

# Drinking Water Systems Geographic Reporting Tool

AKA “Water Boundary Tool”

# Overview of Presentation



- Background
- Project description
- Overview and demo of tool
- Next steps
- Opportunities



# Background

# Drinking Water Tracking

- Develop better coarse resolution indicators (policy, efficacy of rules/regs, funding)
  - Develop fine resolution exposure metrics (env epi research, EJ/disparities)
- Population served by drinking water systems poorly described in geographic terms

# Need for basic information



- 8000+ regulated Public Water Systems in CA
- Many systems lack digital files of their customer service areas
- Boundaries change over time
- There is no statewide digital map of all public water systems

# Need for basic information

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- Lack of information makes it difficult to answer these questions:
  - ▣ Which water system supplies my home?
  - ▣ What water systems are next to my water system?
  - ▣ Which areas and populations in CA are not supplied by water systems?
  - ▣ What populations are served by a particular water system?
  - ▣ What drinking water contaminants are people in a specific location exposed to?
  - ▣ If there is a natural or man-made disaster in a specific location, which water systems should be contacted?



# Project Description

# Goals

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- CEHTP developed tool to
  - ▣ Assist water systems in digitizing customer service boundaries
  - ▣ Produce statewide digital map of drinking water system customer service areas
  
- Aim for all water systems to input and complete a boundary for their customer service area



# Partners

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## □ Collaborative effort

- ▣ CEHTP- developed the tool
- ▣ UC Davis Information Center for the Environment- prepopulated boundaries and assists with user communications
- ▣ CDPH Division of Drinking Water and Environmental Management- provided executive support, technical guidance, facilitates communications, provides user accounts

# Primary Users

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- Personnel from water systems, state primacy field operations districts, local primacy agencies (LPAs), other qualified individuals
  
- Tool allows users to:
  - ▣ Create and edit service area boundaries
  - ▣ Track boundaries as they change over time
  - ▣ Collaborate with other users to improve and assure accuracy of boundaries
  - ▣ View boundaries on Google Maps
  - ▣ Export digital files of the customer service areas

# Public Use

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- Data for the public
  - ▣ Downloadable digital files for entire state or a single water system
  - ▣ Updated on an ongoing basis
  - ▣ Subject to change as water systems improve their boundary information



# Tool Overview & Demonstration

# Polygon Editing

- User edits nodes of boundaries
- Backdrop: Google basemap, satellite imagery, terrain
- 3 ways to create a boundary:
  1. Manually
  2. Table of addresses or coordinates
  3. GIS Files (KML or Shapefile)
- 4 editing modes:
  1. Move point anywhere
  2. Move point to nearest street
  3. Refine section to nearest street path
  4. Refine section to follow property lines

# Editing: Place Point on Street

Undo last edit Restore

Map Satellite Hybrid Terrain

[Open a boundary...](#)  
[Create a new boundary...](#)  
[Geocode customer addresses...](#)

☒ City of Red Bluff ☐

Move a point:  
☐ Anywhere  
☒ To nearest street

Refine section between two points:  
☐ To follow street path  
[Advanced...](#) Save

Note: click a point to delete it

**Closest Street Found Automatically**

Map data ©2011 Google - [Terms of Use](#)

# Editing: Delete Points

Undo last edit

Map Satellite Hybrid Terrain

Open a boundary...  
Create a new boundary...  
Geocode customer addresses...

☒ City of Red Bluff ☐

Move a point:  
☐ Anywhere  
☒ To nearest street

Refine section between two points:  
☐ To follow street path  
[Advanced](#)

Note: click a point to delete it

500 ft  
200 m

Map data ©2011 Google - Terms of Use



# Editing: Refine along Streets

Undo last edit

Map Satellite Hybrid Terrain

Open a boundary...  
Create a new boundary...  
Geocode customer addresses...

☒ City of Red Bluff ☐

Move a point:  
☐ Anywhere  
☐ To nearest street

Refine section between two points:  
☒ To follow street path  
Drag an intermediate (transparent) point to refine the line between two existing (solid) points

[Advanced...](#)

Note: click a point to delete it

Points Placed on Street Automatically

Map data ©2011 Google - Terms of Use

The image shows a Google Maps interface with a boundary editing tool. A blue boundary is being refined along a street (Beegum Rd) using a yellow line. The interface includes a map view, a sidebar with editing options, and a scale bar. A callout box points to the yellow line with the text 'Points Placed on Street Automatically'. The sidebar on the right contains options for opening a boundary, creating a new boundary, geocoding customer addresses, and refining the boundary. The 'City of Red Bluff' checkbox is checked. The 'Move a point' section has 'Anywhere' and 'To nearest street' options. The 'Refine section between two points' section has 'To follow street path' selected. The 'Advanced...' link and 'Save' button are also visible. A note at the bottom of the sidebar says 'Note: click a point to delete it'. The map shows a street network with Beegum Rd, Hess Rd, Via Hermosa, Via Ventura, Via La Mesa Rd, and Via Ventura. A scale bar at the bottom left indicates 500 ft and 200 m. The map data is ©2011 Google.



