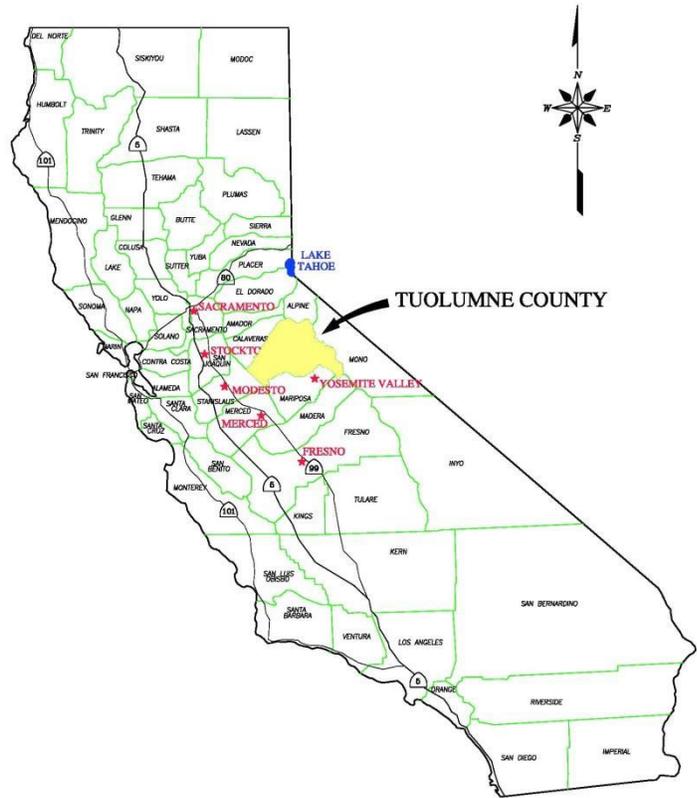




Tuolumne Utilities District

Hazard Tree Management Plan

2015-2016



CALIFORNIA COUNTIES

Updated
1/4/2016

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1. Project Locations
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INTRODUCTION

The Tuolumne Utilities District (TUD) is the largest public water system in Tuolumne County and operates a 70+ mile system of open ditch and flume that conveys water to 14 separate water treatment plants located throughout the County. The water treatment plants are located in areas serving Twain Harte, Tuolumne City, Sonora, the Historic town of Columbia amongst other areas located within the TUD operational boundaries. Many TUD water treatment plants and ditches are situated in heavily wooded areas that have been impacted by the infestation of the bark beetle brought on by same drought conditions impacting tens of millions of trees across the entirety of California. California's Governor declared an emergency on October 30, 2015, in order to seek federal assistance in addressing the safe removal of dead and dying trees particularly for trees subject to toppling and that present a clear and present danger to life, safety and vital utilities.

Dead or dying trees pose a significant threat to TUD water infrastructure by falling onto or around TUD facilities including water tanks, buildings and TUD's open ditch system. Falling trees will significantly damage water tanks, water treatment plant buildings and completely block open ditches causing severe erosional damage or uprooting of ditch berms causing failure and subsequent erosional damage. These facilities supply water to tens of thousands of people in Tuolumne County. This Hazard Tree Management Plan outlines TUD efforts for managing the removal of dead and dying trees that are currently threatening TUD infrastructure.

TUD has been an active participant in the Tuolumne County Hazard Tree Task Force (HTTF) with planning meetings that include Tuolumne County OES, CalOES, Cal Fire and other utilities including PG&E, Twain Harte Community Services District, Groveland CSD and ATT.

TUD has actively engaged in removing high priority hazard trees around selected high value assets or that constitute a hazard to the health and safety of employees and the public. However, due to the enormous volume of dead or dying trees that threaten TUD facilities, employees and the general public, and the shear cost of removal, TUD is unable to effectively address the magnitude of trees that require removal.

TUD field crews have identified and located more than 500 trees that are dead and will fall and likely cause significant damage to TUD facilities in the next few years. Even if drought conditions improve, experts predict that mortality will continue for several years, so the full extent of the number of trees that will be affected is not known.

This Hazard Tree Management Plan address the specific elements required in order that TUD will meet the requirements for financial relief in its efforts to mitigate a local disaster as declared by the TUD Board of Directors, which disaster declaration is consistent with the disaster declared by California's Governor.

