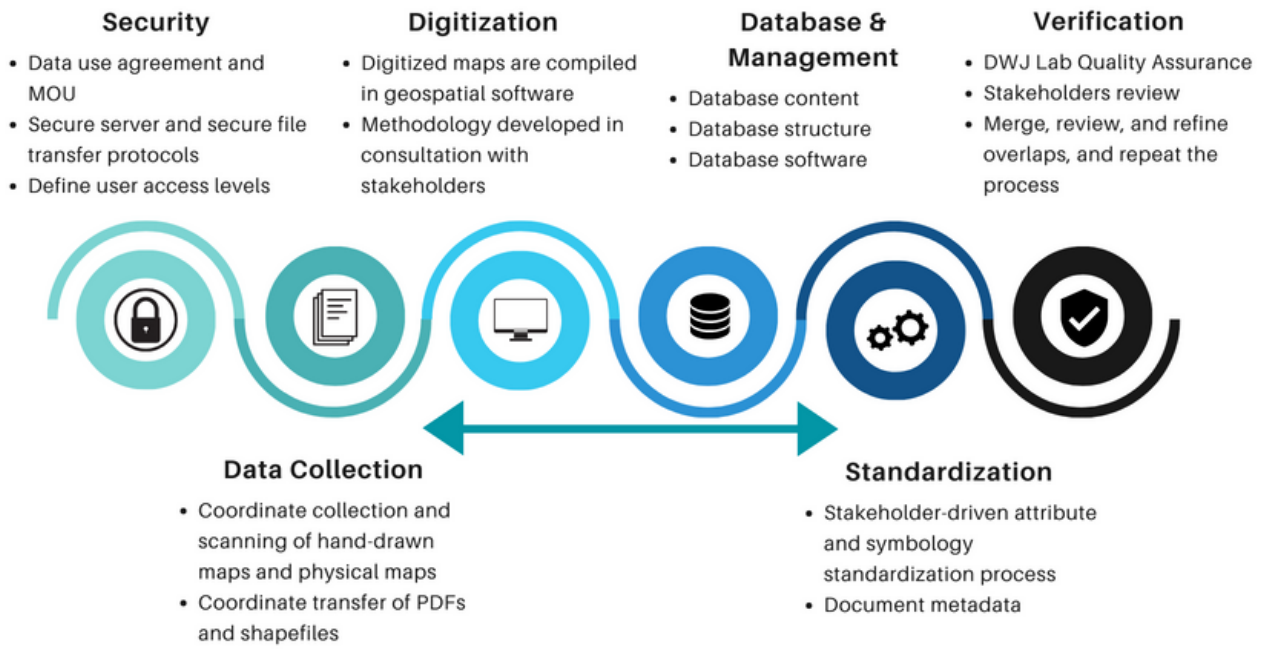


Creating Geospatial Community Water System Representation



SECURITY: The Drinking Water Justice Lab (DWJL) met with the Tennessee Association of Utility Districts (TAUD) and the Tennessee Department of Environment and Conservation (TDEC) to establish data use agreements (DUA). Reciprocity agreements were also an integral part of this initial stage of data collection to ensure we could communicate how the deliverable would be beneficial to the DWJL, our stakeholders, and each community water system (CWS).



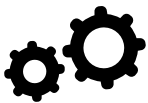
DATA COLLECTION: The established DUA allowed for chain of custody processes for data collection to be solidified. During the initial stage of data collection, this chain of custody process allowed stakeholders and community water systems to directly and securely share data, in the form of GIS files, PDF maps, and paper maps. In the DWJL's "last mile" data collection efforts, TDEC and TAUD were essential to data collection, as they followed up with the field offices and CWSs for data.



DIGITIZATION: There were two key components of the digitization process: (1) georeferencing and (2) estimated service area boundary (ESAB) digitization. The DWJL created two geodatabases and projected the ESABs into WGS 1984 UTM Zone 16N (EPSG 32616) and NAD 1983 Tennessee FIPS 4100 - US Feet (EPSG 102376), for internal DWJL and stakeholder use respectively. This effort was part of the reciprocity agreements to ensure the data was in a proper format for their use as well.



DATABASE & MANAGEMENT: The DWJL created a secure server environment to house the two geodatabases to protect the sensitivity of data (ie. some of the CWS maps contained storage tanks, service lines, and pump locations), as well as the interests of our stakeholders and each CWS. Failsafes were also created within each geodatabase to ensure only CWSs projected in the correct coordinate system could be uploaded to the appropriate geodatabase.



STANDARDIZATION: The standardization of the actual ESABs, attribute information, and metadata was a stakeholder-driven process. The public water system identification (PWSID) was included in the attribute information as a primary key to join this data to other datasets pertaining to environmental health (e.g. drinking water quality) and CWS characteristics (e.g. population served), as part of a relational database approach.



VERIFICATION: Weekly standing meetings were scheduled with TAUD and TDEC to address refinement-related questions to ensure each CWS was accurately geospatially represented. The two most common refinement-related questions were about CWS overlaps and donuts, or the presence of two individual CWSs in the same area, but with distinct service boundaries.