on the watershed area above Cathedral Oaks Road /Foothill Road.

Table 1 – Watershed Fire Statistics

Watershed	Acres Burned	Percent of Watershed
Maria Ygnacio (East Branch)	427	38%
San Antonio	1,257	42%
Atascadero	251	50%
Cieneguitas	295	66%
Barger Canyon	754	84%
San Roque	2,051	75%
Mission	1,698	69%
Rattlesnake	1,342	67%

The Santa Ynez Mountains rise steeply from the Coastal Plain to mountain crest elevations of 3,000 to 4,000 ft. Because of the steep terrain, generation and transport of debris and sediment from the mountains to the channels that run through Goleta and Santa Barbara is a major concern. A dramatic increase in winter runoff is expected from the burn area, which is anticipated to exacerbate erosion and lead to increased delivery of woody debris and sediment downstream. In the watersheds of the Jesusita Fire, rocky debris is also a concern.

In past years, woody debris and rock has contributed to flooding in areas downstream of burned watersheds by plugging culverts and channels and causing water to break out of the channel.

Downstream within the tidal influence, the coastal streams in the area converge at the Goleta Slough. The Slough experiences naturally high sedimentation rates, which over time have caused the size of the Slough to shrink from its historic extent. The sediment basin located on Atascadero Creek is regularly excavated in order to maintain the Slough for habitat and conveyance of water to the ocean. Sedimentation rates are expected to be especially high in the years following the Jesusita Fire. The Santa Barbara Airport is located within the limits of the historic Goleta Slough and is susceptible to flooding that may result from sedimentation in the surrounding creeks. Previously, the Gap Fire impacted most of the Slough Watersheds, the Jesusita Fire burned yet additional areas of the Slough Watershed.

Following each major fire on U.S.D.A. Forest Service (USFS) lands, the USFS prepares a Burn Area Emergency Response Report (BAER Report) to address the impacts of the fire on the burned watersheds, predict the effects of the fire on runoff and erosion, identify values at risk from adverse impacts related to the fire, and make recommendations for mitigation measures that can be carried out on affected federal lands.

On non-federal lands, the USFS is precluded from taking any action. The Santa Barbara County Public Works Department has identified a number of initiatives that may be undertaken in these areas to lessen the adverse impacts of the Jesusita Fire. Those initiatives are summarized in this Jesusita Fire Emergency Watershed Response Plan. It is important to note that the severity and extent of the fire and its proximity to urban areas creates a risk to downstream communities that cannot be fully mitigated. This plan proposes to mitigate the risk to the fullest extent possible by the following actions:

- Prepare existing downstream creek channels to convey the maximum flow rate possible;
- Excavate the existing sediment basin at Atascadero Creek (Goleta Slough) in order to begin the season at maximum basin capacity;
- Install debris racks where feasible to intercept woody debris;
- Clean the existing Debris Basins in the affected Watersheds;
- Provide emergency protective measures at selected key locations as identified;
- Operate sand bag stations to provide sand and bags to residents who live within and downstream of the burn area;

- Operate an aggressive winter operations program to maintain capacity in creek channels, debris basins, and the Atascadero Creek sediment basin;
- Prepare locations for disposal of flood debris and sediment;
- Coordinate assistance to private land owners with flood protection measures and erosion control through the Natural Resources Conservation Service; and
- Coordinate efforts and share information among responding and responsible agencies.

This plan is one element of the Operations Section Plan being directed by the Operational Area and is subject to amendment as new information becomes available and/or new projects are identified.