TUD SYSTEM DESCRIPTION

The TUD Treated Water Service Area (TWSA) is primarily characterized by residential land use, with some commercial and industrial land use. The TWSA currently serves a population of approximately 28,000 persons directly and supports Tuolumne County's population of more than 50,000 persons. TUD maintains over 14,000 active treated water service accounts, 14 surface water treatment plants, over 30 groundwater wells and approximately 315 miles of distribution pipeline. TUD operates water treatment plants in the communities of Twain Harte, Columbia, Big Hill, Crystal Falls, Ponderosa, etc., located in heavily wooded areas with dead trees. TUD operates open ditches located throughout its service territory at forested elevations ranging from 1,800 to 4,200 feet.

See attached map.

PROJECT DESCRIPTION

The projects outlined in this plan consist of managing dead trees in order to protect TUD infrastructure by removing or safely felling and leaving the downed tree in an acceptable format. TUD has divided the hazard tree management plan into six separate projects organized by priority and delineated by logical element of the TUD ditch system.

- TUD Water Treatments Plants
- Soulsbyville Ditch Project
- Eureka Ditch Project
- Columbia Ditch Project
- Section IV Project
- Phoenix Ditch Project

WORKED ALREADY PERFORMED

TUD personnel have removed an estimated 60 small trees (of size that TUD crews are qualified and experienced to remove) and associated debris from several locations at water treatment plants and ditch locations.

HAZARD TREE REMOVAL BEYOND THE FINANCIAL CAPABILITIES OF TUD

TUD is a public entity located in the small, rural, economically challenged county of Tuolumne. TUD's operating budget is supported by ratepayer funding and periodic project specific grants from state and federal sources. Between 2008 and 2013 Tuolumne County's population declined at an average rate of 0.6% per year further magnifying the cost of providing services.

Much of this decline was the result of out-migration, as the County lost an average of 220 persons per year. The median household income (MHI) in Tuolumne County is approximately \$48,426 per year. Several areas of the county meet the State Water Board's criteria as economically disadvantaged.

The District has struggled financially for many years. Though technically supported by ratepayer revenues, there is a limit to what the District can impose as a rate given the economics of the county and the requirements of the California Constitution Article XXIII (Proposition 218). The District's rates are presently established at the maximum level supportable by the economics of the County. What's more, the rate structure is established to precisely meet the cost of rendering basic water services and to fund a Capital Improvement Program (CIP) that upgrades critical infrastructure. The District has more than \$70 million in unmet critical infrastructure upgrades, but the current rate structure is only able to finance approximately \$19 million in projects over five (5) years. The 5-year CIP will only be able to meet the most critical infrastructure needs of the District. Failure to fund these specific projects will imperil the health and safety of District water customers by jeopardizing the District's ability to provide safe, clean drinking water.

The tree mortality disaster also jeopardizes the very surface water supply that Tuolumne County residents and businesses rely upon. As noted earlier, the District receives its water by way of flume and ditch which are largely surrounded by a dense forest. The risk of fire jeopardizes the TUD water supply by creating a scenario in which the threat of fire is amplified by bone dry, dead trees. The tree mortality was brought about by a catastrophic, years long drought as more particularly described in the Governor's declaration of emergency.

The cost of tree removal is beyond the capacity of the District's ratepayers to fund, is not identified within the limited budget of the District and constitutes an unanticipated, declared emergency for which State emergency funds should issue in support of a public entity trying to mitigate a disaster affecting its constituents.

DETERMINATION OF TREE MORTALITY

TUD will adhere to the then current CalOES requirements in determining drought related tree mortality. Based on guidance received thus far, TUD will solicit proposals from qualified arborist contractors (arborists certified by the International Society of Arborist) to examine each hazard tree identified and located by TUD to assess health and cause of death. The certified arborist is to identify and mark each tree having died as a result of drought related conditions and prepare a report outlining such findings by project area.

LANDOWNER NOTIFICATION MANAGEMENT

TUD has prepared a landowner notification plan to contact each land owner with property adjacent to a TUD facility and will maintain a database of right-of-entry authorizations to access private property and remove threatening timber.

Notifications will be consistent with that of other local agencies and utility companies providing similar hazard tree management in order to facilitate a consist message to the public.

