

Adventures in Rebuilding a Department wide Geocoding Service

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Business of CDPH



California Department of Public Health (CDPH) Programs

"Programs" provides links to CDPH programs from both organizational and A-Z Index views. To find a specific program, please use the alphabetical index.

[A-Z Index of all Programs](#)

Director / State Public Health Officer

- > Civil Rights
- > California Conference of Local Health Officers (CCLHO)
- > Office of Health Equity (OHE)
- > Office of Public Affairs
- > Office of Quality Performance and Accreditation

Policy and Programs

- > Emergency Preparedness Office
- > Center for Health Statistics and Informatics
- > Legislative and Governmental Affairs
- > Office of State Laboratory Director
- > Laboratory Field Services

Center for Chronic Disease and Health Promotion

- > Center for Chronic Disease Prevention and Health Promotion
- > Chronic Disease and Injury Control
- > Environmental and Occupational Disease Control
- > Office of Problem Gambling **!New**

Center for Environmental Health

- > Center for Environmental Health
- > Drinking Water and Environmental Management
- > Food, Drug, and Radiation Safety

Center for Family Health

- > Center for Family Health
- > Family Planning
- > Genetic Disease Screening Program
- > Maternal, Child, and Adolescent Health
- > Women, Infants, and Children

Center for Health Care Quality

- > Center for Health Care Quality
- > Healthcare Associated Infections (HAI) Program
- > Licensing and Certification

Center for Infectious Diseases

- > Center for Infectious Diseases
- > AIDS
- > Communicable Disease Control
- > Binational Border Health
- > Office of Refugee Health

Business of CDPH

- Many different programs
- Each program had own IT and GIS resources, and applications
- IT Consolidation



Need for geocoding

- Many CDPH programs require geocoding
- How do they get this resource?
- Built in ArcMap, external and commercial purchases of data.
- Internal applications....

EHIB/CEHTP solution

- Environmental Health Investigations Branch /The California Environmental Health Tracking Program
- Craig Wolfe – the Developer
- Geocoder (Browser and Desktop) Built with Java
- Department wide usage

EHIB/CEHTP solution

Use the Browser-Based Geocoder

STEP 1 -- Select Address Table

Address File: **frpm2011.xls** [clear](#) [File Manager](#)

Table: (Access & Excel files only)

Filter clause: (e.g. id<=1000)

STEP 2 -- Select Geocoding Fields

Unique ID: Address: City: Zip:

STEP 3 -- [Choose Geocoding Options](#)

1. Return ID of geocoding database record? Yes No

2. Return standardized address (street/city/zip)? Yes No

3. Use zip code as look up index? Yes No

4. Use city soundex as look up index? Yes No

5. For multiple geocoding databases, return first matching coordinate only? Yes No

6. For multiple geocoding databases, return distance from centroid of coordinates (average error)? Yes No

7. Side offset: Side offset units:

8. IDs of geocoding databases to use:

- TeleAtlas Address Points (2011)
- Navteq Points (2011)
- TeleAtlas Streets (2011)
- Navteq Streets (2011)
- Tiger Streets (2010)
- Zip-plus-4 Centroids (2008)

9. Return IDs of underlying regions? Yes No

10. IDs of region resources to overlay:

- TomTom Census 2010 Tracts (Jan 2012)
- TomTom Census 2010 Block Groups (Jan 2012)
- Medical Service Study Areas (2008)
- Public Land Survey (Sections)
- TeleAtlas Census 2000 Tracts (Sept 2008)
- TeleAtlas Census 2000 Block Groups (Sept 2008)

STEP 4 -- Geocode Address Table

STEP 5 -- Download Geocoded Address Table

[Back to top](#)

EHIB/CEHTP solution

The image displays two overlapping software windows. The primary window, titled "Tables Address Geocoder", features a menu bar (File, View, Tools, Windows, Help) and a "Geocode Options" section with various radio buttons and checkboxes. The "Geocode Options" section includes:

- Return Standardized address (street / city / zip) ? Yes No
- Return ID of street Segment ? Yes No
- Use zip code as look up index ? Yes No
- Use city soundex as look up index ? Yes No

Below these are options to "Specify street database to use:" with a list of databases (TeleAtlas Address Points (2011), Navteq Points (2011), TeleAtlas Streets (2011), Navteq Streets (2011), Tiger Streets (2010)) and a "Change Street Geocode Order" section with "Up" and "Down" buttons. Further options include "For multiple street databases, return first matched coordinate only ?" and "For multiple street databases, return distance from centroid of coordinates (average error) ?". The "Side offset:" is set to 50 and "Units:" is set to Feet. There are also options for "Return ID's of underlying regions ?" and "Specify regions to overlay and extract:" with a list of regions (TomTom Census 2010 Tracts (Jan 2012), TomTom Census 2010 Block Groups (Jan 2012), Medical Service Study Areas (2008), Public Land Survey (Sections), TeleAtlas Census 2000 Tracts (Sept 2008)).