Mitigation Measures

I. Pre-Winter Preparations

A. Channel and Basin Preparations

Prior to the onset of winter, the Flood Control District will work in cooperation with the City of Santa Barbara to maximize the capacities of the creek systems. This work includes:

- Stream clearing of approximately 21 miles of creek channels downstream of the burn area. This work will consist of removing obstructive vegetation in the bottom of creek channels, removing any down or dead vegetation and removing any existing debris jams.
- Two locations of removal of rock deposition on Mission Creek are proposed. Rock deposition in Oak Park and the reach from State Street to De La Vina Street will be cleared. These locations have seen flood waters leave the channel in past years.
- Removal of deposition in the State Street box culvert on San Roque Creek. The box culvert is owned and operated by the City of Santa Barbara, the City will be conducting this work.
- Excavation of existing sediment basin at Atascadero Creek (Goleta Slough).
- Excavation / Preparation of the existing Debris Basins including;
    - Maria Ygnacio Creek (east branch basin only)
    - San Antonio Basin
    - San Roque Basin
    - Mission Creek Basin
    - Rattlesnake Basin

The Cold Springs Basin was previously cleaned following the Tea Fire. While the Rattlesnake Basin was also cleared after the Tea Fire, the basin will be further

excavated to provide absolute maximum capacity given the severity of the burn in the Rattlesnake Watershed.

Stream clearing will provide maximum capacity in the stream systems while preserving the natural vegetation on the slope to help prevent erosion. With extremely high levels of sediment expected, initial excavation of the sediment basin at Atascadero Creek will allow the year to start with the maximum capacity available.

The reaches of stream clearing proposed are shown in Appendix A. Locations of Debris Basins and Sediment Basins to be cleared are shown in Appendix B.

B. Installation of Vegetation Control Structures – "Grizzly Racks"

Prior to winter, four large woody debris racks, also called "Grizzlies," are planned like those installed following the Gap Fire.

Currently the following sites for debris racks have been identified:

- San Antonio Creek in Tuckers Grove County Park
- Atascadero Creek near SR 154
- San Roque Creek in Stevens Park in the City of Santa Barbara. The City is responsible for implementing this project.
- Barger Canyon Creek upstream of SR 192.

Other Debris Racks exist and will be evaluated, and if additional sites are identified, they will be pursued. Locations of proposed and existing racks are shown in Appendix C.

An example of an existing rack currently exists on Tecolote Creek below Rancho Embarcadero; a photo of this facility is shown below in Figure 2.

Figure 2 – Existing Debris Rack on Tecolote Creek during the 1998 Floods

C. Debris Basin Outlet Modifications

All of the affected debris basins except the Maria Ygnacio Basin will be fitted with a modified outlet "Cube". The Maria Ygnacio Basin already has this modification. These devices have been effective in reducing the basin outlets from plugging closed and thus helping pass fine grain material through the basin preserving the basin for larger debris.

While debris basins exist on the major creek systems, Barger Canyon lacks any improvements and the watershed was seriously burned. An area above Foothill is currently vacant and the landowner will be contacted regarding temporary use of the property as a temporary basin. A debris rack may also be cited in this area, subject to land rights being obtained.

D. Hydromulching of Non-Federal Lands

One fire mitigation measure proposed by the USFS is hydromulching of federal lands within the burn area where slopes have a gradient of between 25% and 60%. This work was done after the Gap Fire in 2008. Hydrolmulching is a treatment of organic mulch with the addition of a tackifier to help bind the mulch in place. The hydromulch would be applied by air.

Because the USFS is precluded from carrying out treatments off of federal lands, the responsibility for any such treatments falls to the Natural Resources Conservation Service (NRCS) in cooperation with a local sponsor. Approximately 75% - 80% of the burn area is located on non-federal lands. Treatment of the non-federal lands offers benefits to downstream areas by slowing runoff and sedimentation yield. County Public Works will take the lead as the local sponsor and has requested the costs assistance with the NRCS if a feasible project can be developed considering slope restrictions, setback from structures and improvements, and rock outcropping. Land Owner permission is also required as all of the potential area is private property. A final determination of this project is due in the coming weeks. Figure 4 is a photo of the application of aerial hydromulch following the Gap Fire in 2008.

Figure 4 – Aerial Hydromulching (Gap Fire 2008)

E. Inspection of Bridges

The City of Santa Barbara will complete an inspection of downstream bridges by July 1, 2009. In addition, the City will be removing accumulated sediments in the State Street culvert on San Roque Creek.

The County Transportation Division is also inspecting downstream bridges in the unincorporated area of the County.