# Editing: Refine along Property Lines

Undo last edit

Map Satellite Hybrid Terrain

Open a boundary...  
Create a new boundary...  
Geocode customer addresses...

☒ City of Red Bluff ☐

Move a point:  
☐ Anywhere  
☐ To nearest street

Refine section between two points:  
☐ To follow street path  
☒ To follow property lines

Select 2 nodes and click

[Show adjacent water systems](#)  
[Delete this boundary](#)  
[Print](#) ▼ or [Export](#) ▼

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## Drinking Water Systems Geographic Reporting Tool

Welcome to the California Environmental Health Tracking Program (CEHTP) Drinking Water Systems Geographic Reporting Tool, also known as the Water Boundary Tool. This tool is specifically for use by California public water systems, local primacy agencies, and the CDPH Drinking Water Program.

[Begin using tool](#)

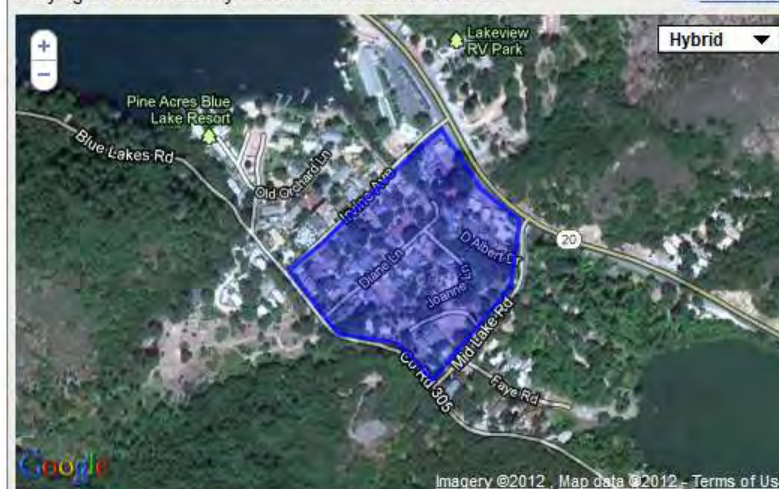
To learn more about the tool, select from the topics below.

- » [About the tool](#)
- » [Purpose of the tool](#)
- » [Partnerships and support](#)
- » [For assistance and information](#)

Read the [welcome letter](#) from the Division of Drinking Water and Environmental Management.

Playing 20 most recently edited service area boundaries

[Maximize](#)



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- » [About the Tool](#)
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- » [How This Works](#)
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### About the tool

The Water Systems Geographic Reporting Tool allows personnel from water systems, state primacy field operations districts, local primacy agencies (LPAs), other state agencies, and other qualified individuals to input and edit [customer service area boundaries](#) for drinking water systems throughout California.

The tool also allows users to:

- » Create and edit service area boundaries
- » Track boundaries as they change over time
- » Collaborate with other users to improve accuracy of boundaries
- » View boundaries on Google Maps
- » Export digital files of the customer service areas



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## Public Use Dataset

All water system boundary files created using the Water Tool are collected in our drinking water system service area database. The database is updated on a continual basis as changes are made to these files. These data are available as a public use dataset.

To access data on public water system boundaries, select from the following:

### For a single water system boundary

- Search by water system name/ID or primacy agency name
- Browse all [water systems](#)
- Browse all [primacy agencies](#)
- Note:** You do not have to be a registered user to view any of the boundary files on the water tool. However, if you are not registered and authorized for a specific water system, you cannot make changes that system's boundary files

### For all water system boundaries statewide

- Download a database snapshot as [zipped shapefile](#) or [KMZ](#) (compressed KML) – These export files were last updated on 02/21/2012, 23:00:50
- Download a [previous version](#)


### For software developers and GIS professionals: Access a weekly snapshot of our service area database as an OpenGeospatial Consortium web service at UC Davis Information Center for the Environment (ICE)

- [Web Map Service \(WMS\) capabilities endpoint](#)
- [Web Feature Service \(WFS\) capabilities endpoint](#)
- [GeoWebCache tiles](#)
- [Full listing of ICE geospatial web services](#)

Please note that these data are subject to change as public water systems continue to input and edit their customer service area boundaries.