In order to protect the public investment in infrastructure and mitigate cost to TUD ratpayers, Landowners that refuse to allow right of entry access for hazard tree assessment and removal will be advised of their private responsibility for hazard tree (risk) mitigation and will be held responsible for costs of damage to District facilities caused by unabated hazard trees located on their private property.

GENERAL PROJECT DESCRIPTION

PROJECT LOCATIONS

See Map showing the locations of each project.

FELLING OF TREES

- Felling by common cutting and felling requiring little skill and posing lower risk to damaging high value assets
- Felling by highly skilled professionals requiring significant experience, equipment, technique and time for each tree
- Crane assisted felling around high value assets.

PROCESSING OF TREES

There will be a significant volume of timber produced not only by TUD, but also by several other agencies including Tuolumne County, Caltrans, US Forest Service and other utilities. It is anticipated that all will vie for the same limited disposal resources in the local county.

Processing of trees once felled will take one of many forms depending upon each specific area.

- Left on site for property owner use and removal;
- Bucked and hauled to a common staging area;
- Limbs chipped on site; and
- Limbs chipped and hauled to staging area

REMOVAL, HAULING AND STAGING OF TREES AND SLASH OR CHIPS

Trees will be felled in all cases and either left on site, partially limbed; limbed and chipped on site with logs bucked into specific lengths and left on-site; limbs chipped on site with logs removed to a staging area; or both logs and chipped limbs entirely removed to a staging area.

Specific county-wide staging areas are currently being evaluated with the HTTF. Preliminary staging areas locations are delineated on the map in Appendix XXX, but final locations will be identified by the HTTF.

TRANSFER OF TREE MATERIAL TO RECEIVING LOCATIONS

The county-wide Hazard Tree Removal Task Force is working to manage agreements with commercial operations that will receive logs and slash. The HTTF is working to develop a tree material removal plan that is available to all entities mitigating hazard trees.

American Wood Fibers

Ultra Power

Sierra Pacific Industries

COORDINATION WITH LOCAL AGENCIES AND SHARED RESOURCES

TUD is an active member of the HTTF and has maintained contact with local agencies and resources to coordinate and facilitate disposal and management of limited resources in county.

A certified arborist(s), or other CalOES recognized professional(s) will make a determination of tree health condition and certify that tree death was brought about by the effects of drought.

The District will utilize tree removal contractors that are registered with the California Department of Industrial Relations.

Licensed Timber Operators.

WATER TREATMENT PLANTS

Number of Trees in Project	TBD
Location of Trees	See Map
Diameter of Trees	10"-36"
Height of Trees	30'-200'
Type of Trees	Est. %
<i>Ponderosa</i>	
<i>Cedar</i>	
<i>Oak</i>	

EUREKA DITCH

Number of Trees in Project	TBD
Location of Trees	See Map
Diameter of Trees	10"-36"
Height of Trees	30'-200'
Type of Trees	Est. %
<i>Ponderosa</i>	
<i>Cedar</i>	
<i>Oak</i>	

COLUMBIA DITCH

Number of Trees in Project	TBD
Location of Trees	See Map
Diameter of Trees	10"-36"
Height of Trees	30'-200'
Type of Trees	Est. %
<i>Ponderosa</i>	
<i>Cedar</i>	
<i>Oak</i>	

SOULSBYVILLE DITCH

Number of Trees in Project	TBD
Location of Trees	See Map
Diameter of Trees	10"-36"
Height of Trees	30'-200'