II. Winter Monitoring, Operations, and Maintenance

Following a fire, burned watersheds yield a dramatic increase in runoff, sediment, and debris. Throughout the winter, Public Works staff will monitor conditions and take action to remove obstructive material in order to keep the creek systems clear and open.

A. Airport Sediment Basins

On-going dredging of the airport sediment basins will be a necessary and essential element of this winter's response efforts. Without active dredging, the channels will clog with sediment, resulting in reduced capacities. It is possible that the basins could be overwhelmed in a single rain event, in which case immediate emergency desilting will be required.

Excavation of the basins is accomplished by large heavy cranes and possibly assisted by larger long-reach excavators. Sediment is temporarily stockpiled and then removed to make room for more material as the operation continues.

Figure 5 below shows desilting of the Carneros Sediment Basin in 1995.

Figure 5 – Carneros Creek Sediment Basin, 1995

B. Maintenance of Grizzly Debris Racks

Throughout the winter, especially after individual storms, the debris racks will be inspected and cleaned of debris as necessary. The racks are cleaned using a small hydro-crane or cable winch truck. Captured vegetation will be temporarily stockpiled until it can be moved to a disposal site. Any rack constructed by the City would be maintained by the City.

These facilities may act as temporary measures and may be removed after five to ten years if permit conditions require. Similar temporary actions were undertaken after the Marre Fire in 1994, and more recently following the Gap Fire in 2008.

C. Removal of In-Stream Sediments and Debris Jams

In the event that stream channels below the fire area become choked with sediment or debris jams, the obstructions will be cleared as soon as possible using equipment or by hand clearing as appropriate and safe.

The City of Santa Barbara is responsible for maintenance and clearing of public bridges and culverts within the City, and for maintenance of their individual drainage system.

D. Emergency Contractor Assistance

The County has contracts with a variety of contractors, including crane and trucking vendors, and will have equipment identified and possibly pre-staged to assist in response efforts.

These contractors will be an integral element of the winter emergency response.

III. Debris Disposal Sites

It is probable that an enormous amount of debris and sediments will be excavated from channels, basins and other facilities in the first years following the Jesusita fire. Two types of debris are expected: woody vegetation and sediment. When these materials are excavated, disposal often becomes the largest obstacle to continued operations. To address the need for rapid debris disposal, two key locations for debris disposal have been identified.

A. Goleta Beach – Sediment Disposal

The sheer volume of sediment that is expected to be excavated requires the use of Goleta Beach for disposal. Tens of thousands of cubic yards are expected to be removed from sediment basins, and adequate space does not exist on site to store the material. Goleta Beach is the only feasible alternative. Goleta Beach has been used for sediment disposal in many previous flood emergencies (1995, 1998, 2001, and 2005) and is the recipient of sediment excavated during routine maintenance projects.

The disposal of material at Goleta Beach benefits the beach by nourishing the beach and helping to protect it from erosion. Sediment is placed in the surf zone, allowing waves to redistribute the sand. Sediment that comes to Goleta Beach via excavation projects has a higher sand content than that delivered by the creek systems themselves because coarser sand typically settles out of the water column upstream of the beach.

B. Tajiguas Landfill / South Coast Recycling & Transfer Station – Woody Debris

Cleaning of debris racks and channels may generate a large volume of vegetation that cannot be stockpiled on site. Removed materials will ultimately be delivered to either Tajiguas Landfill and/or the South Coast Recycling & Transfer Station for mulching. Other sites may be identified and used as appropriate.

C. Foothill Landfill – Sediment / Rocks

Over the past several years, material has been brought to the Foothill Landfill for disposal. This process has allowed the re-contouring of the closed landfill that provides for placement of material, provides additional cover on the landfill, and

provides suitable areas for other activities. Material from 2005 Storm projects, and 2008 Gap Fire preparations were delivered to Foothill.

D. Cathedral Oaks County Property – Sediment / Rocks

Across Cathedral Oaks Road from the Foothill Landfill is another site that has been used for emergency debris.

Locations of debris disposal sites are shown in Appendix D.

