Community Water System Service Area Boundaries State Dataset Summaries

June 2024

U.S. Environmental Protection Agency

Office of Water

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Introduction

The EPA prepared summaries of publicly available state public water system (PWS) and community water system (CWS) service area datasets from selected states in late 2023. The state summaries were used to inform the National Data Standard for Drinking Water Service Area Boundaries and to aid EPA's Office of Research and Development in assessing the quality of the available state data for inclusion in its national dataset. Please note that these data reflect a snapshot of the available information from late 2023 when the review was conducted; updates made after this period of review are not reflected in the summaries below.

To provide feedback or ask a question about the state summaries, please contact EPA at OW_OGWDW_DWIDD_DWDAB@epa.gov.

Arizona

Source: https://gisdata2016-11-18t150447874z-azwater.opendata.arcgis.com/datasets/cws-service-area-1/about

Title: CWS Service Area (Arizona Department of Water Resources)

Description:

"The purpose of this feature class is to provide service area boundaries for community water systems regulated by the Arizona Department of Water Resources. This feature class contains service area polygons for each Community Water System (CWS).

New water systems are added, and contact information is updated for existing water systems on an annual basis. Service area maps are updated every 5 years. ADWR [Arizona Department of Water Resources] cannot verify the spatial accuracy of the information contained on this map."[1]

Arizona also supplies a mapper (https://azwatermaps.azwater.gov/cws) with this layer and others (active/inactive well locations, groundwater basins) as a tool to allow the public to identify water providers in their area. It is also used by water systems to view the contact information and service area boundary that ADWR has on file for them and submit corrections as needed. The mapper will link to all annual reports and other files/correspondence for the CWS available to the public on the ADWR website.

There is also a Community Water Systems Data Dashboard that includes visualizations from annual report data. There are visuals of population served, deliveries, demand, emergency water supply, etc.

Last Updated: March 24, 2022

Publication Date: September 9, 2021

Method: "To determine the service area, ADWR utilized primary data provided directly from the water system (i.e., PDF, shapefile, verbal definition). If primary data is unavailable, secondary data was utilized to determine service area boundaries (i.e., Certificate of Convenience and Necessity (CCN), Census Designated Place shapefile from U.S Census Bureau.)

New systems are added annually by [ADWR]. The service area maps are updated every 5 years. ADWR does not verify the shapes presented are accurate."[1]

Coverage:

- 886 PWSs in the file (887 records – one PWS is listed twice).
- Includes 717 of the 746 active CWS in the EPA's Safe Drinking Water Information System, or SDWIS (96%).[2]

[1] Arizona Department of Water Resources. (September 9, 2021). *CWS Service Area*. https://gisdata2016-11-18t150447874z-azwater.opendata.arcgis.com/datasets/cws-service-area-1/about

[2] SDWIS is the national system of record for public water system data submitted to the EPA as required by the Safe Drinking Water Act.

- Missing 29 active CWS from SDWIS.

Data Fields:

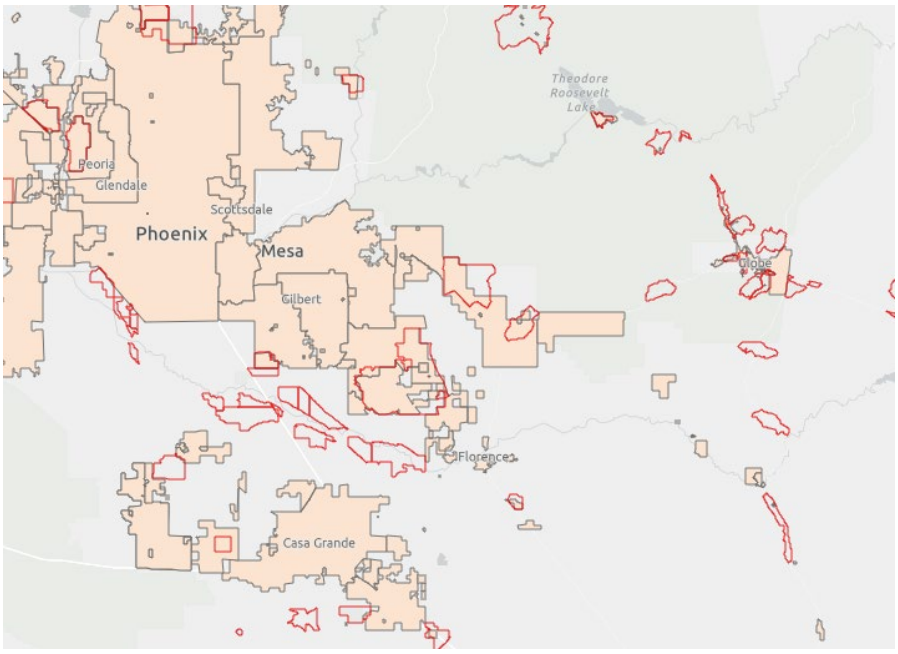
Field	Description (interpreted. No description provided by AZ)	Type	Field Values
OBJECTID	ObjectID id number	Numeric	e.g., 988
ADEQ_ID	PWS ID (matches format of SDWIS PWSID)	Text	e.g., AZ0403026
RIGHT_TYPE	Type of CWS – large or small	Text	• Large Community Water System • Small Community Water System
PCC	Arizona CWS Number, (formatted as 91-XXXXXX.XXXX)	Text	e.g., 91-000097.0000
CWS_NAME	Name of the PWS	Text	e.g., ST JOHNS, CITY OF
STATUS	Active/Inactive status flag	Text	• A (Active) • I (Inactive)
AMA	Active Management Area (AMA). A geographic area that has been designated pursuant to A.R.S.§ 45-411 as requiring active management of groundwater or, in the case of the Santa Cruz AMA, active management of any water, other than stored water, withdrawn from a well.	Text	e.g., HARQUAHALA VALLEY INA or NOT WITHIN ANY AMA OR INA
OWNER_NAME	Name of the system owner	Text	e.g., FOREST HIGHLANDS WATER CO
COUNTY	County the system is located	Text	e.g., COCONINO
POPULATION	Population served by the CWS	Numeric	e.g., 1647
ADDRESS	Owner address of the CWS	Text	e.g., 1824 S THOMPSON ST
CITY	Owner city of the CWS	Text	e.g., FLAGSTAFF
STATE	Owner state of the CWS	Text	e.g., AZ
ZIP_CODE	Owner ZIP Code of the CWS	Text	e.g., 86001
PHONE	Owner phone number	Text	e.g., 928-527-3600
CITY_SRVD	City served by the CWS	Text	e.g., FLAGSTAFF
Shape__Area	GIS-designated shape area	Numeric	e.g., 50845.32153
Shape__Length	GIS designated shape length	Numeric	e.g., 1255.04222

Additional Metadata:

https://epa.maps.arcgis.com/sharing/rest/content/items/9992e59e46bb466584f9694f897f350a/info/metadata/metadata.xml?format=default&output=html

Assessment of Dataset and Available Data Elements:

- A few of the shapes overlap with Census Place data.



- No data fields include indication of method/quality.
- Does include active/inactive indication (field = STATUS) (but does not always match the status field in SDWIS).
- Does not define service area boundary type.
- Shapes do not overlap with each other.
- Includes PWSID (ADEQ_ID).

Arkansas

Source: https://gis.arkansas.gov/product/public-water-systems-polygon/

Title: Public Water Systems (polygon)

Description: "This dataset contains polygons which represent public water system boundaries in the State of Arkansas. The compilation of this data is an effort of the Engineering Division of the Arkansas Department of Health (ADH) to build a comprehensive geographic database of water utilities and services in the public water system."[3]

Last Updated: August 7, 2023

Publication Date: July 29, 2013

Method: "A visual aid of water system boundaries overlaid on current digital aerial photography, associated road names, and landmarks, were verified by representatives of ADH to confirm the accuracy of the boundaries." [3] The data are compiled by the Engineering Division of the Arkansas Department of Health. Number of shapes (and likely coverage of shapes) appears to be updated over time.

Coverage:

- 787 PWSs in the file (788 shapes – one PWS is listed twice).
- Includes 657 of the 672 active CWS in SDWIS (98%).
- Missing 15 active CWS from SDWIS, although with fuzzy name matching, they are likely in the file.

Data Fields:

Field	Description (interpreted. No description provided by AR)	Type	Field Values
objectid	ID number (Seem to match to the numeric portion of SDWIS PWSID)	Numeric	e.g., 1, 2, …. 788
pws_name	Name of the PWS. (Most match to SDWIS or AR's internal list of PWS.)	Text	e.g., GRAND PRAIRIE REGIONAL WATER

Metadata:

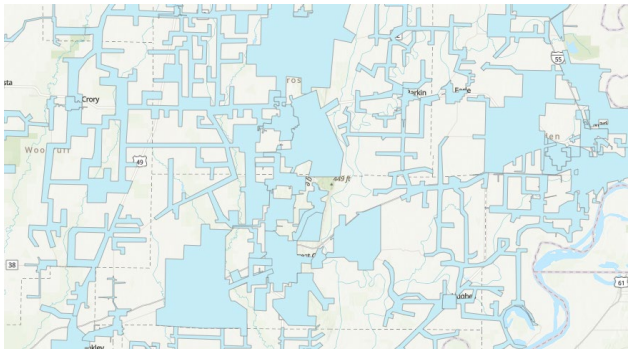
https://gis.arkansas.gov/arcgis/rest/services/FEATURESERVICES/Utilities/FeatureServer/14

Assessment of Dataset and Available Data Elements:

- Minimal overlap with census areas.
- One PWS is included twice/has two separate shapes.

[3] Arkansas Department of Health. (July 29, 2013). *Public Water Systems (polygon)*.

- Does not include active/inactive field.
- Some shapes seem to follow roads/pipes, for example, see light blue shapes below.



- Some shapes overlap with each other.
- Does not include active/inactive indication.
- No data fields include indication of method/quality.
- Includes PWSID (objected = numeric portion of SWDIS PWSID).

California

Source: https://gis.data.ca.gov/datasets/fbba842bf134497c9d611ad506ec48cc/explore

Title: California Drinking Water System Area Boundaries

Description: "Service area boundaries of drinking water service providers, as verified by the Division of Drinking Water, State Water Resources Control Board.

In order to provide an accurate data set of service area boundaries for California drinking water systems, the Division of Drinking Water of the California Water Resources Control Board (SWRCB DDW) has undertaken a project to vet and verify the data collected by the Tracking California's Water Boundary Tool (WBT).

SWRCB DDW downloaded a copy of the current water system service areas loaded in the WBT as of June 27, 2019. Additional attribute fields indicating verification status, verification staff and system type were appended to the data set. SWRCB DDW staff are reviewing and validating the displayed boundaries of each service area as well as contacting the service providers regarding necessary corrections. The verification status of any particular service area may be found in the Verification Status field."[4]

Last Updated: November 13, 2023

Publication Date: December 21, 2020 (Water Boundary Tool launched in February 2012)

Method: Water systems and other qualified users of California's WBT input or edit water system service area boundaries. The majority of these service area boundaries were adapted from paper maps or individual waster providers digitized service area boundaries.

Coverage:

- 4,782 PWSs in the file (20 duplicate records).
- Includes 2,788 of the 2,842 active CWS in SDWIS (98%).