The secondary window, titled "Excel Geocoder 6:57:00 PM", has tabs for "Worksheet Location", "Table Parameters", "Geocode Sheet", and "Result Statistics". It includes an "Excel Worksheets" list, an "Address" section with dropdowns for "User ID", "Street", "City", and "5-digit Zip", and a "First Row Contains Field Names" checkbox. An "Advanced Query" section includes an "Enable" checkbox, a "Fields:" list, a logical operator keypad (with buttons for =, >=, Like, >, <=, And, <, <>, Or, Is, 0, Not), a "Unique Values:" section with a "Go To:" field and a "Get Unique Values" button, and a "WHERE" section with a "Clear" button. At the bottom, there are "... Back" and "Next ..." buttons. A status bar at the bottom of the Excel Geocoder window shows "Opening file E:\WORKSPACE\new_da".

EHIB/CEHTP solution

- EHIB Geocoder purpose...
- To assist organizations in standardizing, verifying, and geocoding address data to latitude/longitude coordinates and other political boundaries (e.g. Census Blocks, Medical Service Study Areas, Public Land Survey sections, or Zip Codes).

Loss of Craig; mid transfer

- IT consolidation
- Transfer of knowledge
- Loss of Craig....

Requirements gathering

- Replicating functions of previous geocoder
- Features of Craig's geocoder
 1. Overlay Census Tracts, Counties and other boundaries.
 2. Address standardization
 3. Fast and accurate
 4. Browser based, does not require ArcMap
 5. Secure

StreetMap Premium

- Where to get this new geocoder?
- Rebuild Craig's geocoder requires Java knowledge.
- Options
Statewide Geocoder, Google Maps, or ESRI
StreetMap Premium is best option at time.

Data and geocoding: out of the box functions

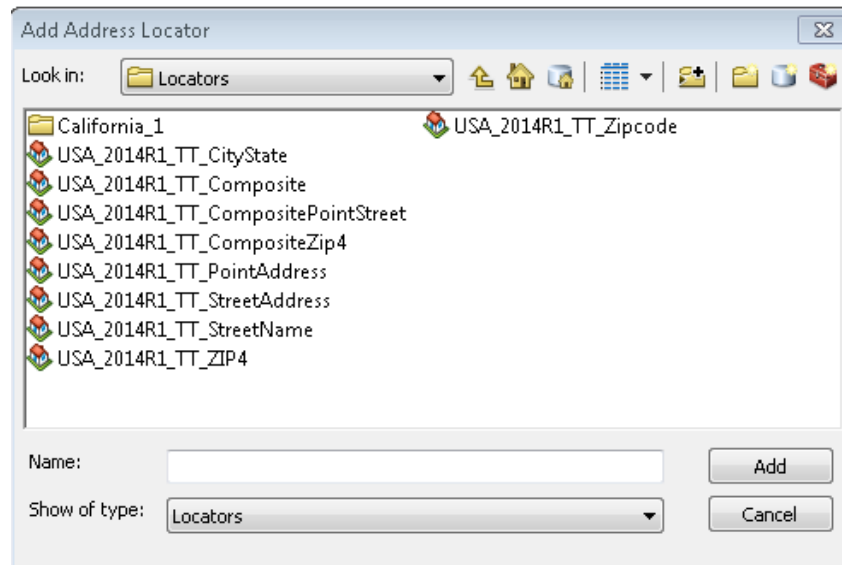
- Street and Zip Code Datasets
- Preloaded Locators including composites
 1. Point Address
 2. Street Address
 3. Street Name, Zip Code and Admin Boundaries

Multiple deployments

- Department wide user base = many deployment types
 1. Confidential data and non confidential
 2. One million records to a few hundred
 3. ArcMap geocoder and external usage

File-based

- Good with Confidential data
- Single user license, does not require a connection if you have locators.



Server: intranet, internet

- Intranet services are also useful for confidential data
- Internet services are useful but require security.