IV. Emergency Sand Bag Stations

The County has partnered with the Cities in the past to establish an emergency sand bag distribution stations in close proximity to the downstream affected areas. The City already has their Corporate Yard located on Yanonali Street active for sand bags following the Tea Fire. The County will have sand and bags available at the County Corporate Yard at 4430 Calle Real. Additional locations may be activated based on need and public desires.

V. Assistance to Individual Land Owners for Erosion Control on Site Specific Private Property

The County will be working with the Cachuma Resources Conservation District (CRCD) and the NRCS to provide erosion control to provide advice to property owners. Additionally, the County recently completed an update to the "Homeowners' Guide to Flood Prevention and Response". This document is available online on the County's website, and the Public Works Department's website.

VI. Agency Coordination / Responsibilities

Following past fires, the County has coordinated with a variety of agencies regarding preparation and response. As with the Zaca Fire in 2007, the Gap Fire in 2008, and again with the Tea Fire in late 2008, a series of inter-agency coordination meetings were hosted by the County. Affected Homeowners Associations will be invited as well.

These meetings will start out monthly will take place beginning in June and will carry into the fall. Respective roles and responsibilities will be outlined to provide continued coordination into and throughout the winter.

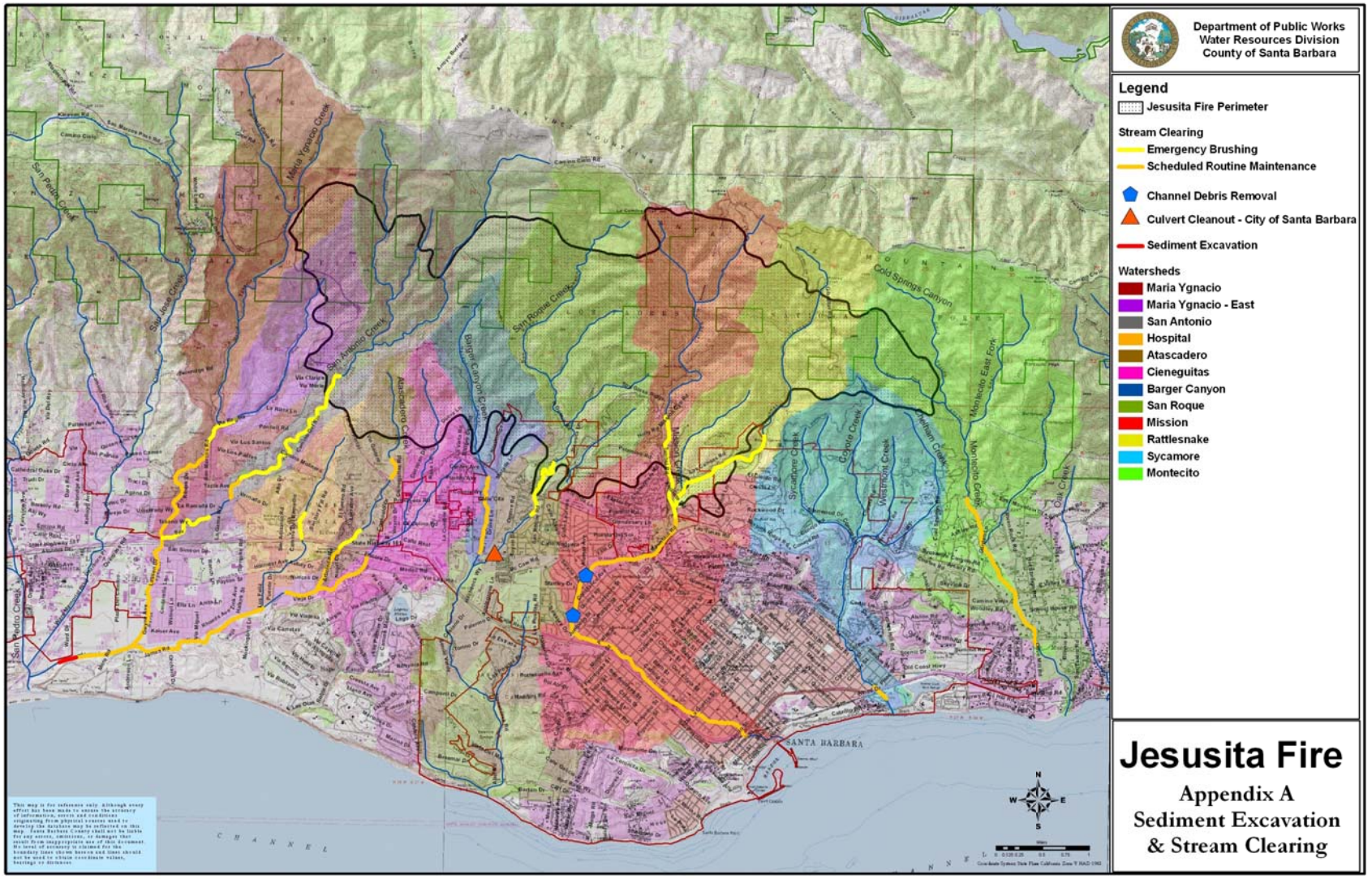
The following is a list of agencies that have or will be contacted.