Data Fields:

Field	Description	Type	Field Values
OBJECTID_1	Internal feature number	Numeric	e.g., 164161
SABL_PWSID	The seven digit number that is assigned to all public water systems preceded by CA	Text	e.g., CA1100445
BOUNDARY_TYPE	The specific boundary type	Text	• Water Service Area • Jurisdictional Area • Wholesaler

[4] California Water Boards (December 21, 2020). *California Drinking Water System Area Boundaries*. https://gis.data.ca.gov/datasets/fbba842bf134497c9d611ad506ec48cc_0/about

Field	Description	Type	Field Values
WATER_SYSTEM_NUMBER	The seven digit number that is assigned to all public water systems in SDWIS	Text	e.g., CA1100445
WATER_SYSTEM_NAME	The water system name assigned in SDWIS	Text	e.g., ORLAND MOBILE H.P.
CREATED_USER	Editor tracking generated field	Text	e.g., SBUCKNAM
CREATED_DATE	Editor tracking generated field	Date	e.g., 2020/10/20 03:20:27+00
LAST_EDITED_USER	Record last edited user	Text	e.g., SBUCKNAM
LAST_EDITED_DATE	Record last edited date	Date	e.g., 2020/10/20 03:20:27+00
OBJECTID	Internal feature number	Text	e.g., 133
ACTIVITY_STATUS_CD	Indicates the activity status of the water system	Text	• A (Active) • I (Inactive) • P (Proposed)
ACTIVITY_DATE	Indicates the activity status date of the water system	Text	e.g., 1986/03/28 07:00:00+00
OWNER_TYPE_CODE	Indicates the ownership type of the water system	Text	• F (Federal Government) • L (Local Government) • N (Native American • P (Private) • M (Mixed (Private/Public)) • S (State Government)
COUNTY	The county that the water system is in	Text	e.g., GLENN
POPULATION	The population that is served by the water system	Numeric	e.g., 178
REGULATING_AGENCY	The District or LPA who regulates the public water system or other entity	Text	e.g., DISTRICT 21 - VALLEY
FEDERAL_CLASSIFICATION	The federal classification of the water system	Text	• C (Community) • NTNC (Non-Transient Non-Community) • NC (Transient Non-Community • NP (Non-Public)
STATE_CLASSIFICATION	The state classification of the water system	Text	• C (Community) • NTNC (Non-Transient Non-Community) • NC (Transient Non-Community • NP (Non-Public) • SSWS (State Small Water Systems) • LSS (Local Small Water Systems) • RW (Recycled Water)
ADDR_LINE_ONE_TXT	Line one of water system address in SDWIS	Text	e.g., 292 Millbrae Avenue

Field	Description	Type	Field Values
ADDR_LINE_TWO_TXT	Line two of water system address in SDWIS	Text	e.g., 15500 HWY 101 N
ADDRESS_CITY_NAME	City of water system address in SDWIS	Text	e.g., CHOWCHILLA
ADDRESS_STATE_CODE	State code of water system address in SDWIS	Text	e.g., CA
ADDRESS_ZIP_CODE	Zip code of water system address in SDWIS	Numeric	e.g., 95222
SERVICE_CONNECTIONS	Number of service connections assigned to the water system in SDWIS	Numeric	e.g., 27479
GLOBALID	Internal feature number	Numeric	e.g., {F9BBE0EE-6788-431F-BDE2-57DC22E2039E}
AC_PHONE_NUMBER	Contact information for water system	Numeric	e.g., 909-595-1268
AC_EMAI	Contact information for water system	Text	e.g., sspencer@hotmail.com
BOUNDARY_FILETYPE	Indicates the type of boundary file used to create the shape	Text	• WBT Tool • KMZ • Shapefile
DT_VERIFIED	Date the file was submitted to SWRCB	Date	e.g., 2023/10/04 14:00:00+00
VERIFIED_STATUS	Indicates the verification status of the boundary	Text	• Not Verified • Pending • Verified
VERIFIED_NAME	Name of person who summitted the boundary to DDW	Text	e.g., E. Hitchman
VERIFIED_TYPE	Indicates the submitter's relationship to the boundary and/or dataset	Text	• District/LPA staff member • State Board staff member • Water System representative
Shape__Area	Area of feature in internal units squared	Numeric	e.g., 136995.4117
Shape__Lengt	Length of feature	Numeric	e.g., 1169.718166

Metadata:

https://gispublic.waterboards.ca.gov/portal/sharing/rest/content/items/fbba842bf134497c9d611ad506ec48cc/info/metadata/metadata.xml?format=default&output=html

Assessment of Dataset and Available Data Elements:

- Shapes have overlap with each other.
- Does include active/inactive field.
- Includes verification status and date for each shape.
- Data are maintained and updated continuously.
- Incudes the type of boundary (served area or jurisdictional) and the original source of the data.
- Methods and details for the WBT are well documented.

Colorado

Source:

https://data.colorado.gov/Local-Aggregation/Water-and-Sanitation-Districts-in-Colorado/d6bs-3kgu#revert

See also:

- Open Water Foundation's dataset of Colorado municipal water providers: https://data.openwaterfoundation.org/state/co/owf/municipal-water-provider-boundaries/
- Map view of Open Water Foundation's dataset of Colorado municipal water providers: https://gavinr.github.io/geojson-viewer/?url=https://data.openwaterfoundation.org/state/co/owf/municipal-water-provider-boundaries/latest/co-municipal-water-provider-boundaries.geojson
- Excel download of Open Water Foundation's dataset of Colorado municipal water providers: https://github.com/OpenWaterFoundation/owf-data-co-municipal-water-providers/blob/main/data/co-municipal-water-providers.xlsx

Title: Water and Sanitation Districts in Colorado (or Colorado Municipal Water Provider Boundaries)

Description: "Boundaries and district names aggregated for this dataset represent a first version of effort toward an authoritative Statewide Special Districts Dataset. Each was aggregated from thousands of local jurisdictions by the Colorado Department of Local Affairs Demography office. Many of the district boundaries were created from scanned drawings or digitized PDFs, and therefore no guarantee of accuracy can be made for the data."[5]

Last Updated: November 14, 2023

Publication Date: January 5, 2016

Method: This dataset was created through aggregation of digitized scanned images and pdfs.

Coverage:

- PWSID not included in the file, however, it is possible to link the LGID to PWSID using the data provided in Open Water Foundation's Excel file of Colorado municipal water providers (https://github.com/OpenWaterFoundation/owf-data-co-municipal-water-providers/blob/main/data/co-municipal-water-providers.xlsx).
- There are 254 systems in the Districts map, and 531 in the spreadsheet (949 active CWSs in SDWIS).

[5] Colorado Department of Local Affairs. (January 5, 2016). *Water and Sanitation Districts in Colorado*. https://data.colorado.gov/Local-Aggregation/Water-and-Sanitation-Districts-in-Colorado/d6bs-3kgu#revert

Data Fields:

Field	Description (interpreted. No description provided by CO)	Type	Field Values
gid	Internal feature ID	Numeric	e.g., 319
lgid	Identifier used by Colorado's Department of Local Affairs (DOLA)	Numeric	e.g., 1015
source	Original source of the data	Text	e.g., Garfield County from Tax Districts 04-15-2015
lastupdate	Date last updated	Date	e.g., 6/1/2021
DLGNAME	Name of water system	Text	e.g., North Lincoln Water & Sanitation District
ABBREV_NAM	Abbreviated name of water system	Text	e.g., Hazeltine Heights Water & San. District
LGTYPE_ID	District type ID	Numeric	• 10 • 11 • 12
TYPENAME	District type description	Text	• Sanitation Districts (10) • Water & Sanitation Districts (12) • Water Districts (11)
TYPE_CATEG	Service area type	Text	• Independent Local District
STATUTE		Numeric	• 32-1-103
LGSTATUS_I	Activity status ID of the water system	Numeric	• 1 • 3
DESCRIPTIO	Indicates the activity status of the water system	Text	• Active (1) • Dissolved (3)
URL	Website of water system owner	Text	e.g., www.crsofcolorado.com/mansfield-heights-wsd/
PREV_NAME	Prior water system name if applicable	Text	e.g., North Shore Water & Sanitation District

Metadata:

No standard metadata for the main State of Colorado data source was found, but the detailed source of the data for each Colorado district is identified in the following online spreadsheet: https://docs.google.com/spreadsheets/d/1gaOjeXlLzQankggbhtrQq3HDEPfwwiXiPeSZrP6FjOs/edit#gid=0

Metadata for the Excel download of Open Water Foundation's dataset of Colorado municipal water providers can be found here: https://github.com/OpenWaterFoundation/owf-data-co-municipal-water-providers/tree/main#worksheet-columns

Assessment of Dataset and Available Data Elements:

- Shapes do overlap with each other.
- Metadata and method information is sparse.
- The “source” field does provide detailed information about where the data comes from.
- Updated monthly.
- Would need to link multiple sources to get all the data available, and coverage is still low (25% to 50% of active CWSs).

Connecticut

Source: https://maps.ct.gov/portal/home/item.html?id=684908bf05a2430f8a60d58a96d640d6

or: https://maps.ct.gov/portal/home/item.html?id=15389b013ddd425da58b4208b6ec68db

Title: Community_PWS_Service_Areas_publicversion

Description: "An approximation of public water system service areas in Connecticut. For visualization purposes only."[6]

Last Updated: N/A

Publication Date: March 2, 2020

Method: Shapes are a buffered approximation based on service lines.

Coverage:

- 531 PWSIDs in the file.
- Includes 448 of the 477 active CWS in SDWIS (94%).

Data Fields:

Field	Description (interpreted. No description provided by CT)	Type	Field Values
OBJECTID	Internal feature number	Numeric	e.g., 7
PWS_Name	Public Water System name	Text	e.g., KENSINGTON FIRE DISTRICT
PWSID	Public Water System ID (equivalent to SDWIS PWS)	Text	e.g., CT0070011
Shape_Leng	Mapped shape length	Numeric	e.g., 958,277.86
Shape_Le_1	Mapped shape length	Numeric	e.g., 325,380.49

Metadata:

https://maps.ct.gov/portal/sharing/rest/content/items/684908bf05a2430f8a60d58a96d640d6/info/metadata/metadata.xml?format=default&output=html

Assessment of Dataset and Available Data Elements:

- Shapes have some overlap with each other.
- Metadata is minimal.
- Does not include active/inactive field.
- No overlap with Census Places.

[6] Mcphee, Eric. (March 2, 2020). *Community_PWS_Service_Areas_publicversion*. https://maps.ct.gov/portal/home/item.html?id=684908bf05a2430f8a60d58a96d640d6

- Includes PWSID to link to SDWIS.
- There also appears to be a non-buffered version of the CT service areas (https://maps.ct.gov/portal/home/item.html?id=15389b013ddd425da58b4208b6ec68db) that was created November 13, 2023, but it does not indicate it is the "public version" and may be a special run for the creator/owner. This layer also had no metadata associated with it.

Florida

Florida has five water management districts and three of the districts independently publish their water service area boundaries. The South Florida Water Management District (SFWMD) covers the area from the city of Orlando to the Florida Keys; the Southwest Florida Water Management District (SWFWMD) covers the western portion of the state spanning from the city of Ocala to the city of Port Charlotte; and the St. Johns River Water Management District (SJRWMD) covers northeast and east-central Florida from Nassau County in the north down to Indian River County in central Florida.

South Florida Water Management District

Source: https://geo-sfwmd.hub.arcgis.com/datasets/sfwmd::current-public-supply-utility-service-areas/about

Title: South Florida Water Management District - Current Public Supply Utility Service Areas

Description:

"Represents the actual areas currently served water from public supply utilities that have an allocation of 0.10 million gallons per day (mgd) or greater.

SFWMD [South Florida Water Management District] has compiled this dataset from information submitted by the utilities and verified by staff. This data is updated by SFWMD's water supply planning regions in 5-year cycles. Utility service area boundaries may also receive updates during the annual WaSUP [Water Supply Utilities Project] process implemented by the Water Supply Bureau. The primary purpose of this dataset is to determine current population and associated water use demands, and to prepare maps in support of Water Supply Plan updates for the South Florida Water Management District's five regional planning areas (Lower West Coast, Upper East Coast, Lower East Coast, Lower Kissimmee Basin and the Central Florida Water Initiative (CFWI). Note, a utility may or may not have a larger permitted area/franchise area than the actual areas currently served. To view the full permitted boundaries, please refer to the SFWMD Regulation Water Use Permit datasets."[7]

Last Updated: April 24, 2023

Publication Date: April 24, 2023

Method: The data are compiled from information submitted by the systems and are verified by District staff. There are no additional details about what format the information from the systems' is provided in

[7] South Florida Water Management District Open Data (April 24, 2023). *Current Public Supply Utility Service Areas*. https://geo-sfwmd.hub.arcgis.com/datasets/sfwmd::current-public-supply-utility-service-areas/about

or how it was originally produced. The data are updated every 5 years or annually. The boundaries are actual areas served, as opposed to jurisdictional/permitted boundaries.

Coverage:

- 161 PWSs in the file.
- There is no PWSID to link to SDWIS (1,611 active CWS in SDWIS).