Type of Trees	Est. %
<i>Ponderosa</i>	
<i>Cedar</i>	
<i>Oak</i>	

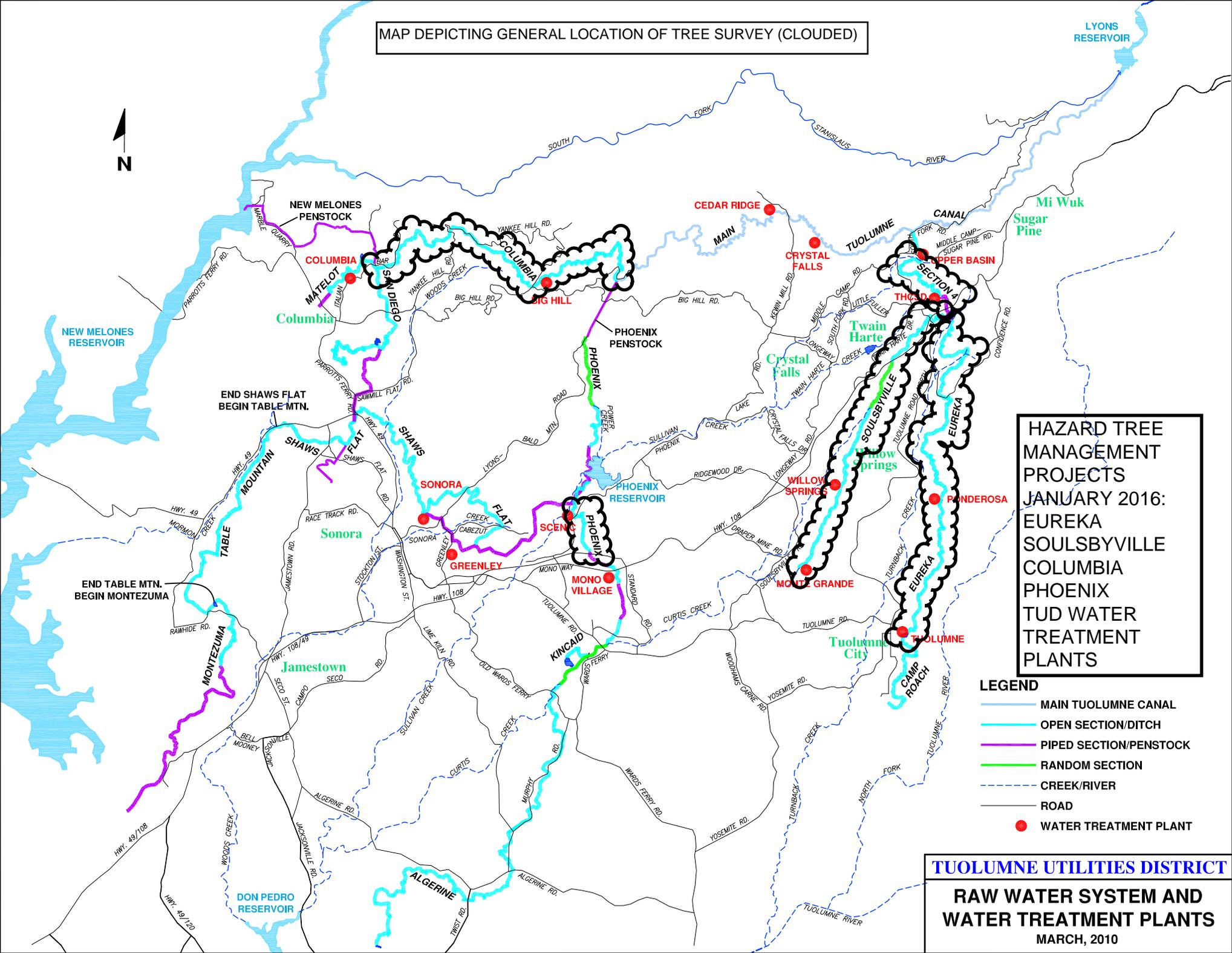
PHOENIX DITCH

Number of Trees in Project	TBD
Location of Trees	See Map
Diameter of Trees	10"-36"
Height of Trees	30'-200'
Type of Trees	Est. %
<i>Ponderosa</i>	
<i>Cedar</i>	
<i>Oak</i>	

SECTION IV DITCH

Number of Trees in Project	TBD
Location of Trees	See Map
Diameter of Trees	10"-36"
Height of Trees	30'-200'
Type of Trees	Est. %
<i>Ponderosa</i>	
<i>Cedar</i>	
<i>Oak</i>	

MAP DEPICTING GENERAL LOCATION OF TREE SURVEY (CLOUDED)



HAZARD TREE
MANAGEMENT
PROJECTS
JANUARY 2016:
EUREKA
SOULSBYVILLE
COLUMBIA
PHOENIX
TUD WATER
TREATMENT
PLANTS

- LEGEND**
- MAIN TUOLUMNE CANAL
 - OPEN SECTION/DITCH
 - PIPED SECTION/PENSTOCK
 - RANDOM SECTION
 - - - CREEK/RIVER
 - ROAD
 - WATER TREATMENT PLANT

TUOLUMNE UTILITIES DISTRICT
RAW WATER SYSTEM AND
WATER TREATMENT PLANTS
MARCH, 2010