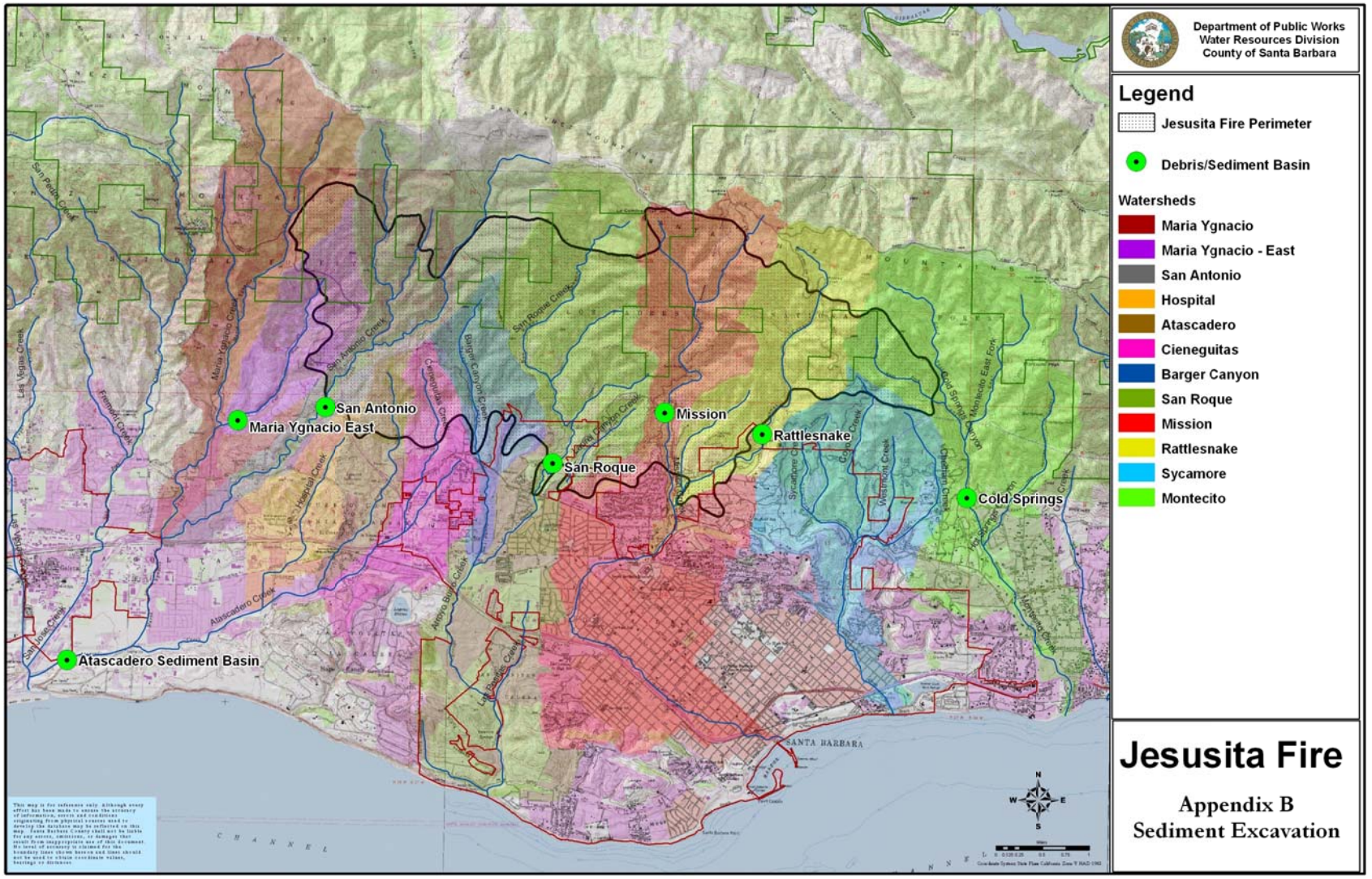
AGENCY	RESPONSIBILITIES
City of Santa Barbara	City Streets, bridges/culverts, public information, operations, and coordination. A majority of the affected residents live in the City
Caltrans	SR 192 (Foothill) including bridges and culverts, also SR 154 and HWY 101
US Army Corps of Engineers (Corps)	Coordination of permit process, emergency direct federal assistance
US Forest Service	Prepared post-fire report (BAER Report), post-fire treatment of federal lands
Natural Resources Conservation Service (NRCS)	Provides emergency funding under EWP Program
California Dept of Fish & Game	Emergency permitting
County OES	Emergency response coordination, Operational Area
State Emergency Management Agency (CalEMA)	Emergency response, State assistance
County Parks	Emergency sediment disposal coordination (Goleta Beach) Coordination of debris rack in Tuckers Grove