Data Fields:

Field	Description	Type	Field Values
OBJECTID	Internal feature ID	Numeric	e.g., 11
UNIQUE_ID	ID assigned by Water Supply Planning for use in overlaying with population data. (PWS ID)	Text	e.g., PembrokePines
CUP_SA	Consumptive Use Permitted Service Area name (Utility Name).	Text	e.g., Pembroke Pines
COUNTY	County	Text	e.g., Broward
PLN_RGN	Three letter code for one of the SFWMD's planning Regions. Central Florida Water Initiative (CFW); LEC (Lower East Coast (LEC); LKB (Lower Kissimmee Basin (LKB); LWC (Lower West Coast (LWC); UEC (Upper East Coast (UEC).	Text	• CFW • LEC • LKB • LWC • UEC
CURRENT_YR	Represents the base year (planning year) for currently served areas per planning region. Each planning region is updated every 5 years.	Nu	e.g., 2022
PERMIT_NO	The Consumptive Use Permit number issued a Water Utility by the SFWMD.	Text	e.g., 06-00138-W
APP_NO	The most recent app number associated with the Consumptive Use Permit assigned by SFMWD for tracking	Text	e.g., 060531-4
EXPIRATION	The date the Consumptive Use Permit expires.	Date	e.g., 12/16/2033, 12:00 AM
ANNL_ALLOC	The Consumptive Use Permitted Yearly Allocation.	Numeric	e.g., 1277
RAW_PRODUCER	Entity that has authorization via a Consumptive Use Permit to pump. water from the ground with the exception of City of West Palm who uses surface waters.	Text	e.g., Hallandale Beach & BCWWS 3 (mix)
WATER_TREATMENT_PLANT	Entity that treats the water to potable standards.	Text	e.g., Hallandale Beach
FINISHED_DISTRIBUTOR	The entity that distributes treated water to the customer.	Text	e.g., Hallandale Beach

Field	Description	Type	Field Values
BULK_BUYER	An entity that does not pump the water from the ground, nor processes it but purchases water 'in bulk' from another entity for distribution.	Text	e.g., Hallandale Beach (intermingled)
BULK_CONTRACT_AMT	The volume in mgd (million gallons daily).	Numeric	e.g., 0.59
LAST_EDITED_USER	Either last person to make an edit or last user to review and verify boundary as correct. Each boundary is reviewed annually in WASUP and is updated by this field.	Text	e.g., AHOFFART
LAST_EDITED_DATE	Last date edits were made or when boundary was last reviewed.	Date	e.g., 10/17/2022, 12:00 AM
PWSID	The PWSID is assigned in the WASUP database. This ID is used to link utilities in WASUP to utilities service areas in this layer.	Text	e.g., 197
WASUP_Utility_Name	Utility name as found in the WASUP database.	Text	e.g., DEERFIELD BEACH CITY OF
WHOLESALE_AREA	Area within a utility's permitted service area but is served under a different entity (city, town, or neighborhood).	Text	e.g., Lake Clarke Shores
COMMENTS	Additional Information about the record.	Text	e.g., Buy raw bulk water from BCWWS
Shape.STArea()	GIS-designated shape area	Numeric	e.g., 123,944,042.943
Shape.STLength()	GIS designated shape length	Numeric	e.g., 49,242.556

Metadata:

https://geoweb.sfwmd.gov/agsext2/rest/services/WaterSupplyPlanningImplementation/UtilityServiceAreas/FeatureServer/0/metadata

Assessment of Dataset and Available Data Elements:

- Metadata does not contain information about data quality and limited information about data collection. No fields associated with quality/accuracy at the shape level.
- Does not include active/inactive field.
- Shapes do not overlap each other.
- Does not include PWSID to link to SDWIS.

Southwest Florida Water Management District

Source: https://data-swfwmd.opendata.arcgis.com/datasets/swfwmd::public-supply-service-areas/about

Title: Southwest Florida Water Management District - Public Supply Service Areas

Description:

"This dataset is a compilation of all water utility retail service boundaries within the Southwest Florida Water Management District. This service is for the Open Data Download application for the Southwest Florida Water Management District."[8]

"A public supply permit applicant must define the entire area proposed to be serviced by the public supply system during the term of the permit. This area includes both the service area in which the supplier has the ability and legal right to distribute water, as well as other areas where an entity purchases water wholesale from the Applicant. Requested quantities for areas proposed to be supplied must be supported with detailed demand information and plans of the supply system proposed to accomplish this service.

"Attributes for each water utility retail service area were added during aggregation, and all attributes are assumed to be 100% complete and correct at time of final delivery. Notes: 1) Polygons FID378 and FID460 were originally private utilities with separate boundaries, however, the attributes were changed to reflect incorporation into Pasco County Utilities. The original utility boundaries of these two polygons were not dissolved into the larger Pasco County due to project time constraints. 2) Marion County Utilities' water service information contains several areas of multiple adjacent polygons with the same attribute information. These boundaries were not aggregated in order to maintain Marion County Utilities' original sub-service area information. As of March 2004, the District has made no formal assessment of accuracy."[9]

Last Updated: November 17, 2021

Publication Date: December 31, 2003

Method: Water utility retail service information was gathered either directly from each water utility or from Southwest Florida Water Management District (SWFWMD) archive files. Each service area was converted into a correctly registered coverage, given correct attributes, and then combined at the county level after overlap examination with other adjacent service areas. The final coverage was then built and cleaned at a 1-meter fuzzy tolerance to ensure correct topology.

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[8] Southwest Florida Water Management District (December 31, 2003). *Public Supply Service Areas*. https://data-swfwmd.opendata.arcgis.com/datasets/swfwmd::public-supply-service-areas/about

[9] Southwest Florida Water Management District (December 31, 2003). *Public Supply Service Areas 1*. https://www.arcgis.com/sharing/rest/content/items/5d3839ac5d0348f2974266d85c096f74/info/metadata/metadata.xml?format=default&output=html

The boundaries will be updated by the Data and Records staff as modifications to public supply water use permits are applied for. This will be done using ArcMap and ArcCatalog to digitize new boundaries or update tabular information.

Data from utilities was received as:

- Hard copy, digital map (pdf), or other non-GIS data received from utility as part of an outreach effort, in response to a public supply survey, or as part of a Water Use Permit (WUP) application or renewal.
- GIS data received from applicant as part of an outreach effort, as part of a response to a public supply survey, or from applicant for a new/renewal WUP application.
- Record(s) edited as part of regular user maintenance.

Coverage:

- 350 PWSs in the file.
- There is no PWSID to link to SDWIS (1,611 active CWS in SDWIS).

Data Fields:

Field	Description	Type	Field Values
OBJECTID	Internal feature number	Numeric	e.g., 141
UTILITYNAME	The name(s) of the utility that claims that water utility retail service area	Text	e.g., CMH PARKS INC
SERVICEAREANAME	The project or service area name for the area (particular polygon) of service	Text	e.g., SPRING HILL MOBILE HOME PARK
NUMBEROFPERMITS	The number of District permits for a single polygon	Numeric	e.g., 1
ALLPERMITS	Permit number(s) of the utility(s) that claim the water utility retail service area. This is a text field to allow for all permits to be seen, such as for Overlap areas. The permits are strung together separated by commas. The preceding zeros have been removed	Numeric	e.g., 4441
WUP_PERMIT_NBR	Water Use Permit (WUP) number assigned to the service area(s)	Numeric	e.g., 4441
COUNTYNAME	The name of the county the utility services.	Text	e.g., POLK
SVCAREAID	The Service Area ID. It identifies the foreign key link to the BOUNDARY_PERMIT table in the Access database, which leads to all additional water utility information collected under this project.	Numeric	e.g., 101

Field	Description	Type	Field Values
UTILITYINFORMATIONID	Numerical utility ID that identifies the foreign key link to the UTILITY_INFORMATION table in Access database, which leads to more detailed water utility information collected under this project.	Numeric	e.g., 82
ADDRESS	The Utility address	Text	e.g., 7500 S COUNTY LINE ROAD
CITY	City the Utility is located	Text	e.g., MULBERRY
STATE	State where the Utility is located	Text	e.g., FLORIDA
POSTALCODE	ZIP Code of the Utility	Text	e.g., 33860
UTILITYCONTACTNAME	Utility contact person	Text	e.g., KRYSTAL AZZARELLA
UTILITYCONTACTTITLE	Job title of the utility contact person	Text	e.g., UTILITIES ENVIRONMENTAL MANAGER
UTILITYPHONENUMBER	Utility phone number	Text	e.g., 863-298-4100
UTILITYPHONEEXT	Phone extension of the contact person	Text	e.g., 12
UTILITYEMAILADDRESS	Utility email address for the contact person	Text	e.g., krystalazzarella@polk-county.net
MAPCONTACTNAME	The Map or GIS contact name	Text	e.g., Eric Phillips
MAPCONTACTTITLE	Job title of map contact person	Text	e.g., INFRASTRUCTURE INFORMATION SUPERVISOR
MAPPHONENUMBER	Map/GIS contact phone number	Text	e.g., (863) 298-4171
MAPPHONEEXT	Phone extension of the map contact person.	Text	e.g., 12
MAPEMAILADDRESS	Email address for the map contact person	Text	e.g., ericphillips@polk-county.net
SOURCE**	The data source format, type, and purpose of the original water utility retail service information. ** Detailed definitions provided below this table	Text	• NON-GIS OUTREACH** • NON-GIS SURVEY • GIS SURVEY • GIS OUTREACH • SWFWMD • NON-GIS APP • GIS APP

Field	Description	Type	Field Values
TYPE	The type of water utility retail service area as specified in Attachment 1 of the original Scope of Work.	Text	• (TSS) Totally Self-Supplied • (NSA-ND) Non-Served Areas - Non-Delineated • (TWSS-NE) Totally Wholesale Supplied – Nonexclusive • Overlap (Indicates the polygon is part of an unresolved overlap and there may be more than one different type of service area involved.) • (TWSS-E) Totally Wholesale Supplied – Exclusive • (PWSS) Partially Wholesale Supplied • (NSA-D) Non-Served - Delineated
AREAFLAG	A flag to indicate whether the polygon can be used for area and population studies. This will remove overlap areas, non-served areas, and duplicate polygons	Text	• Y • N
GIS_UPDATE_DT	Date record was last updated in the Mapping and GIS Section.	Date	e.g., 2012/05/21 00:00:00+00
WUP_PERMIT_TYPE_DESC	Description for the type of water use permit	Text	• SMALL GENERAL (Annual avg. demand <100,000 gal/day) • GENERAL (Annual avg. demand >100,000 and <500,000 gal/day) • INDIVIDUAL (Annual avg. demand >500,000 gal/day)
UTILITY_TYPE	Type of Utility. Either Public or Private	Text	• PUBLIC UTILITY • PRIVATE UTILITY
UTILITY_SA_TXT	Utility service area text	Text	e.g., POLK COUNTY UTILITIES; SA: CENTRAL REGIONAL UTILITY SERVICE AREA
SHAPEAREA	Area of feature in internal units squared	Numeric	e.g., 536759346.6
SHAPELEN	Length of feature in internal units	Numeric	e.g., 162788.505

Data Source Field Value Definitions:

% of PWSs	Value	Full Title	Description
9%	NON-GIS OUTREACH	NON-GIS DATA UTILITY/ CONSULTANT OUTREACH	Hard copy, digital map (pdf), or other non-GIS data received from utility as part of an outreach effort conducted by the Water Use Conservation and Outreach section or the Planning Department.
31%	NON-GIS SURVEY	NON-GIS DATA UTILITY/ CONSULTANT SURVEY	Hard copy, digital map (pdf), or other non-GIS data received in response to a public supply survey.
4%	GIS SURVEY	GIS DATA UTILITY/ CONSULTANT SURVEY	GIS data received from applicant as part of a response to a public supply survey
3%	GIS OUTREACH	GIS DATA UTILITY/ CONSULTANT OUTREACH	GIS data received from utility as part of an outreach effort conducted by the Water Use Conservation and Outreach section or the Planning Department
17%	SWFWMD	SWFWMD LAYER MAINTENANCE	Record(s) edited as part of regular user maintenance. (tabular or polygonal)
9%	NON-GIS APP	NON-GIS DATA UTILITY/ CONSULTANT APPLICATION/ RENEWAL	Hard copy, digital map (pdf), or other non-GIS data format received as part of a WUP application or renewal.
23%	GIS APP	GIS DATA UTILITY/ CONSULTANT APPLICATION/ RENEWAL	GIS data received from applicant for a new/renewal WUP application
4%	HARD COPY MAP FROM UTILITY	Not defined	Not defined in metadata; hard copy map provided by the utility

Metadata:

https://epa.maps.arcgis.com/sharing/rest/content/items/5d3839ac5d0348f2974266d85c096f74/info/metadata/metadata.xml?format=default&output=html

Also this link provides details for water systems on how to update their service area boundaries: https://www.swfwmd.state.fl.us/resources/data-maps/section-maps-public-supply-service-areas

Assessment of Dataset and Available Data Elements:

- Some shapes seem to overlap with Census Place data.
- Metadata contains information about data collection and the SOURCE field at the shape level can be used to help assess quality for each boundary.
- Does not include active/inactive field.
- Shapes may overlap each other but this is noted and there is guidance on how to interpret the overlap.
- Does not include PWSID to link to SDWIS. There may be supporting tables that provide a linkage.

St. Johns River Water Management District

Source: https://data-floridaswater.opendata.arcgis.com/datasets/f2f54ba2896e464a890ce827644f250d_0/explore?location=29.592353%2C-79.988714%2C7.84

Title: Public Water Supply Area SJRWMD

Description: "Map of public water supply service areas within the SJRWMD [St. Johns Water Management District] that have a public supply CUP [Consumptive Use Permit Number] allocation component from ground and/or surface water sources.