## Water Systems

Click the  icon next to each of the water system names to inspect the reporting form.

[Advanced Filtering/Sorting \(Off\)](#) ▾

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Search by system name, then hit <Enter>

--or--

A-to-Z Index:

**A B C D E F G H I J K L M**  
**N O P Q R S T U V W X Y Z**


of 8569  
total systems

-  1. 100 PALMS MARKET
-  2. 1000 TRAILS / SOLEDAD CYN PRESERVE
-  3. 141 SUBURBAN ROAD WATER SUPPLY
-  4. 200 SUBURBAN ROAD WATER SUPPLY
-  5. 3 B S TRUCK & AUTO PLAZA
-  6. 30 MILESTONE TRACT #1
-  7. 30 MILESTONE TRACT #2
-  8. 33RD DISTRICT AGRICULTURAL ASSOCIATION
-  9. 445 WARD AVE WELL
-  10. 47 MILESTONE/ASPEN CREEK TRACT
-  11. 49ER TRAILER RANCH
-  12. 4N MOBILEHOME PARK
-  13. 5033 PENTECOST
-  14. 60TH STREET ASSOC. WATER SYSTEM
-  15. 7X YOUTH RANCH
-  16. 8200 WATER SYSTEM
-  17. 9-Iron Water System
-  18. 948 BROWNS VALLEY ROAD (SSWS)
-  19. 95 FOODMART #3
-  20. 99 SPEEDWAY WATER SYSTEM
-  21. A & A LAKE TAHOE INN
-  22. A & AMHP





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Search by system name, then hit <Enter>

--or-- A-to-Z Index: [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#)

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**Filter by:**

- ☐ Systems with service area polygons
- ☐ Systems with unedited service area polygons
- ☐ Systems with no service area polygons
- ☒ Systems with completed service area polygons
- ☐ Systems with verified service area polygons
- ☐ Systems with edits in last week
- ☐ Systems with edits in last month
- ☐ Systems with edits in last year
- ☐ Systems with edits more than a year ago

**Sort by:**

- ☒ System name
- ☐ Date created
- ☐ Date edited
- ☐ Verification date

[Browse by districts/LPAs](#)

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--or--

A-to-Z Index:

**A B C D E F G H I J K L M**  
**N O P Q R S T U V W X Y Z**

of 217  
total systems

- 1. AERA ENERGY LLC WS
- 2. AGRILAND FARMING CO INC

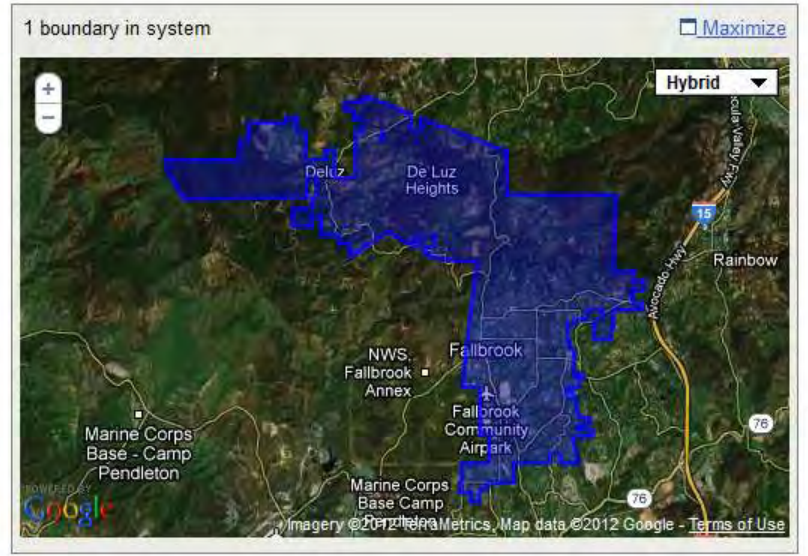
[Register to edit service area boundaries and survey](#)

#### Survey questions:

Is service area described by...