Folder: GeocodingResources

Current Version: 10.21

View Footprints In: [ArcGIS.com Map](#)

Services:

- [GeocodingResources/CA_CompositeAll](#) (GeocodeServer)
- [GeocodingResources/StandardizeAddresses](#) (GPService)
- [GeocodingResources/USA_CityState](#) (GeocodeServer)
- [GeocodingResources/USA_CompositeAll](#) (GeocodeServer)
- [GeocodingResources/USA_CompositePointStreet](#) (GeocodeServer)
- [GeocodingResources/USA_CompositeZip4](#) (GeocodeServer)
- [GeocodingResources/USA_PointAddress](#) (GeocodeServer)
- [GeocodingResources/USA_StreetAddress](#) (GeocodeServer)
- [GeocodingResources/USA_StreetName](#) (GeocodeServer)
- [GeocodingResources/USA_ZIP4](#) (GeocodeServer)
- [GeocodingResources/USA_Zipcode](#) (GeocodeServer)

Customization: Overlay

- Spatial Join
- Polygon to Points
- Census Tracts, Block Groups, County, Political and other boundaries

StreetAbr	City	Zip	State	SOCType
▶ 25 South Hill Ct.	Oakland	94618-2306	CA	Elementary Schools (Public)
5750 College Ave.	Oakland	94618-1629	CA	Intermediate/Middle Schools (Public)
460 63rd St.	Oakland	94609	CA	Elementary Schools (Public)
581 61st St.	Oakland	94609	CA	Elementary Schools (Public)
915 54th St.	Oakland	94608	CA	High Schools (Public)
6200 San Pablo Ave.	Oakland	94608-2228	CA	Elementary Schools (Public)
3877 Lusk St.	Oakland	94608-3822	CA	High Schools (Public)
1000 42nd St.	Oakland	94608-3621	CA	Elementary Schools (Public)

+

CT_KEY	RNN_REGION	County
06001400100	San Francisco Bay Area	Alameda
06001400200	San Francisco Bay Area	Alameda
06001400400	San Francisco Bay Area	Alameda
06001400500	San Francisco Bay Area	Alameda
06001400700	San Francisco Bay Area	Alameda
06001400800	San Francisco Bay Area	Alameda
06001401000	San Francisco Bay Area	Alameda
06001401000	San Francisco Bay Area	Alameda

Customization: Standardization

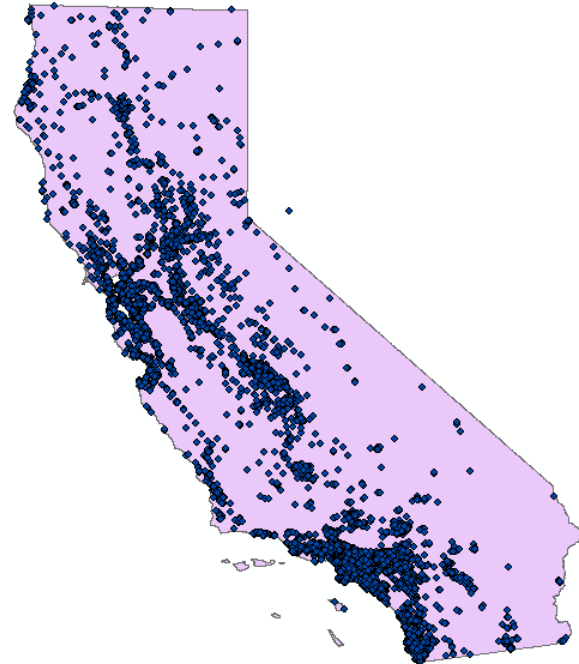
- Fixing address helps final results
- Helps with geocoding accuracy

Output Address Data [114928_08112014]

	OID	ADDR_HN	ADDR_PD	ADDR_PT	ADDR_SN	ADDR_ST	ADDR_SD	ADDRESS	City	State	ZIP
▶	1	1325			Cottonwood	St		1325 Cottonwood St	Woodland	CA	9569
	2	8001			Bruceville	Road		8001 Bruceville Rd	Sacramento	CA	9582
	3	7700			Folsom	Boulevard		7700 Folsom Blvd	Sacramento	CA	9582
	4	4250			Auburn	Boulevard		4250 Auburn Blvd	Sacramento	CA	9584
	5	2510	North		California	St		2510 N California St	Stockton	CA	9520
	6	1501			Claus	Road		1501 Claus Rd	Modesto	CA	9535
	7	1501			Claus	Road		1501 Claus Rd	Modesto	CA	9535

Customization: Clip Locator

- Clip locator to California, don't need entire USA.
- Helps with geocoding speed



Customization: Browser

- Browser based geocoder, outside ArcMap
- Uses StreetMap Premium
- Built with Overlay and potentially the Address Standardization.
- Stay tuned....

Summary

- Many CDPH Programs require geocoding
- Create a new Geocoding service from the ground up
- StreetMap Premium
- Deployment options
- File based and Service based
- Overlay
- Address Standardization
- Clip to California
- Browser Geocoder
- Documentation!!

Future...

- Security
- Enterprise Advantage

Questions





Thank you!