"With population expected by 2020 to increase to nearly 5.2 million and total water demand for SJRWMD projected to increase to about 1.85 billion gallons per day These data become one part of an integrated water resource allocation and water supply decision-making process. In significant portions of the priority water resource caution areas, alternative water supply sources will have to be developed to meet future needs while sustaining water quality, wetland and aquatic systems, and existing legal uses. Groundwater alone cannot meet all future water supply needs. Development of alternative sources of supply will require cooperation among the water supply utilities, SJRWMD, and the Florida Department of Environmental Protection. These data represent one of the water supply development components of The St. Johns River Water Management District's (SJRWMD) District Water Supply Plan (DWSP)."[10]

Last Updated: February 7, 2024

Publication Date: November 22, 2022

Method: Dataset metadata indicates that the "feature polygons are created from data sent by individual water utilities .dxf, .dwg, .shp, coverages, hard copy maps and SJRWMD CUP boundaries with heads up digitizing from DOQQs."

"These data were not collected under the supervision of a licensed Professional Surveyor and Mapper. Furthermore, the St. Johns River Water Management District prepares and uses this information for its own purposes. This information may not be suitable for other purposes and is provided "as is."[11]

It appears some of the data were digitized from hand drawn maps in 1991 and/or 1998. New data is added over time when it is obtained from utilities.

Method of creation each service area boundaries are briefly detailed in the "SOURCE" attribute as well as contact information "SOURCE_CON" for each boundary.

Further documentation for the data can be obtained by emailing GIS_Support@sjrwmd.com.

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[10] St. Johns River Water Management District (SJRWMD) Open Data. (November 22, 2022). *Public Water Supply Area SJRWMD*. https://data-floridaswater.opendata.arcgis.com/datasets/f2f54ba2896e464a890ce827644f250d_0/about

[11] St. Johns River Water Management District (SJRWMD) Open Data Feature Server (November 22, 2022). *Public Water Supply Area SJRWMD FeatureServer Metadata*. https://services.arcgis.com/s8wtJX9suxFen6TA/ArcGIS/rest/services/Public_Water_Supply_Area_SJRWMD/FeatureServer/info/metadata

Coverage:

- 398 PWSs in the file.
- Includes 344 of the 1,605 active CWS in SDWIS (21%).

Data Fields

Field	Description	Type	Field Values
OBJECTID	Internal feature number.	Numeric	e.g., 6
DISTRICT	Water Management District Name.	Text	• SJRWMD • SFWMD • SWFWMD • SRWMD
CNTY_NAME	County(s) that the PWS service area boundary is located in.	Text	e.g., BREVARD
UTILITY	Utility name.	Text	e.g., COBBLESTONE II RVG LLC
CUP_TEXT	Official District consumptive use permit number (CUP) in text format.	Text	e.g., 50301
CUP_NUMBER	Official District consumptive use permit number (CUP).	Numeric	e.g., 50,301
ALT_NAME	Common/local name of utility if applicable.	Text	e.g., BAREFOOT BAY
OWNER	Owner of utility.	Text	e.g., WEDGEWOOD HOMEOWNERS ASSOC INC
PWS_ID	DEPs Source Water Assessment and Protection Program (SWAP).	Numeric	e.g., 3054060
UTIL_CAT	Utility Category.	Text	• Small • Large • Other
COMMENTS	Additional Information about the record.	Text	e.g., CUP # 3060 is closed.
STATUS	Is boundary served, unserved, partially served, proposed, or existing. Served = area is served with potable water, unserved = area is not served with potable water, partially served = area is partially served with potable water, existing = area belongs to utility but served or unserved areas are unknown, proposed = area is proposed to be served in the future.	Text	• Served • Unserved • Partially served • Existing • Proposed
OVERLAP	Area(s) where PWS service area boundaries of different utilities overlap.	Text	e.g., WITH CITY OF DAYTONA BEACH (CODB)
UPDATE_DAT	Date service area was updated/ revised/ edited etc.	Date	e.g., 2/24/2012

Field	Description	Type	Field Values
UPDATE_BY	Person who updated/revised/edited the polygon.	Text	e.g., STEVE BROWN
SOURCE	Source of the information, i.e. shapefile, .dxf, .dwg, hard copy map etc.	Text	e.g., SHP FROM UTILITY
SOURCE_DAT	Date of source material.	Date	e.g., 8/21/2008
SOURCE_CON	Person to contact for information regarding service area.	Text	e.g., RON FERLAND
CNTY_FIPS	County FIPS code.	Numeric	e.g., 9
CNTY_ID	Unique ID for Counties.	Numeric	• 1 • 2 • 4 • 5
WMD	What water management district(s) service area is located in.	Text	• SJRWMD • SFWMD • SRWMD • SWFWMD
DIST_ID	Unique ID for Water Management District(s).	Numeric	• 1 (SJRWMD) • 2 (SFWMD) • 4 (SRWMD) • 5 (SWFWMD)
ACRES	Area in acres.	Numeric	e.g., 84.5758256
COMMENTS	Additional pertinent information.	Text	e.g., POTENTIAL EXPANSION
STD_WMD	Standardized water management district(s) that the service area is located in.	Text	e.g., SJRWMD
STD_CNTY	Standardized county name.	Text	e.g., VOLUSIA
STD_CUP	Standardized official District consumptive use permit number (CUP).	Text	e.g., 50301
STD_NAME	Standardized utility name.	Name	e.g., EAST CENTRAL FLA SERVICES INC
CFWI	Central Florida Water Initiative.	Text	• Yes • [Blank]
Shape__Area	Area of feature in internal units squared.	Numeric	e.g., 58110.13713
Shape__Length	Length of feature.	Numeric	e.g., 342266.224

Metadata:

https://www.arcgis.com/sharing/rest/content/items/f2f54ba2896e464a890ce827644f250d/info/metadata/metadata.xml?format=default&output=html

https://services.arcgis.com/s8wtJX9suxFen6TA/ArcGIS/rest/services/Public_Water_Supply_Area_SJRWMD/FeatureServer/info/metadata

Assessment of Dataset and Available Data Elements:

- Minimal overlap with Census Place data.
- Does not include active/inactive field.
- Data appear to be maintained and updated on a regular basis, last update in 2022.
- The “source” fields provide information about data source, editor, and comments. More documentation should be available upon email request.

Kansas

Source: https://hub.kansasgis.org/maps/KSDOT::rural-water-districts/about

Title: Rural Water Districts

Description:

Map of public water supply system boundaries. This web map covers the state of Kansas.

"Depicts the boundaries of the Kansas Rural Water District boundaries. The root dataset includes boundaries for most public water supply systems (PWS) in Kansas (525 municipalities, 289 rural water districts and 13 public wholesale water supply districts), and infrastructure data for rural water districts (RWD) and public wholesale water supply districts (PWWS)." [12]

"RWD boundaries delineate the service area (not incorporated area) of the district; municipal boundaries are generally the city limits included in the 2000 U.S. Census Bureau Tiger files, although some municipal boundaries may be the actual water distribution system service area. PWWSD [Public Wholesale Water Supply District] district boundaries are the composite boundaries of the district members. Infrastructure includes the general location of:

- the main pipelines in the distribution system;
- the source water wells and surface water intakes;
- facilities (storage tanks, pump stations and surface water treatment plants); and
- interconnections between PWS systems for wholesale water distribution.

"These data were collected by the Kansas Rural Water Association (2004-2006), working directly with the public water supply systems, using printed maps of the 1992 datasets. Updates were hand-drawn on the maps and then heads-up digitized at the Data Access and Support Center. This dataset was developed to support programs at the Kansas Water Office and the Kansas Department of Health and Environment. These data should be used for planning or general reference purposes only." [13]

Last Updated: December 8, 2022

Publication Date: January 15, 2016

Method: "Rural Water District boundaries delineate the service area (not incorporated area) of the district; municipal boundaries are generally the city limits included in the 2000 U.S. Census Bureau Tiger files, although some municipal boundaries may be the actual water distribution system service area. PWWSD district boundaries are the composite boundaries of the district members." [14]

[12] Kansas Data Access & Support Center. (January 15, 2016). *Rural Water Districts*. https://hub.kansasgis.org/maps/KSDOT::rural-water-districts/about
[13] Kansas Rural Water Association. (Date unknown). *Boundaries for Rural Water Systems Mapovers.* https://krwa.net/Online-Resources/RWD-Maps
[14] *Ibid.*

The infrastructure data (and possibly boundary data?) were collected from printed maps from 1992, with updates hand-drawn and then heads-up digitized.

Coverage:

- 791 PWSs in the file (800 records).
- Includes 779 of the 864 active CWS in SDWIS (90%).

Data Fields

Field	Description (interpreted – not provided by KS)	Type	Field Values
FID	Internal feature ID	Numeric	e.g., 454
OBJECTID	Internal object ID	Numeric	e.g., 454
KDHE_ID	Kansas Department of Health and Environment (DHE) State System ID	Text	e.g., D9010
FED_ID	Federal system ID (equivalent to SDWIS PWSID)	Text	e.g., KS2003102
ABBR	Water district name abbreviation	Text	e.g., CF-02
DWR_ID	Kansas Division of Water Resources (DWR) system ID	Numeric	e.g., 22506
PERSONID	Same as DWR_ID	Numeric	e.g., 22,506
RPA_SOURCE	Kansas regional planning area (RPA). RPAs are recognized in Kansas as major river basins	Text	• Ci (Cimarron) • Ew (Equus-Walnut) • Gb (Great Bend Prairie) • Ks (Kansas) • Mc (Marais des Cygnes) • Mo (Missouri) • Ne (Neosho) • Rh (Red Hills) • Sr (Solomon-Republican) • Ss (Smokey Hill-Saline) • Ua (Upper Arkansas) • Ur (Upper Republican) • Us (Upper Smokey Hill) • Ve (Verdigris)
RPA_OTHER	Not defined	Text	• (same options as RPA_SOURCE), plus: • js • ms
NAME	Water district name	Text	e.g., Coffey Co. RWD #02
NAMEWCPSTA	Water district name from Water Conservation Plan (WCP)	Text	e.g., Coffey County RWD No. 02
NAME_SANDP	Alternative water district name	Text	e.g., Coffey RWD 02

Field	Description (interpreted – not provided by KS)	Type	Field Values
MUNREGION	Not defined	Text	• 1 through 8 • 6ML • 6S • 7L • 7M • 7S • 8L • 8M • 8S
SYMBOLOGY	Not defined	Text	• City • Group 1/6 • Group 2/7 • Group 3/8 • Group 4/9 • Group 5/10
DATE_EDIT	Date last edited	Date	e.g., 09/27/2023 97% of records are blank
COMMENTS	Comments for this system	Text	e.g., Merged DP_01 into DP_06 (only 3 records not blank)
CERITFIED	Date last certified	Date	e.g., 9/17/2020 (only 1 record not blank)
SHAPE_Le_1	Shape length	Numeric	e.g., 30969.6496635
SHAPE_Area	Shape area	Numeric	e.g., 1808253.80088

Metadata:

https://www.arcgis.com/sharing/rest/content/items/b308accc1c6a4177bb7f7d6cd74a0ce9/info/metadata/metadata.xml?format=default&output=html

Assessment of Dataset and Available Data Elements:

- Does not overlap with Census Places.
- Some shapes have minimal overlap with each other.
- Includes PWSID (FED_ID) field to map to SDWIS PWSID.

Mississippi

Source: https://mpsc-mississippi.opendata.arcgis.com/datasets/5a08ea9c3f6140479260f1f15e115bd1_1/about

Title: PSC_CurrentCAs/WaterCurrentCAs

Description: Mississippi Current Water Utility Certificated Areas. "Utility information compiled by the [Mississippi Public Service Commission] Public Utilities Staff. The map was generated by the Certificated Area Mapping Information System (CAMIS). Base data were supplied by the Mississippi Automated Resource Information System (MARIS). The utility information and base data contained on this map are considered dependable, but the accuracy, completeness, and currency thereof are not guaranteed."[15]

Last Updated: December 13, 2023

Publication Date: November 22, 2021

Method: Unknown

Coverage: Unknown. No PWS ID listed.

