

**Geocoding.** Geocoding, or address matching, is the computational process by which a physical address is converted into geographic coordinates, which can be used for a variety of mapping applications. The most highly accurate and precise geocode you can return is at the address point that is within the building footprint. Created by the WV GIS Technical Center, a composite locator of public and commercial address layers geocodes voter points.

**Reverse geocoding** is the opposite process to geocoding, which involves appending latitude and longitude coordinates to address data.

## ADDRESS MATCHING OUTPUTS AND ERRORS

**Address Match Types and Reports.** Voter addresses are matched or unmatched based on geocode scores above the minimum match score. Geocoded results are classified by the Locator type (WV Master Address file, Esri) and Locator role (site point address, street address range, parcel, etc.)

- *Site Match:* Match to **Site** address point. The location match ideally is within building footprint.
  - *Site Match Outside County:* Voter records *site*-matched outside the county.
- *Street Match:* Match to the **street** address range but not pinpointed to the building location. A GIS file of street address matches can be provided for counties to improve the address matching of these voter records.
- *Unmatched Records:* Voter records could not be geocoded or geospatially pinpointed

**Minimum Match Score.** The minimum match score or confidence level is a threshold that controls how closely addresses must match their most likely candidate in the reference data to be considered a match. If the potential candidate is below the threshold, the address is not matched to the candidate.

**Fuzzy Matching:** The fuzzy matching capabilities allow one to enter an imperfect address while still receiving a strong and relevant result. For instance, it will find matches between non-identical strings. Ex. montgomery = Montgomery. If the geocoder is too ambiguous, it might return false-positive results by modifying too many components.

**False Positive.** An address is geocoded to the wrong location

**Missingness Rate:** The missingness rates, a geocoding error measurement, defines the percent of addresses not successfully geocoded (false positives) within a given area.

## LOCATORS using ESRI GIS SOFTWARE

**Locator.** A locator is a portable file used to perform geocoding across the ArcGIS platform. Locators contain a snapshot of the reference data used for geocoding, as well as indexes and local addressing knowledge that help return the best match during the geocoding process.

**Composite Locator.** A composite locator is a virtual locator that consists of one or more individual locators or geocode services. The composite locator can be used to combine geocoding from many

sources into a single locator, whether the composite is used locally or as a service. Using a composite locator allows you to geocode so that addresses can be matched against multiple locators based on different datasets at once to increase the geocoding accuracy of the matched results.

**Locator Role.** The locator role defines the type of data that is being used (Point address, street centerline, parcel, and so on) and provides the appropriate fields that should be used when building the locator and the information returned in the geocoding results. The primary locator roles provided with ArcGIS Pro will allow you to build the following types of locators:

- **Point Address**—A street address based on points that represent house and building locations. Includes Subaddress, which is based on points that represent house and building subaddress locations, such as suite, floor, and apartment.
- **Street Address**—A street address based on streets where the house number is interpolated from a range of numbers. Includes intersections, street name, and street extension.
- **Parcel** — The Parcel locator role allows you to create locators for addresses that contain parcel numbers and common addresses that contain a street number and street name. This locator role is similar to the Point Address role but does not support addresses with subaddress information. This locator role uses feature classes with polygon or point geometry as the primary reference data. Each feature in the primary reference data corresponds to a single parcel.

<https://pro.arcgis.com/en/pro-app/2.7/help/data/geocoding/about-locators.htm>

<https://pro.arcgis.com/en/pro-app/2.7/help/data/geocoding/fundamentals-of-creating-a-locator.htm>

Compiled by Kurt Donaldson  
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