- ... municipal boundaries? **Not answered**
- ... US Census Tracts? **Not answered**
- ... voting precincts? **Not answered**
- ... distribution lines? **Not answered**
- ... connection addresses? **Not answered**
- ... customers' streets? **Not answered**
- ... US Census Blocks? **Not answered**
- ... US Census Block Groups? **Not answered**
- ... some other feature (if yes, please describe below)? **Not answered**
- Description of other service area attribute: **Not provided**

[Export service area boundary \(1\) as: Shapefile or KML / KMZ](#)



- 3. ALBA WS
- 4. ALL SAINTS CAMPGROUND WS
- 5. ALTMAN PLANTS WS #01

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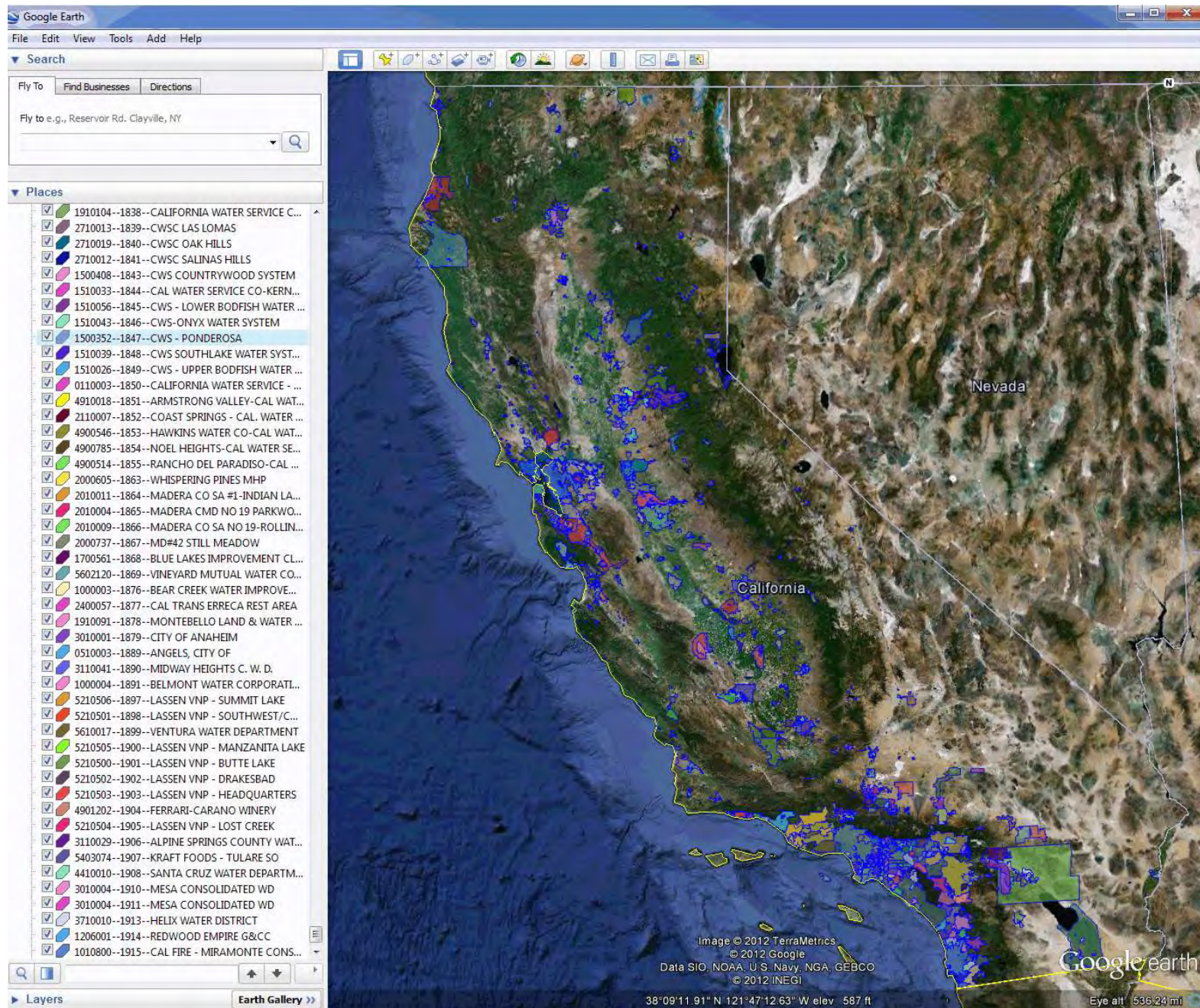
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# Next Steps

# Tool development

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- Continue to improve editing/refining functionality
  - ▣ View neighboring service areas
  - ▣ Add donut holes
  - ▣ Add pressure zones, link to sampling stations
- Develop more tutorials
- Status alerts to users



# Opportunities

# Opportunities

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- Possible opportunities for using this tool and data:
  - ▣ Research – Environmental Epi
  - ▣ Policy – Nitrate cleanup
  - ▣ Planning – Water supply/demand
  - ▣ Other States
  - ▣ Other ideas?