Data Fields

Field	Description (interpreted. No description provided by MS)	Type	Field Values
OBJECTID_1	Internal feature number.	Numeric	e.g., 11105
OBJECTID	Internal feature number.	Numeric	e.g., 18
ORDER_DATE	Unknown. Ranges from 1953 to 2023.	Date	e.g., 10/17/1967, 8:00 PM
CREDITUTIL	Unknown. This is an ID field. There are multiple records per ID, with equivalent values in most fields except ORDER_DATE.	Text	e.g., UU123000000
DEBITUTIL	No data.	Unknown	(blank)
ASOF_DATE	No data.	Unknown	(blank)
FIPS	County FIPS code. Mississippi codes lead with 28.	Numeric	e.g., 121 Full FIPS code ex 28121
UTILITY_NA	Utility Name.	Text	e.g., Yellow Creek Water Assn.
Shape_Leng	No data.	N/A	NA
MAP_CODE	Unknown. Value is numeric or "CANC."	Text	e.g., 497
County	County of water utility.	Text	e.g., NOXUBEE
LEGEND_LABEL_1	Equivalent to MAP_CODE.	Numeric	e.g., 497

[15] Mississippi Public Utilities Staff. (November 22, 2021). *MS PSC Current Utility Certified Areas Metadata.* https://mpsc-mississippi.opendata.arcgis.com/datasets/5a08ea9c3f6140479260f1f15e115bd1_1/about

Field	Description (interpreted. No description provided by MS)	Type	Field Values
LEGEND_LABEL	Combination of LEGEND_LABEL_1 and UTILITY_NA.	Text	e.g., 194 Wren Water District, Inc.
ORDER_TYPE	Unknown. Likely refers the MSC utility docket order type.	Text	• 0 • INITIAL • SUPPLEMENTAL • SALE & TRANSFER • CANCELLATION
Shape__Area	Length of feature.	Numeric	e.g., 340660905.552826
Shape__Length	Area of feature in internal units squared.	Numeric	e.g., 91886.683433

Metadata:
https://services2.arcgis.com/tONuKShmVp7yWQJL/arcgis/rest/services/PSC_CurrentCAs/FeatureServer/4/metadata?format=default&f=html

https://www.arcgis.com/sharing/rest/content/items/5a08ea9c3f6140479260f1f15e115bd1/info/metadata/metadata.xml?format=default&output=html

Assessment of Dataset and Available Data Elements:

- Does not have PWSID. May be able to link with name and/or the CREDITUTIL field which may be a Mississippi state-level ID field.
- Many attributes are not explained and/or missing.
- Does not include active/inactive field.
- Shapes have no/minimal overlap with each other.
- Does not have detailed metadata.

Missouri

Source: https://data-msdis.opendata.arcgis.com/datasets/c00f4e1d0fac49c5ad8cb32a163ab2b5_0/about

Title: Public Drinking Water Systems (Missouri Department of Natural Resources)

Description: "This layer was originally developed for use in the MoDNR [Missouri Department of Natural Resources]-funded Vulnerability Assessment (VA) of Missouri Public Drinking Water to Chemical Contamination Project at CARES. The VA project was implemented in 1991 by MoDNR. MoDNR - PDWB [Public Drinking Water Branch] contracted with CARES to conduct this assessment. The project is designed to determine which, if any, public water supplies are threatened by any chemicals being tested under the Safe Drinking Water Act.

This dataset was prepared by the Missouri Department of Natural Resources. This layer contains the boundaries of the public water supply districts (PWSD) in the State of Missouri. 2022 update."[16]

Last Updated: September 15, 2022

Publication Date: October 1, 2021

Method: "Water district service areas (boundaries) are typically static. However, from time to time the service areas may change. These changes are not always reflected in the current Geographic Information System (GIS) data set. Changes are only made if the water district notifies the PDWB of the change and supplies a description of the new service area. Districts that have been broken into multiple contiguous areas for sampling have been merged into a single polygon. Water Districts that lack defined boundary information are defined by water line information. Water districts that have not submitted their service area are not included. This data set contains only active water districts."[17]

Coverage:

- 247 PWSs in the file (7 duplicates).
- Includes 247 of the 1,434 active CWS in SDWIS (17%).

Data Fields

Field	Description	Type	Field Values
FID	Internal feature number	Numeric	e.g., 7
PWSSNAME	Name of system. This may not match the system name found in SDWIS	Text	e.g., Clark Co. Cons. PWSD #1

[16] David Erickson, Missouri Department of Natural Resources. (October 1, 2021). *MO Public Drinking Water Districts*. https://data-msdis.opendata.arcgis.com/datasets/c00f4e1d0fac49c5ad8cb32a163ab2b5_0/about

[17] David Erickson, Missouri Department of Natural Resources. (October 1, 2021). *MO Public Drinking Water Districts metadata*. https://www.arcgis.com/sharing/rest/content/items/c00f4e1d0fac49c5ad8cb32a163ab2b5/info/metadata/metadata.xml?format=default&output=html

Field	Description	Type	Field Values
PWSSID	ID assigned to system	Numeric	e.g., 2024138
IPWS	ID assigned to system with MO Prefix (equivalent to SDWIS PWSID)	Text	e.g., MO2024138
STATUS	Status of system	Text	• Active
COUNTY	Majority county system operates in	Text	e.g., Clark
MDNRREG	Regional office overseeing system	Text	• Central • Kansas City • Northeast • Southeast • Southwest • St. Louis
MDNRNUM	Regional office number	Numeric	1 through 6
SQMI	Area in square miles	Numeric	e.g., 838.5478094
ACRES	Area in acres	Numeric	e.g., 536671
POP_SERVED	Last listed population served by system	Numeric	e.g., 7025
SCALE	Scale of source material	Numeric	• -9999 • 12000 • 24000 • 50000
COLOR	Used for cartographic distinction of adjoining polygons	Numeric	1 through 6
YEAR_	Year system became operational	Numeric	e.g., 1967
LASTUPDATE	Date record was last updated	Date	e.g., 12/4/2007 Year ranges 2004 to 2021
DB2GSE_ST_	[Undefined]	Numeric	• 0
DB2GSE_Sde	[Undefined]	Numeric	• 0
Shape__Area	Shape area	Numeric	e.g., 3741628966
Shape__Length	Shape length	Numeric	e.g., 475116.791

Metadata

https://undefined.maps.arcgis.com/sharing/rest/content/items/c00f4e1d0fac49c5ad8cb32a163ab2b5/info/metadata/metadata.xml?format=default&output=html

Assessment of Dataset and Available Data Elements:

- Does not overlap with Census Places.
- Does include active/inactive indication.
- Shapes do not overlap with each other.
- Includes PWSID.
- Data are old – more than 80% of the boundaries have not been updated since 2012.

New Hampshire

Source: New Hampshire Department of Environmental Services (NHDES) OneStop Data, Public Water Supply Data Layers[18]

Title: DWGB_Water_Service_Area or Water_Lines_Buffer_Archive

Description: New Hampshire Public Water service area boundaries. The coverages are under continuous development and may not be considered complete. More data may be available from NH upon request. The data appear to be equivalent to a second layer of buffered water service lines provided by the Water Division, NHDES staff for this request.

For the buffered water service lines: "This dataset was developed to allow risk assessment for contaminated sites, to make interconnection assessments, and to reduce monitoring costs for water systems.

This dataset includes water and sewer line distribution areas for public drinking water systems with at least 15 service connections used by year-round residents or regularly serve at least 25 year round residents.

The datasets are based on marked up drawings provided by the survey team. In most cases the lines are interpolated by comparing the markups to aerial and vector basemap data. Once the lines are digitized (heads up method) a 200 ft buffer is applied. The location of the resulting polygon is approximate."[19]

Note that these data are not publicly available and may not be shared without permission from NHDES.

Last Updated: Unknown

Publication Date: Unknown

Method: The method for producing the Water Service Area layer is unknown. However, some information is provided in the metadata for the buffered water lines layer (both layers appear to be equivalent).

"Information has been submitted through NHDES staff taking maps out during site visits to confirm accuracy, e-mail requests to larger water systems requesting submittal of the latest electronic version, submittals from regional planning commissions and using as-built drawings. Initial check by NHDES after coverages were first available from water systems to verify whether coverage was accurate. Periodically water systems view the coverage and submit changes.

[18] New Hampshire Department of Environmental Services. (January 15, 2024). *New Hampshire OneStop Data Provider Registration Form.* https://www4.des.state.nh.us/onestopdataproviders/registrationform.aspx?id=NEW
[19] New Hampshire Department of Environmental Services (NHDES). (Provided February 15, 2024). *Water_Lines_Buffer_Archive.shp.xml.* Not publicly available.

This dataset was initially developed by selecting all roads (in the Department of Transportation (DOT) road coverage layer) that are serviced and then buffering them by 200 feet. Specifically the lines are not pipelines, they are roads that have water/sewer service. Distribution mains that do not follow roads were manually drawn in. Only main distribution lines were digitized. No service lines or valve locations were digitized. Paper maps and digitized coverage direct from water systems were used to create original coverage. Paper maps may not reflect true as-built information. Recent updates include buffered lines digitized from aerial imagery or DOT roads and based on paper maps. Digital coverages received directly from the water systems have also been added ."[20]

Coverage:

- 826 PWSs in the file (0 duplicate records).
- Includes 414 of the 710 active CWS in SDWIS (58%).

Data Fields:

Field	Description (interpreted. No description provided by NH)	Type	Field Values
PWS_ID	Public Water System (PWS) ID Number.	Text	e.g., 0102010
SYS_TYP	System type.	Text	• C = community residential, • P = non-community/ non-transient; • N = non-community/ transient
SYS_NAME	Commonly accepted name for water system.	Text	e.g., ANTRIM SEWER AND WATER DEPT
SYS_CAT	Service Category Code.	Text	e.g., RSA (Rest Area)
POPULATION	Population served by the system.	Numeric	e.g., 920
N_SRVC_CON	Number of service connections.	Numeric	e.g., 312
N_GRND_SOU	Number of ground water sources.	Numeric	e.g., 5
N_SURF_SOU	Number of service water sources.	Numeric	e.g., 2
SEASNL_BEG	Unknown.	Text	e.g., 0401
SEASNL_END	Unknown.	Text	e.g., 1031
SYS_TOWN	Name of the town the service area is located in.	Text	e.g., ANTRIM

Metadata:

New Hampshire Department of Environmental Services (NHDES). Water_Lines_Buffer_Archive.shp.xml

Assessment of Dataset and Available Data Elements:

- The service area data appear to be equivalent to the water lines data.

[20] *Ibid*.

- The New Hampshire PWS service area boundaries provided in SimpleLab and Environmental Policy Innovation Center's (EPIC) U.S. Community Water Systems Service Boundaries layer may better represent NH boundaries than the data provided by NHDES. The boundaries in the EPIC layer are also based on water supply data requested from NHDES: the water lines dataset and the sewer service lines dataset. For the EPIC layer, both sets of lines are aggregated and buffered and have received the "OK" from NHDES to present publicly. More information on EPIC's processing steps can be found here: https://github.com/ewiggansLI/NH_DES_PWS.

New Jersey

Source: https://njogis-newjersey.opendata.arcgis.com/maps/00e7ff046ddb4302abe7b49b2ddee07e_13/about

Title: Purveyor Service Areas of New Jersey (New Jersey Department of Environmental Protection)

Description: "New Jersey Public Community Water Supply Purveyor service areas boundaries were collected and digitized to enable long term water supply planning, and to aid in emergency management during drought.

"This is a geographical representation of the 2017 Public Community Water Purveyor Service Areas GIS data layer. Water purveyors are regulated by the NJDEP Bureau of Safe Drinking Water, under the Safe Drinking Water Act. Public Community Water Purveyors are systems that pipe water for human consumption to at least 15 service connections used year-round, or one that regularly serves at least 25 year-round residents. Public purveyors can be government agencies, private companies, or quasi-government groups. The boundaries mapped are those of the actual water delivery or service area. Franchise areas are not depicted (areas with legal rights for future service once developed). Water sources (wells or surface water intakes) are often located outside the delivery area boundaries.

"The Public Community Water Supply Purveyor service area layer is considered complete, but in maintenance mode. As Purveyors submit water permit applications for expansion of service to the NJDEP, they are required submit a GIS layer of the new area. As the submittal comes in, it is updated on an edit version. Also, each quarter, a business objects report is created from NJEMS and all purveyor closures or mergers are examined and updated. There are a few service areas that have not been updated due to a lack of information. As the information comes in through NJDEP Enforcement site visits, these service areas will be updated."[21]

Last Updated: March 2, 2022

Publication Date: June 9, 2017

Method: Services area boundaries are modified as Purveyors submit water permit applications for expansion of service or creation of new service areas to the NJDEP. A GIS layer of the area is required to be submitted with the permit applications. The submissions are reviewed and updated quarterly. "For all systems who did not submit a digital GIS dataset, the service area was mapped during the purveyor's bi-annual enforcement inspection and incorporated into this dataset after Water Supply staff QA/QC'd the data. Data submitted to the NJDEP met or exceeded the NJDEP's Digital Data Standards guideline."[22]

Coverage:

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[21] NJ Department of Environmental Protection. (March 2, 2022). *Public Community Water Purveyor Service Areas, New Jersey, Edition 20220302 (Util_drinkingwater_PSA) (Web Mercator ArcGIS Online Service)*. https://www.arcgis.com/sharing/rest/content/items/00e7ff046ddb4302abe7b49b2ddee07e/info/metadata/metadata.xml?format=default&output=html

[22] *Ibid.*

- 570 PWSs in the file.
- Includes 564 of the 566 active CWS in SDWIS (99%).
    - 5 inactive sites, 1 active Non-Transient Non-CWS.

