PROCESSING DOCUMENT

|  |  |  |  |
| --- | --- | --- | --- |
| Project Title: | EDF GIS Support | Date: | 6/30/23 |
| Client: | Lauren Padilla and Cloelle Danforth |  |  |
| Project #: | 20231037 |  |  |
| Subject: | Facility Geocoding | | |

**PURPOSE/OBJECTIVE:** Determine the most accurate location for 1,488 facilities in Texas.

**DATA SOURCES USED:**

1. PROGbyFRS\_uniq\_05-12-23.csv
   1. Old and new merged data from Cloelle. Original source is the FRS National Database

**PROCESSING STEPS:**

1. Data Preparation
   1. Saved as Excel for REGISTRYID and census block code to show up correctly
      1. Formatted both as numbers with no decimal places
   2. Changed "NA" to null for the following fields: FIPS\_CODE, POSTAL\_CODE, CENSUS\_BLOCK\_CODE, LATITUDE83, LONGITUDE83 and ACCURACY\_VALUE
   3. Saved a new copy of the data and deleted 67 of the 68 points for REGISTRY\_ID 110063953164
      1. At Cloelle's direction
      2. Chose the most central one in the FRSXY data and kept only the one in the Esri Geocoded data with the same FRS XY
      3. 1,555 to 1,488 total records
   4. Display XY data with LATITUDE83 AND LONGITUDE83 using NAD 1983 (2011) datum
2. Geocode using Esri World Geocoder in ArcGIS Pro
   1. Address: LOCATION\_ADDRESS
   2. City: CITY\_NAME
   3. County: COUNTY\_NAME
   4. ZIP: POSTAL\_CODE
   5. Country: United States
   6. Preferred location type: Address Location (rather than Routing)
   7. Output fields: Minimal and User Fields
   8. Category: (Left blank)
   9. Consumes 62 credits
   10. Results
       1. 1403 Matched (94.29%)
       2. 26 Unmatched (1.75%)
       3. 59 Tied (3.97%)
   11. Did not start rematch process
   12. Added new fields for Geocoded\_Lat83 and Geocoded\_Long83
       1. Calculated geometry with GCS\_NAD\_1983\_2011
   13. Checked if LATITUDE83 and/or Geocoded\_Lat83 fields were empty to determine which points have FRS XY, geocoded, neither or both
3. Added other new fields
   1. Length\_meters
   2. Points\_distance
   3. Outside\_boundary
   4. Best\_Latitude83
   5. Best\_Longitude83
   6. Best\_Reasoning
   7. FRS\_description\_accuracy
   8. Geocode\_address\_type
   9. Final\_inside\_boundary
4. Check FRS accuracy descriptors
   1. Suspect: REF\_POINT\_DESC IN ('ACRES POINTS NOT REPRESENTED BY 101-107', 'ADMINISTRATIVE BUILDING', 'NA', 'NW CORNER OF LAND PARCEL', 'OTHER', 'SE CORNER OF LAND PARCEL', 'SW CORNER OF LAND PARCEL', 'UNKNOWN')
5. Calculate the distance between points with the same ID
   1. Append the data into 1 layer (2 records per facility)
   2. Points to Line geoprocessing tool
      1. Line Field: REGISTRY\_ID
      2. Construct continuous line
      3. Attribute Source: Start point
         1. Transfer field: REGISTRY\_ID
      4. Calculate length (geodesic) in Length\_meters field
6. Check if inside the study area
   1. Added study area boundary: WBDHU8\_LowerGalvestonBay.shp
      1. Dissolved the boundary into 1 shape
   2. Select lines by location and calculate the Outside\_boundary field
      1. Completely within the boundary
      2. Completely outside the boundary
      3. Line touches the boundary of the boundary
         1. "One point is inside, one is outside"
   3. Join Field to join the line length and Outside\_boundary fields to all points
7. For records with at least one point inside the boundary, checked geocoded address type
   1. Address type options (less accurate types are highlighted)
      1. Locality
      2. POI
      3. PointAddress
      4. Postal
      5. PostalExt
      6. StreetAddress
      7. StreetAddressExt
      8. StreetInt
      9. StreetMidBlock
      10. StreetName
      11. Subaddress
   2. If the geocoded address type is any of the types highlighted above, used the FRS XY coordinates
8. If both geocode and FRS XY are good, checked if over 100m apart using Length\_meters field
   1. Manually checked 6 records over 100m apart. In all 6 cases, the geocoded point was placed on a building and the FRS XY was either located not on a building or on a road.
   2. Manually checked 6 records less than 100m apart. In all 6 cases, the geocoded point was placed on a building and the FRS XY was either located not on a building or on a road.