

# Geocoding



20 of 39  
Counties

101 ISREAL R.D., 98507

Correction

101 Israel Rd SE, 98501

1<sup>st</sup> Attempt

Fallback to City, Zip or PO

2<sup>nd</sup> Attempt



County  
NavTeq  
GDT  
TIGER



# Geocoding Washington State Births (2006)

85,519 Total Records Statewide

## NavTeq street network 2004 (min. score of 80)

ArcView 3.2      64,477 (75%)

ArcMap 9.1      66,002 (77%)

## With USPS Standardization and Multi-Step

Centrus      77,682 (90%)

DOH      80,388 (94%)

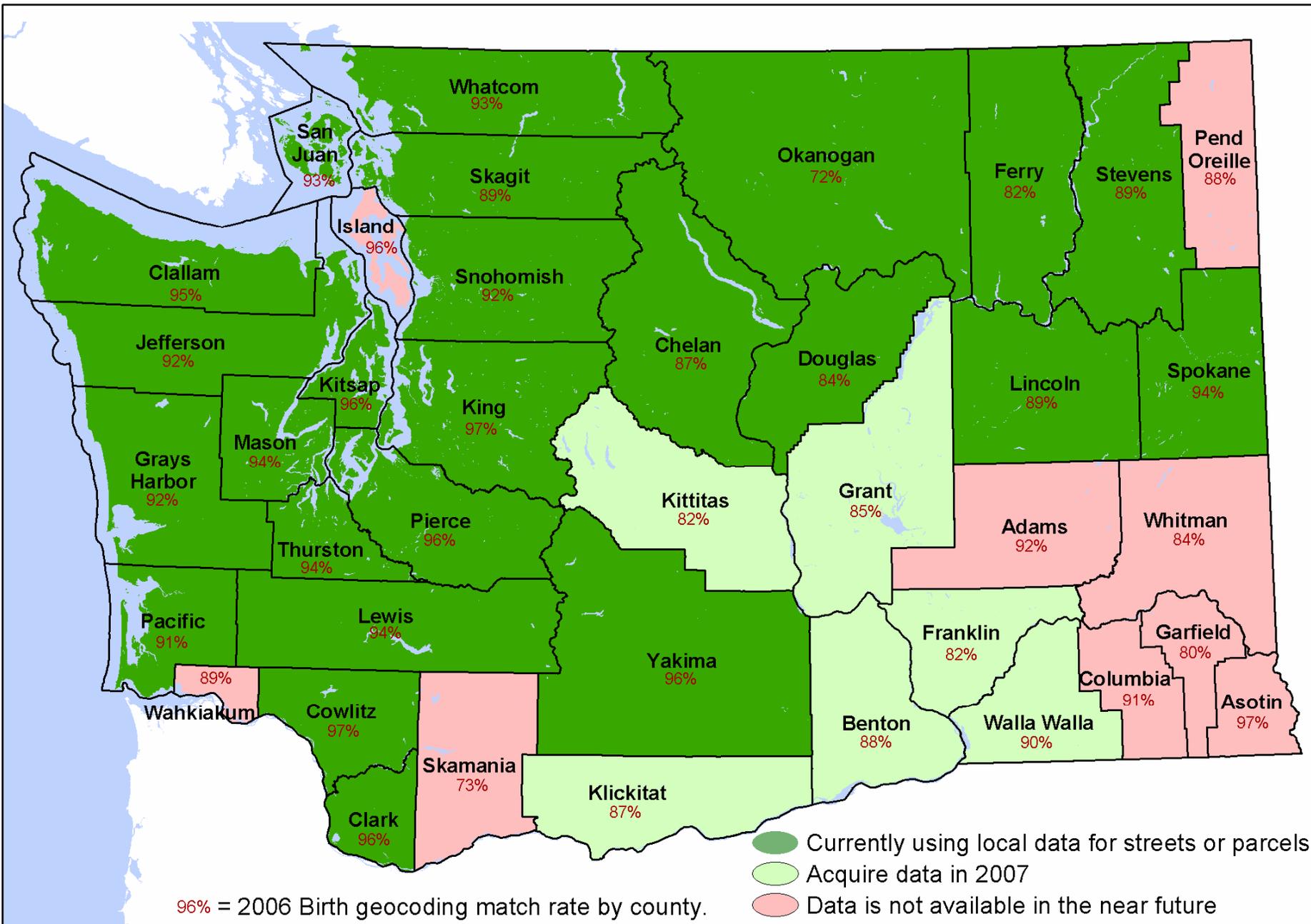
# Geocoding Washington State Births (2006)

## Matches by Reference Data in the DOH Process

Co. Parcels	41,483 (52%)
Co. Roads	11,870 (15%)
NavTeq/GDT	22,431 (28%)
TIGER 1992-2000	4,604 (5%)

## Accuracy of Matches

Score of 100	75,370 (93%)
Original Address Used	63,960 (80%)



# Functional Overview

## Address Correction Service

1. **Supply a street address and 5 digit zip code. (WA only, city is not required)**
2. **Commercial Off-the-shelf (COTS) software will attempt to correct any errors using USPS standards and data.**
3. **Return an XML document with corrected and parsed address elements.**

### **Input Parameters:**

Address (PO Box, Street, Mailing, Military) required

Zip (5 digit) required

City (preferred)

State (preferred)

Zip4

### **Output Parameters:**

Address

Zip

City

State

Zip4

Address prefix direction

Address house number

Address street

Address type

Address suffix direction

Address unit

Address unit description

Quality

Deliverable

# Functional Overview

## Address Geocoding Service

1. **Supply a street address and 5 digit zip code.**
2. **Geocode to parcel centroids or multiple street datasets.**
3. **Return an XML document with the geocoding results.**

### **Input Parameters:**

Address Corrected or not (required)

Zip (required)

City

State

### **Output Parameters:**

Address

Zip

Reference Address Used

Accuracy (Close or Approximate Tolerances)

Score (Numeric match score)

Source (reference data used, parcel centroid, etc.)