Data Fields:

Field	Description	Type	Field Values
OBJECTID	Internal feature number	Numeric	e.g., 7
PI_ID	NJDEP regulatory identification number State	Numeric	e.g., 87,852
PWID	Federal regulatory identification number. First 2 digits = county code, next 3 digits = municipal code, last 3 digits = sequential number assigned by EPA. Codes are county or municipality, listed alphabetically, and assigned a value. e.g. 01 = Atlantic, etc.	Text	e.g., NJ0436002
Purveyor Name	Represents the system name for the water purveyor.	Text	e.g., Atlantic City MUA
Service Area Type	Represents the system type for the water purveyor.	Text	• S (Service Area) • W (Wholesale)
Purveyor Reports	Internet link to the system's Source Water Assessment Report	Text	e.g., http://www.nj.gov/cgi-bin/dep/swap/swapdata2.pl?psid=0102001
Agency Website	Water purveyor website	Text	e.g., http://www.acmua.org/contact-us.html
NOTES	Notes (description not included in metadata)	Text	All values blank
USER_LAST_UPDATE	Name of person updating attribute	Text	All values blank
TMSP_LAST_UPDT1	Date and time last updated	Date	All values blank
GLOBALID	Internal feature number.	Numeric	e.g., {138108C9-4B7C-4A28-BE96-74CCBAB66349}
SHAPE_Length	Shape Length	Numeric	e.g., 158,206.71
SHAPE_Area	Shape area	Numeric	e.g., 150,235,331.06

Metadata:
https://www.arcgis.com/sharing/rest/content/items/00e7ff046ddb4302abe7b49b2ddee07e/info/metadata/metadata.xml?format=default&output=html

Assessment of Dataset and Available Data Elements:

- Boundaries are actual areas served (not jurisdictional areas).
- Does not include active/inactive field.
- Minimal overlap with census areas/Census Places.
- No data fields include indication of method/quality, but overall dataset method is explained explicitly.
- Shapes do not overlap with each other.
- Includes SDWIS PWSID.

New Mexico

Source: https://geospatialdata-ose.opendata.arcgis.com/datasets/OSE::new-mexico-public-water-system-boundaries/about

Title: New Mexico Public Water System Boundaries

Description:

"The New Mexico Public Water System (PWS) boundaries is a dataset of non-transient PWS service areas. In 2023, the New Mexico Legislature passed the Regional Water System Resiliency Act, which allowed the formation of regional water authorities to strengthen the state's aging water infrastructure. The law allows public water systems to organize as recognized political subdivisions, which enables the pooling of resources to hire staff, implement new projects and programs, and access funding for system improvements. The law requires new authorities to file information showing their service area boundary with the Office of the State Engineer (OSE). New service area boundaries provided to the OSE will be incorporated into this dataset as appropriate.

"The New Mexico Public Water System (PWS) Boundaries is a dataset of non-transient PWS service areas. The data was compiled by the OSE Water Use and Conservation Bureau (WUCB) with contractor assistance. For systems not providing a service area boundary, best approximation polygons were created using municipal boundaries, census data, and aerial imagery."[23]

"The work to improve the collection and compilation of PWS use data is part of a larger project to improve water use data collection and improve data integration with the United States Geological Survey (USGS). This is the first PWS geodatabase built for the OSE WUCB which will provide a critical tool for analyzing populations served by the systems."[24]

Last Updated: January 30, 2024

Publication Date: January 23, 2024

Method: "Water system area as of the fall 2019 and winter 2020 based on extent of water lines, water meters, parcels served or service boundary provided by each public water system. Best approximation water system areas were developed for systems that were not responsive to requests for data or smaller systems. The best approximation areas were based on municipal boundaries, census blocks, aerial imagery and/or OSE water right place of use information."[25]

[23] New Mexico Office of the State Engineer. (January 30, 2024). *New Mexico Public Water System Boundaries.* https://geospatialdata-ose.opendata.arcgis.com/datasets/OSE::new-mexico-public-water-system-boundaries/about
[24] New Mexico Office of the State Engineer. (June 24, 2020). *PWS Geodatabase Documentation Report*. https://geospatialdata-ose.opendata.arcgis.com/documents/edc01573d8bd47269117ef949d70b56f/explore
[25] *Ibid*.

The documentation indicates that polygons were acquired or confirmed for 308 systems (covering 94 percent of water use in the state) and best approximation polygons were developed for an additional 317 PWSs (6 percent of water use in the state).

"Service area polygons were acquired or created by contacting the water systems using names and phone numbers obtained from the DWB data. Some systems were able to provide ArcGIS shapefiles of their boundaries, parcels served or water lines. Other PWS provided a digital map of their boundary or water lines and some sent photographs of maps of their systems. For those systems with an OSE water right file number associated with the system (from OSE WUCB) the water right information was reviewed to obtain a map of the service area. Where no map was available, the water right place of use (POU) was used to define the best approximation polygon for 64 systems. The best approximation boundary for 253 systems was based on the municipal boundaries, census blocks and Esri aerial imagery."[26]

Coverage:

- 612 PWSs in the file (16 duplicate records).
- Includes 526 of the 564 active CWS in SDWIS (93%).

Data Fields

Field	Description	Type	Field Values
OBJECTID	Internal feature number. Sequential unique whole numbers that are automatically generated.	Number	e.g., 58
Water System ID	PWS Geodatabase unique ID for each system, based on New Mexico Environment Department (NMED) Drinking Water Bureau (DWB) ID if available and modified to designate portion within county where split. For systems not identified by the NMED DWB, the water right number was used as an ID.	Text	e.g., NM3502426
POD File	Point of Diversions. File includes well locations, surface declarations, or surface permits updated on a monthly basis.	Text	e.g., RG-31969
System Name	The name of the PWS.	Text	e.g., Enchanted Mesa Mobile Home Park

[26] *Ibid*.

Field	Description	Type	Field Values
System Type	Water system type.	Text	• COO (Cooperative) • CWU (County Water Utility) • MBWS (Military Base Water System) • MDWA (Mutual Domestic Water Association) • MWS (Municipal Water System) • NTS or NTWS (Non-Transient Water System) • RWUA (Regional Water Utility Authority • TNC (Transient Non-Community Water System) • UNK (Unknown Water System Type) • WUA (Water User Association)
County	County Name.	Text	e.g., Curry
Water Planning Region	NM Interstate Stream Commission water planning region number.	Text	e.g., Middle Rio Grande
City	Nearest City to PWS.	Text	e.g., Radium Springs
Creator	Name of person who added the feature to the data.	Text	e.g., A. Lewis
Create Date	Date the feature was added to the data.	Date	e.g., 8/23/2019, 2:00 AM
Lasted Edited	Name of person who lasted edited the feature.	Text	e.g., jvaldez
Edited Date	Date of last modification.	Date	e.g., 11/26/2019, 5:49 PM
Data Provider	Provider or source of a feature.	Text	e.g., Census Blocks & Esri Imagery
Boundary Source	The source of the boundary.	Text	• Placeholder • pws-provided boundary • heads-up digitizing • POU WATERS • pws-provided waterlines • pws-provided parcels • Other • modified pws data/map • El Prado_WD_Parcels • geodatabase from City of Rio Rancho-boundary
Surface Water Basin	Surface water source(s) used by the water supplier	Text	e.g., Pecos
Groundwater Basin	Ground water source(s) used by the water supplier	Text	e.g., Rio Grande

Field	Description	Type	Field Values
OSE Status	Status of PWS according to the OSE. Water Systems that purchase water from another utility, but maintain their own customers are considered active.	Text	• Active • Inactive
Shape__Area	Area of feature in internal units squared	Numeric	e.g., 55239544.3112793
Shape__Length	Length of feature	Numeric	e.g., 22034.83034771557

Metadata:

Public Water Systems Geodatabase Documentation Report, prepared by HydroAnalytics, LLC for the OSE Water Use and Conservation Bureau for the creation of a public water systems layer. Created on June 24, 2020. https://geospatialdata-ose.opendata.arcgis.com/documents/edc01573d8bd47269117ef949d70b56f/explore

Assessment of Dataset and Available Data Elements:

- Minimal overlap with Census Place data.
- Does include active/inactive field.
- Data are maintained and updated continuously.
- The "source" field does provide information about data source but more detailed information should be provided.
- The Geodatabase Documentation Report lists field descriptions for fields not included in the online map that would be useful to obtain, that is: Boundary Notes (notes on the source of the water service area); Boundary Quality (designates the level of confidence in the accuracy of the PWS Service Area Boundary).

New York

Source: https://water.ny.gov/doh2/applinks/waterqual/#/waterMaps

Title: NY_PWS Public Drinking Water System

Description: This layer contains 308 PWS water service area boundaries in NY. The layer only includes PWSs serving 3,300 people or more. There is no information about when the data were last updated. Data are provided by the New York Department of Environmental Conservation (DEC) and/or the Department of Health (DOH).

Last Updated: Unknown

Publication Date: Unknown

Method: Unknown

Coverage:

- 308 PWSs in the file (duplicate records).
- Includes 302 of the 2,267 active CWS in SDWIS (13%).

Data Fields:

Field	Description (interpreted. No description provided by NY)	Type	Field Values
OBJECTID	Internal feature number. Sequential unique whole numbers that are automatically generated.	Numeric	e.g., 203
PWS Number	Public Water System Identification Number from SDWIS	Text	e.g., NY4303675
PWS Name	Public Water System Identification Name from SDWIS	Text	e.g., SUFFERN VILLAGE
Principal	The county that the water system is in	Text	e.g., ROCKLAND
Population	Population served by system	Text	e.g., 3564

Metadata:

URL: Unknown

Assessment of Dataset and Available Data Elements:

- Minimal overlap with census areas.
- Does not include active/inactive field.
- No metadata provided.
- Data source and maintenance are unknown.

North Carolina

Source:
https://www.nconemap.gov/datasets/58548b90bdfd4148829103ac7f4db9ce_4/explore?location=35.021350%2C-80.370179%2C8.32

Title: Type A Current Public Water Systems (2004) (NC Center for Geographic Information & Analysis)

Description: "The purpose of this data set is to inform users of key information about public water systems in North Carolina, with particular focus on system size and growth, water usage, water treatment, and capital improvement needs of the systems.

"The NC Center for Geographic Information and Analysis developed the GIS data set, Type A Current Public Water Systems, as mapped by contractors to the NC Rural Center (engineering firms McGill & Associates and Hobbs, Upchurch & Associates) during 2004, 2005, and 2006 to facilitate planning, siting and impact analysis in the 100 individual counties of North Carolina. This file enables the user to make various county-level determinations when used in conjunction with other data layers. 'Current' in the title Type A Current Public Water Systems refers to the most recent year of data the water system owner had that represented a full year. The survey was in 2004, so this data would normally have been for calendar year 2003.

"Data limitations: For security reasons, Fort Bragg did not provide service area boundaries; therefore the entire military base was used as the service area boundary. Wake Forest, Knightdale, Wendell, and Zebulon were individual service areas when the data was collected, and this is reflected in the data. However, these systems have now merged with the Raleigh system. This change will be reflected in future updates, as they occur. Service areas with only future boundaries have system IDs with no other detailed information associated since the systems do not yet exist in mature form. Some service areas have limited information in the corresponding tabular data, either in the form of zero values or missing records. These systems either refused to provide the data or are so new that much of the historical data requested does not yet exist."[27]

Last Updated: March 22, 2023

Publication Date: March 6, 2007

Method: "The NC Center for Geographic Information and Analysis developed the GIS data set, Type A Current Public Water Systems, as mapped by contractors to the NC Rural Center (engineering firms McGill & Associates and Hobbs, Upchurch & Associates) during 2004, 2005, and 2006 to facilitate planning, siting and impact analysis in the 100 individual counties of North Carolina."[28]

[27] NC Center for Geographic Information & Analysis. (March 6, 2007). *Type A Current Public Water Systems Metadata*. https://www.lib.ncsu.edu/gis/cgia/ncom200803/cpws.htm
[28] NC Center for Geographic Information & Analysis. (March 6, 2007). *Type A Current Public Water Systems Summary. https://www.nconemap.gov/datasets/nconemap::type-a-current-public-water-systems-2004/about*

The dataset metadata indicates that the data were mapped by the engineering firms by survey and site visit. "System boundaries were reviewed by CGIA for accuracy and modified as needed."[29]

Some data came from "paper maps on which 1998 service area boundaries were plotted."[30]

"The contractors collected graphic data from water and sewer system managers … in one of two ways: If the system of interest was evaluated during the prior system survey of 1998, the new graphic data was collected by forwarding or delivering to each system manager a map of the water or sewer system pipes as they existed in 1998, having the system manager adjust system boundaries to reflect current and expected future boundaries, and making those edits to the 1998 polygons. If the system of interest was not evaluated in the 1998 survey, a map of the current and expected future boundaries of the system was requested from the system manager."[31]

The data are old and do not appear to have been updated since originally produced.