VII. Funding

Funding for the actions outlined in this plan will be from a variety of sources. The County has requested federal assistance from the NRCS. The NRCS has provided funding through its Emergency Watershed Protection (EWP) Program after past fires such as the Painted Cave Fire, Marre Fire, and most recently the Gap Fire in 2008.

NRCS can provide 75% of approved project costs, subject to funding, and if approved by the State, CalEMA can provide a portion of the 25% local match. County matching funds for the watershed response projects will come from the Flood Control District, and additional funds for other projects and winter operations may also be provided by the City of Santa Barbara.


Department of Public Works
Water Resources Division
County of Santa Barbara
Legend
Jesusita Fire Perimeter
Stream Clearing
Emergency Brushing
Scheduled Routine Maintenance
Channel Debris Removal
Culvert Cleanout - City of Santa Barbara
Sediment Excavation
Watersheds
Maria Ygnacio
Maria Ygnacio - East
San Antonio
Hospital
Atascadero
Cieneguitas
Barger Canyon
San Roque
Mission
Rattlesnake
Sycamore
Montecito
Jesusita Fire
Appendix A
Sediment Excavation
& Stream Clearing
SANTA BARBARA
CHANNEL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Debris/Sediment Basin
Watersheds
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Maria Ygnacio - East
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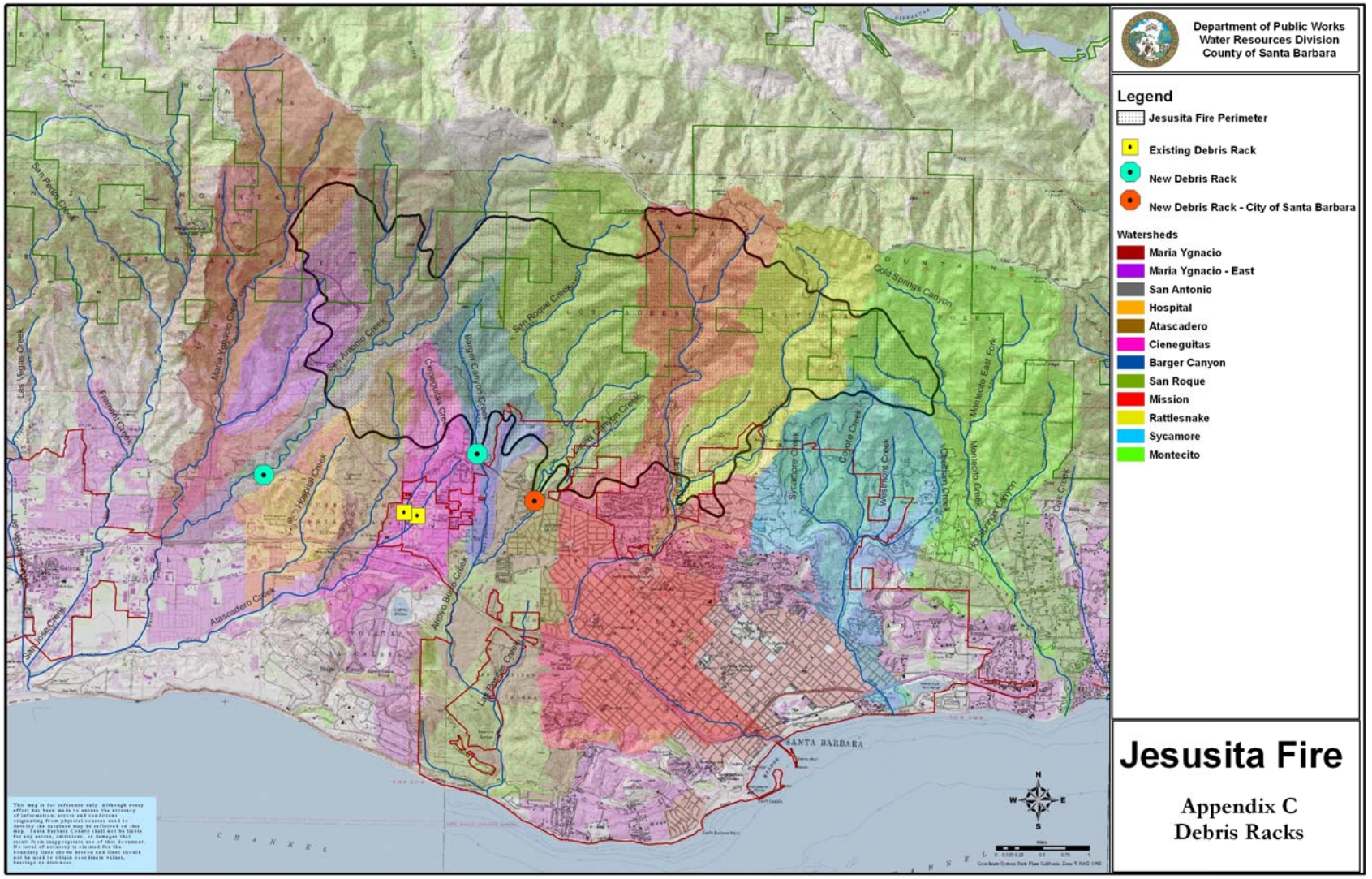
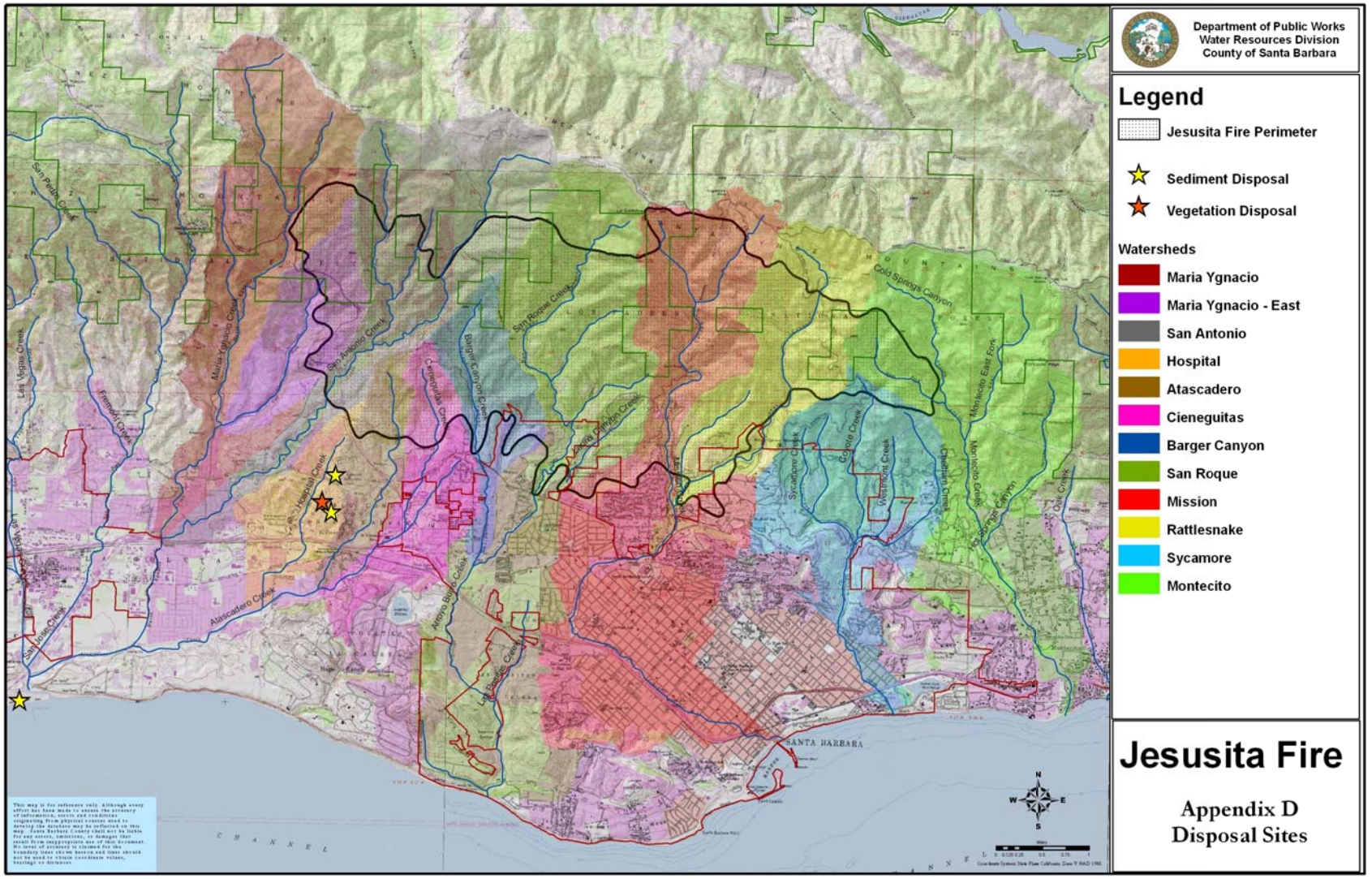
Atascadero
Cieneguitas
Barger Canyon
San Roque
Mission
Rattlesnake
Sycamore
Montecito
San Antonio
Maria Ygnacio East
Mission
Rattlesnake
San Roque
Cold Springs
Atascadero Sediment Basin
SANTA BARBARA
CHANNEL
Jesusita Fire
Appendix B
Sediment Excavation


Department of Public Works
Water Resources Division
County of Santa Barbara
Legend
Jesusita Fire Perimeter
Existing Debris Rack
New Debris Rack
New Debris Rack - City of Santa Barbara
Watersheds
Maria Ygnacio
Maria Ygnacio - East
San Antonio
Hospital
Atascadero
Cieneguitas
Barger Canyon
San Roque
Mission
Rattlesnake
Sycamore
Montecito
Jesusita Fire
Appendix C
Debris Racks
SANTA BARBARA
CHANNEL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Rattlesnake
Sycamore
Montecito
Jesusita Fire
Appendix D
Disposal Sites
SANTA BARBARA
CHANNEL