Latitude

Longitude

Parcel Number (if a parcel centroid match)

GML feature of parcel boundary?

# Requirements

Speed (under 1 sec. per request)

Scalable

Coding Accuracy Support System (CASS) Certification

Delivery Point Validation (DPV) Required Aug. 2007

Separate Services

Use multiple reference layers for geocoding

# Business Rules

If the address is found in the USPS database return the quality code and other corrected, parsed and standardized elements.

If address is matched return LL, source, score and accuracy.

If address is matched to a parcel then return the Assessor's parcel number and a GML feature of the parcel boundary.

If unmatched, return a list of candidates.

If unmatched, return the city, zip or Post Office centroid.

# Address Correction Use Case

Use Case #1	Address Correction
<b>User Description:</b>	An address and zip code are submitted. If necessary, corrections are made to the address and zip code. USPS standardized address elements are returned.
<b>Technical Description</b>	The address and zip code are compared to a USPS database for verification. The COTS correction software will add city name, state and deliverable attributes. The returned XML document will contain the parsed standardized address elements.
<b>Primary Users:</b>	JARPA Applicants, EDRS County Coroners, PHRED BizTalk
<b>Scope:</b>	JARPA, EDRS and PHRED applications
<b>Precondition:</b>	The address and zip code are located within Washington State.
<b>Input</b>	XML document including the street address and 5 digit zip code.
<b>Output</b>	XML document with the standardize address elements.
<b>Dependencies</b>	<ol style="list-style-type: none"> <li>1. COTS correction software and USPS data sources are available</li> <li>2. IIS and the .NET 2.0 Framework are operational</li> <li>3. The XML request has been authenticated</li> </ol>
<b>Minimum Guarantee:</b>	The Address Correction Service returns a validated XML document, or reports an Error Status
<b>Success Guarantee:</b>	<ol style="list-style-type: none"> <li>1. If the address and zip code are found in the USPS database then corrections are made if necessary and the parsed/standardized elements are returned.</li> <li>2. If the address and zip code are not found in the USPS database then the parsed/standardized address elements are returned without corrections.</li> </ol>
<b>Main Success Scenario:</b>	An XML document with corrected, parsed and standardized address elements is returned.

# Address Geocoding Use Case

Use Case #2	Address Geocoding
<b>User Description:</b>	An address and zip code are submitted. Geocoding is performed on multiple reference layers.
<b>Technical Description</b>	ArcGIS Server is used to geocode against county parcel centroids and multiple linear street networks. The returned XML document will contain attributes describing the result of the geocoding.
<b>Primary Users:</b>	JARPA Applicants, EDRS County Coroners, PHRED BizTalk
<b>Scope:</b>	JARPA, EDRS and PHRED applications
<b>Precondition:</b>	The address and zip code are located within Washington State.
<b>Input</b>	XML document including the street address and 5 digit zip code.
<b>Output</b>	XML document with the results of the geocoding.
<b>Dependencies</b>	<ol style="list-style-type: none"> <li>1. ArcSDE server and reference data sources are available</li> <li>2. ArcGIS Server, IIS and the .NET 2.0 Framework are operational</li> <li>3. The XML request has been authenticated</li> </ol>
<b>Minimum Guarantee:</b>	The Address Geocoding Service returns a validated XML document, or reports an Error Status
<b>Success Guarantee:</b>	<ol style="list-style-type: none"> <li>1. If the address is geocoded, then LL and other elements are returned.</li> <li>2. If the address is not geocoded. then a list of potential candidates and an approximate LL is returned. The approximate LL is calculated using a city or zip code centroid match if possible.</li> <li>3. If the no geocoding matches are found for address, city or zip code then a list of candidates is returned.</li> </ol>
<b>Main Success Scenario:</b>	An XML document with LL and other elements of the geocoding results is returned.

## Other factors

Purchasing new reference data

Alias Tables

Intersections

Milepost Geocoding

Out of State addresses

Pass the minimum score allowed?

## Links

WA Location Finder Web Site

<http://www.ecy.wa.gov/services/gis/services/projects/geojarpa/GeoJarpa.htm>

EPA's Exchange Network

<http://exchangenetwork.net/>

Prototype service without address correction

<http://ww4.doh.wa.gov/gis/xmlgeocoder.htm>

Geocoding Application for processing exceptions

<http://ww4.doh.wa.gov/scripts/esrimap.dll?Name=geoview&Cmd=Map>

DOH Standard Geocoding Batch Process

<http://www.doh.wa.gov/Data/Guidelines/Geocodeguide.htm>