Coverage:

- 545 PWSs in the file.
- Includes 475 of the 1989 active CWS in SDWIS (23%).
- 52 matches to inactive CWS.

Data Fields:

Field	Description	Type	Field Values
objectid	Internal feature number	Numeric	e.g., 642
wasyid	System ID (Public Water Supply Permit Number)	Numeric	e.g., 0112015
wasyname	Name of System	Numeric	City of Morganton
wapcs	Primary County(s) served	Text	e.g., Burke
wapcp	Primary Contact Person	Text	e.g., Don Danford
wapcpt	Superintendent, Director, etc.)	Text	e.g., Director of Water
waaddr	Mailing Address	Text	e.g. PO Box 99 Linville, NC 28646
waphn	Phone Number	Numeric	e.g., 8287338655
wafax	Fax Number	Numeric	e.g., 8287287864
waemail	Email address	Text	e.g., pwoodie@co.caldwell.nc.us
waverify	Name of Verification Person	Text	e.g., Barry Calloway

[29] NC Center for Geographic Information & Analysis. (March 6, 2007). *Type A Current Public Water Systems Metadata*. https://www.lib.ncsu.edu/gis/cgia/ncom200803/cpws.htm
[30] *Ibid.*
[31] *Ibid.*

Field	Description	Type	Field Values
waownty	Type of Ownership	Text	• Municipality • County • Non Profit Association • District • Federal • Authority • For Profit Business • State • Sanitary Dist • Other
wacsp	Current Service Population (in number of people served)	Numeric	e.g., 1,241
wacsp05	Projected 2005 Service Population (number of people expected to be served)	Numeric	e.g., 1,370
wacsp10	Projected 2010 Service Population	Numeric	e.g., 585
wacsp20	Projected 2020 Service Population	Numeric	e.g., 675
wacsp30	Projected 2030 Service Population	Numeric	e.g., 1,652
wanmsc	Number of non-metered service connections for finished water, most recent June 30th.	Numeric	e.g., 585 "0" if none, "999999" if unknown.
wasyccr	Number of residential customer connections for finished water, most recent June 30th.	Numeric	e.g., 675 "0" if none, "999999" if unknown.
wasyccnr	Number of non-residential customer connections for finished water, most recent June 30th.	Numeric	e.g., 1,652 "0" if none, "999999" if unknown.
wasyccbp	Number of bulk purchaser connections for finished water, most recent June 30th.	Numeric	e.g., 2 "0" if none, "999999" if unknown.
watotu	Total Water Usage for most recent fiscal year (in Million Gallons [MG])	Numeric	e.g., 46.268
wamunac	Average Monthly Unaccounted for Water in most recent fiscal year (MG)	Numeric	e.g., 2.43
wamproc	Average Monthly process water for most recent year (MG)	Numeric	e.g., 0.32
waamru	Average monthly residential usage (MG)	Numeric	e.g., 1.094
waamcu	Average monthly commercial usage (MG)	Numeric	e.g., 2.301
waambu	Average monthly bulk usage (MG)	Numeric	e.g., 0.137
wasyajad	Average Daily Water Usage for January 2003 (Historical average from 2003 month)	Numeric	e.gl, 0.113

Field	Description	Type	Field Values
wasymjad	Maximum Daily Water Usage for January 2003 (Historical max from 2003 month)	Numeric	e.g., 0.386
wasyafed	Average Daily Water Usage for February 2003 (Historical average from 2003 month)	Numeric	e.g., 0.291
wasymfed	Maximum Daily Water Usage for February 2003 (Historical max from 2003 month)	Numeric	e.g., 0.211
wasyamad	Average Daily Water Usage for March 2003 (Historical avg. from 2003 month)	Numeric	e.g., 0.194
wasymmad	Maximum Daily Water Usage for March 2003 (Historical max from 2003 month)	Numeric	e.g., 0.108
wasyaapd	Average Daily Water Usage for April 2003 (Historical avg. from 2003 month)	Numeric	e.g., 0.131
wasymapd	Maximum Daily Water Usage for April 2003 (Historical max from 2003 month)	Numeric	e.g., 0.109
wasyamyd	Average Daily Water Usage for May 2003 (Historical avg. from 2003 month)	Numeric	e.g., 0.311
wasymmyd	Maximum Daily Water Usage for May 2003 (Historical max from 2003 month)	Numeric	e.g., 0.113
wasyajud	Average Daily Water Usage for June 2003 (Historical avg. from 2003 month)	Numeric	e.g., 0.86
wasymjud	Maximum Daily Water Usage for June 2003 (Historical max from 2003 month)	Numeric	e.g., 0.592
wasyajld	Average Daily Water Usage for July 2003 (Historical avg. from 2003 month)	Numeric	e.g., 0.875
wasymjld	Maximum Daily Water Usage for July 2003 (Historical max from 2003 month)	Numeric	e.g., 0.625
wasyaaud	Average Daily Water Usage for August 2003 (Historical avg. from 2003 month)	Numeric	e.g., 0.988
wasymaud	Maximum Daily Water Usage for August 2003 (Historical max from 2003 month)	Numeric	e.g., 0.271
wasyased	Average Daily Water Usage for September 2003 (Historical avg. from 2003 month)	Numeric	e.g., 0.178
wasymsed	Maximum Daily Water Usage for September 2003 (Historical max from 2003 month)	Numeric	e.g., 0.206
wasyaocd	Average Daily Water Usage for October 2003 (Historical avg. from 2003 month)	Numeric	e.g., 1.04
wasymocd	Maximum Daily Water Usage for October 2003 (Historical max from 2003 month)	Numeric	e.g., 6.69
wasyanod	Average Daily Water Usage for November 2003 (Historical avg. from 2003 month)	Numeric	e.g., 5.42

Field	Description	Type	Field Values
wasymnod	Maximum Daily Water Usage for November 2003 (Historical max from 2003 month)	Numeric	e.g., 6.34
wasyaded	Average Daily Water Usage for December 2003 (Historical avg. from 2003 month)	Numeric	e.g., 4.92
wasymded	Maximum Daily Water Usage for December 2003 (Historical max from 2003 month)	Numeric	e.g., 9.4
wadrd05	Average daily residential demand 2005 (Projected average daily usage during fiscal year ending June 30, 2005.	Numeric	e.g., 1.25 "999.999" if unknown
wadrd10	Average daily residential demand 2010 (Projected avg. daily usage during FY ending June 30, 2010.	Numeric	e.g., 1.31 "999.999" if unknown
wadrd20	Average daily residential demand 2020 (Projected avg. daily usage during FY ending June 30, 2020.	Numeric	e.g., 1.44 "999.999" if unknown
wadrd30	Average daily residential demand 2030 (Projected avg. daily usage during FY ending June 30, 2030.	Numeric	e.g., 1.61 "999.999" if unknown
wadcd05	Average daily commercial demand 2005 (Projected avg. daily usage during FY ending June 30, 2005.)	Numeric	e.g.,4.61 "999.999" if unknown
wadcd10	Average daily commercial demand 2010 (Projected avg. daily usage during FY ending June 30, 2010.)	Numeric	e.g., 4.84 "999.999" if unknown
wadcd20	Average daily commercial demand 2010 (Projected avg. daily usage during FY ending June 30, 2020.)	Numeric	e.g., 5.32 "999.999" if unknown
wadcd30	Average daily commercial demand 2030 (Projected avg. daily usage during FY ending June 30, 2030.)	Numeric	e.g., 5.93 "999.999" if unknown
wadpd05	Average daily process demand 2005 (Projected avg. daily usage during FY ending June 30, 2005.)	Numeric	e.g., 0.048 "999.999" if unknown
wadpd10	Average daily process demand 2010 (Projected avg. daily usage during FY ending June 30, 2010.)	Numeric	e.g., 0.051 "999.999" if unknown
wadpd20	Average daily process demand 2020 (Projected avg. daily usage during FY ending June 30, 2020.)	Numeric	e.g., 0.056 "999.999" if unknown

Field	Description	Type	Field Values
wadpd30	Average daily process demand 2030 (Projected avg. daily usage during FY ending June 30, 2030.)	Numeric	e.g., 0.062 "999.999" if unknown
wamud05	Average monthly unaccounted demand 2005 (Projected avg. monthly usage during FY ending June 30, 2005.)	Numeric	e.g., 0.166 "999.999" if unknown
wamud10	Average monthly unaccounted demand 2010 (Projected avg. monthly usage during FY ending June 30, 2010.)	Numeric	e.g., 0.118 "999.999" if unknown
wamud20	Average monthly unaccounted demand 2020 (Projected avg. monthly usage during FY ending June 30, 2020.)	Numeric	e.g., 0.008 "999.999" if unknown
wamud30	Average monthly unaccounted demand 2030 (Projected avg. monthly usage during FY ending June 30, 2030.)	Numeric	e.g., 0.482 "999.999" if unknown
waldp	Leak detection program (Program is/is not in place)	Text	• Y • N
wavep	Valve exercise program (Program is/is not in place)	Text	• Y • N
wamrp	Meter replacement program (Program is/is not in place)	Text	• Y • N
walds	Leak detection study (Study has been/not been done in the past 5 years)	Text	• Y • N
wavhm	VHM Locations (All/not all valves, hydrants, and meters are located)	Text	• Y • N
wasm	System Map (System is/is not mapped)	Text	• Y • N
wagis	GIS Data (System map is in/is not GIS format)	Text	• Y • N
waupdate	Update Willingness (Service owner is/is not willing to update data annually	Text	• Y • N
wabit	Interbasin Transfer (System has/does not have an approved interbasin transfer)	Text	• Y • N
waibta	Interbasin Transfer Amount (List in millions of gallons per day)	Numeric	e.g., 10
wawells	Total number of wells (number of wells in system)	Numeric	e.g., 3
wagwadw	Total average daily groundwater withdrawal (in millions of gallons per day)	Numeric	e.g., 0.16

Field	Description	Type	Field Values
wagwper	Total maximum daily groundwater withdrawal permitted (in millions of gallons per day)	Numeric	e.g., 0.2
watanks	Total number of finished water storage tanks	Numeric	e.g., 9 999999 if none
wacapy	Total finished water storage capacity (in millions of gallons)	Numeric	e.g., 109.9 999999 if unknown
wapolicy	Water system data sharing policy (no policy or ordinance, no public sharing, no public sharing of certain critical information)	Text	• No policy or ordinance • No public sharing • No public sharing of certain critical information • No public sharing of critical information
omw94	Past O&M Budget (total amount in thousands of dollars for the actual O&M budget for the system for the fiscal year 1994-1995 for historical benchmarking)	Numeric	e.g., 997
wuse94	Past Water Usage (total water treated in fiscal year 1994-1995 in Millions of Gallons for historical benchmarking)	Numeric	e.g., 663.87
omw2004t	Annual O&M Expenditure 2004 (in thousands of dollars)	Numeric	e.g., 1,951
wasyid_12	[Undefined]	Numeric	e.g., 0150035
curcip	Current CIP Need (total amount in thousands of dollars for the estimated CIP needs for the system for the period FY04-05 through FY09-10 -- a 5 year period, defined as current need)	Numeric	e.g., 2,900
futcip	Future CIP Need (total amount in thousands of dollars for the estimated CIP needs for the system for the period FY10-11 through FY29-30 -- a 20 year period, defined as future need)	Numeric	e.g., 10,000
cursour	Source of current CIP value (either estimated by consultant or reported by system)	Text	• Estimated • Reported
futsour	Source of future CIP value (either estimated by consultant or reported by system).	Text	• Estimated • Reported
st_areashape	Shape area	Numeric	e.g., 907667.430910896
st_perimeters hape	Perimeter length	Numeric	e.g., 6178.22304323605

Metadata:

Metadata available from NC OneMap summary page:
https://www.arcgis.com/sharing/rest/content/items/58548b90bdfd4148829103ac7f4db9ce/info/metadata/metadata.xml?format=default&output=html

Metadata from NC OneMap REST services for the dataset:
https://services.nconemap.gov/secure/rest/services/NC1Map_Water_Sewer_2004/MapServer/4/metadata

Assessment of Dataset and Available Data Elements

- Does not include active/inactive field.
- Does include water system data sharing policy for each boundary.
- Minimal overlap with census blocks.
    - Attribute table contains population and water demand.
- No shape overlap with each other.
- The NC Water Resources Research Institute, together with Internet of Water, have developed a free mapping tool for small rural water utilities in North Carolina: https://internetofwater.org/boundarysync/
    - The tool will allow utilities to create, digitize, and update their service area boundaries.
    - This could result in more and better boundary data for the state.
- There is no specific field that would be easy to discern quality/method, but a few fields may help:

Field	Definition	Notes
waverify	Name of Verification Person	May indicate if data are QA/QCd
wavhm	VHM Locations (All/not all valves, hydrants, and meters are located)	May indicate data are determined from asset mapping
wasm	System Map (System is/is not mapped)	May indicate original source
wagis	GIS Data (System map is in/is not GIS format)	May indicate data are provided by the system in GIS format
waupdate	Update Willingness (Service owner is/is not willing to update data annually	May indicate original source data is better quality
wapolicy	Water system data sharing policy (no policy or ordinance, no public sharing, no public sharing of certain critical information)	May indicate original source data is better quality

Oklahoma

Source: https://oklahoma.gov/owrb/data-and-maps/gis-data.html (download)

https://owrb.maps.arcgis.com/apps/webappviewer/index.html?id=68c5f3fd492a43ee8386f39a80f88afb (map viewer)

Title: Oklahoma Comprehensive Water Plan (OCWP) - Water Supply System Service Areas (Oklahoma Water Resource Board)

Description: "This dataset represents the approximate service areas for public water supply systems evaluated as part of the Oklahoma Comprehensive Water Plan. Most of the system service areas were taken from the 1995 Rural Water Survey in Oklahoma. These boundaries were derived from digitizing a buffer boundary around the extent of systems' major pipelines. Boundaries representing service areas for cities and towns were in large part taken from the Municipal Boundaries dataset produced by the Center for Spatial Analysis at the University of Oklahoma for the Oklahoma Tax Commission.

"The purpose of this dataset is to show the approximate spatial extent of public water supply systems included in the OWRB's water planning. THIS DATASET IS IN NO WAY MEANT TO BE USED FOR LEGAL BOUNDARY DETERMINATION. It should only be used for generalized planning purposes."[32]

"The original intent of this map was to provide a general overview of public water supply systems and their facilities studied as part of the 2012 Update of the Oklahoma Comprehensive Water Plan (OCWP). Additional systems have been added as the data has become available. The data presented includes the state's larger supply providers. It is important to note that much of the data presented is very generalized both spatially and temporally.

"The system facility information was taken from the Oklahoma Department of Environmental Quality's (ODEQ), Safe Drinking Water Information System (SDWIS) database. Visit the ODEQ web site for more information about SDWIS. http://www.deq.state.ok.us/wqdnew/pws/index.html

"The system service areas and the pipeline data were largely taken from the 1995 Rural Water Systems in Oklahoma (RWS) publication. Please note that water system boundaries are not legal system boundaries. This data is a combination of the RWS boundaries and municipal boundaries. The pipeline information is from the RWS and only represents the main system transmission lines. Visit the RWS page for more information. http://www.owrb.ok.gov/maps/maps2/ruralwater.php

"Beginning in 2015, additional public water system distribution pipelines were mapped by the Oklahoma Water Resources Board and added to this dataset, as well as pipeline data from systems mapped by the Oklahoma Department of Commerce GeoCIP Program."[33]

[32] Oklahoma Water Resource Board (November 21, 2012). *OCWP - Water Supply System Service Areas*. https://www.owrb.ok.gov/maps/data/layers/water%20supply/ws_system_service_areas.htm
[33] Oklahoma Water Resources Board. (Date unknown). *Public Water Supply Systems - Viewer Information*. https://www.owrb.ok.gov/maps/pmg/ViewerInfo_PWSS.html

Last Updated: December 21, 2012

Publication Date: December 21, 2012

Method: Most of the system service areas were taken from the 1995 Rural Water Survey in Oklahoma. These boundaries were derived from digitizing a buffer boundary around the extent of systems' major pipelines, and most of these boundaries are generalized and have not been updated since 1995. Boundaries representing service areas for cities and towns were in large part taken from the Municipal Boundaries dataset produced by the Center for Spatial Analysis at the University of Oklahoma for the Oklahoma Tax Commission. The municipal boundaries have good spatial accuracy but do not necessarily represent the actual extent of the municipalities' water service area.

Coverage:

- 721 PWSs in the file (721 records).
- Includes 707 of the 880 active CWS in SDWIS (80%).

Data Fields:

Field	Description	Type	Field Values
FID	Internal feature number.	Numeric	e.g., 7
NAME	System Name	Text	e.g., Lincoln Co RWD #3
PWSID	Public Water System ID Number	Text	e.g., OK3004107
COUNTY	Primary County Served	Text	e.g., Lincoln
SOURCE	Source of the Service Area Boundary	Text	• Estimated • Municipal Boundaries of Oklahoma (CSA) • OCWP Update (OWRB) • OK Fire Protection Districts (OTC) • Rural Water Survey (OWRB)
YEAR	Published Year of the Source Data	Numeric	• 2000 • 2003 • 2005 • 2010 • 2011
SCALE	Source Scale	Numeric	• 1 • 2 • 3
SHAPE_AREA	Area of feature in internal units squared	Numeric	e.g., 7946689
SHAPE_LEN	Length of feature in internal units	Numeric	e.g., 17863.0005

Metadata:

https://www.owrb.ok.gov/maps/data/layers/water%20supply/ws_system_service_areas.htm

Assessment of Dataset and Available Data Elements:

- Data are not up to date and are approximate.
- No overlap with Census Places.
- Does not include active/inactive field.
- Shapes have some overlap with each other.
- Includes PWSID field for linking with SDWIS.

Pennsylvania

Source: https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=1090 or

https://newdata-padep-1.opendata.arcgis.com/maps/fdf53cdeb2ec42b8a9422569f2e9531b/about

Title: Public Water Supplier's (PWS) Service Areas (Pennsylvania Department of Environmental Protection)

Description: "As part of Pennsylvania's State Water Plan this data set is used to determine non-public water supply areas (self-supplied). It is also used to help determine the population served and water supply demand. Boundaries of current public water supplier's (PWS) service areas. This data set contains the present service area boundary of the water system and does not contain locations of surface and groundwater sources, storage facilities, transmission and distribution system lines, and interconnections with other water systems. Revisions, updates and additions are done on an as needed basis. All boundaries should be considered approximate."[34]

Last Updated: October 14, 2016

Publication Date: October or November 2023

Method: "Since the boundaries polygons are based on maps submitted by each PWS, a method to eliminate the overlapping service areas and boundary gaps between neighboring service areas was needed. When overlaps were identified a map was created and sent back to the PWS to correct the overlapping areas. In cases when no verification was available the overlaps were merged with a service area based on the best available information."[35]

Previous year's public water supply maps indicate the locations were digitized from maps submitted with Annual Water Supply Reports for 2000, 2001, 2002, and 2003. For systems that did not report, maps were requested by mail in 2003, 2004, and 2005. All boundaries are approximate.

Coverage:

- 1,793 PWSs in the file.
- Includes 1,767 of the 1,887 active CWS in SDWIS (93%).

Data Fields

Field	Description	Type	Field Values
FID	Internal feature number	Numeric	e.g., 7
WUDS_ID	PA DEP's Water Use Data System (WUDS) Primary Facility ID	Numeric	e.g., 19648

[34] Pennsylvania Department of Environmental Protection (January 2024). *Public Water Supplier's (PWS) Service Areas*. https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=1090

[35] Pennsylvania Department of Environmental Protection (October 2023). *Public Water Supplier's (PWS) Service Areas Metadata. https://www.pasda.psu.edu/uci/FullMetadataDisplay.aspx?file=PublicWaterSupply2023_10.xml*

Field	Description	Type	Field Values
NAME	Name of community public water supplier	Text	e.g., TUNKHANNOCK BORO MUNI AUTH
CNTY_CODE	County Code	Numeric	e.g., 66
CNTY_NAME	County Name	Text	e.g., Berks
OWNERSHIP	Type of ownership	Text	• Apartments • Association • Authority • Institutional (Correctional/ Education/ Health/ Military/ Recreational) • Mobile Home Park • Municipal • Private Investor Owned
GW_SOURCE	Ground water source(s) used by the water supplier	Text	• Y • N
SW_SOURCE	Surface water source(s) used by the water supplier	Text	• Y • N
INTCONNECT	An interconnection with other community water system(s) exists	Text	• Y • N
LAST_DATE	The last date of received map	Date	e.g., 3/18/2022
PWS_ID	PWSID	Numeric	e.g., 2660014
SHAPE_Leng	Length of feature	Numeric	e.g., 13555.75977
SHAPE_Area	Area of feature in internal units squared	Numeric	e.g., 4692569.366

Metadata:

https://www.pasda.psu.edu/uci/FullMetadataDisplay.aspx?file=PublicWaterSupply2023_10.xml

Assessment of Dataset and Available Data Elements:

- Metadata contains information on development of the file as well as some accuracy information, but none at the shape level. The LAST_DATE field could be used to gauge approximate accuracy.
- Does not include active/inactive field.
- Does not overlap with Census Places.
- Shapes have minimal overlap with each other.
- Half the shapes have been updated since 2015; the majority of the other half was last updated in 2003.

Tennessee

Source:
https://www.arcgis.com/apps/mapviewer/index.html?url=https://services5.arcgis.com/bPacKTm9cauMXVfn/ArcGIS/rest/services/TN_Public_Water_System_Service_Area_Boundaries_WFL1/FeatureServer/0&source=sd

Title: TN Public Water System Service Area Boundaries

Description:

Vanderbilt Drinking Water Justice Lab (DWJL): https://lab.vanderbilt.edu/dwjlab/research/tennessee-community-water-system-cws-estimated-service-area-boundary-esab-digitization-process/

"The Tennessee Community Water System (CWS) Estimated Service Area Boundary (ESAB) Digitization Process is a state-sponsored research project. For this project, DWJL members partnered with the Tennessee Department of Environment and Conservation (TDEC), the Tennessee Department of Health (TDH), and the Tennessee Association of Utility Districts (TAUD) to visualize and analyze community water systems throughout Tennessee. The DWJL has employed both QGIS and ArcMap to digitize community water systems from TDEC field offices. These digitization processes will enable the DWJL, TDH, TDEC, and TAUD to implement data geovisualization strategies to analyze these data to inform drinking water policy, environmental health policy, and emergency preparedness for extreme weather in Tennessee."[36]

Last Updated: September 14, 2023

Publication Date: September 14, 2023

Method: Vanderbilt Drinking Water Justice Lab (DWJL) visualized data provided by Tennessee Department of Environment and Conservation (TDEC) in QGIS and ArcGIS.

Public Water Supply Systems Search Parameters: https://dataviewers.tdec.tn.gov/DWW/index.jsp

TDEC has a list of PWS and a PWS search page that displays detailed results about each system.

Coverage:

- 447 systems in the file.
- Includes 431 of 451 active CWS in SDWIS (96%).

[36] Caballero, M. D., Caiola, M., Fernandez, A.,Fernando, M., Flores, R., Kim, A., Manapat, A., McDonald. Y. J., Muthusubramanian, M., Parks, A., Semenov, D., *Tennessee Community Water System (CWS) Estimated Service Area Boundary (ESAB) Digitization Process*. https://lab.vanderbilt.edu/dwjlab/research/previous-research/tennessee-community-water-system-cws-estimated-service-area-boundary-esab-digitization-process/

Data Fields

Field	Description	Type	Field Values
PWSID	Public water system ID (equivalent to SDWIS PWSID)	Text	e.g., TN0000831
fieldOffic	TN Department of Environment and Conservation (TDEC) field office	Text	e.g., Chattanooga
PL_TYPE	System Type	Text	• C
PL_POPL	Population Served	Numeric	e.g., 14,942.00
PL_PSRC	Primary source water used by the water system.	Text	• GW (groundwater) • SW (surface water) • SWP (purchased surface water) • GU (groundwater UDI surface water) • GWP (purchased groundwater) • GUP (purchased groundwater UDI surface water)
OW_TYPE	Ownership Type	Text	• L • P • F • S
MA_NAME	System Name	Text	e.g., LAURELBROOK SCHOOL
TINWSYS_IS_NUMBER	RefNum	Numeric	e.g., 3,180.00
DWW_Link	Drinking Water Watch Link	Text	e.g., https://dataviewers.tdec.tn.gov/DWW/JSP/WaterSystemDetail.jsp?tinwsys_is_number=471&tinwsys_st_code=TN&wsnumber=TN0000635

Metadata:

https://services5.arcgis.com/bPacKTm9cauMXVfn/ArcGIS/rest/services/TN_Public_Water_System_Service_Area_Boundaries_WFL1/FeatureServer/0

Assessment of Dataset and Available Data Elements:

- Metadata does not contain information about data quality or other collection information.
- Does not include active/inactive field.
- Shapes have overlap along boundaries.
- Includes PWSID to link to SDWIS.

Texas

Source: https://www3.twdb.texas.gov/apps/WaterServiceBoundaries/Home/Overview

Title: Texas Water Service Area Boundary

Description: "The TWDB has developed a statewide community public water system service boundary mapping application. The application allows verified representatives of community public water systems to update or verify service boundaries annually in conjunction with the Water Use Survey. This application strives to provide the most up-to-date and best data available on the service areas for all community public water systems within Texas. Boundaries represent the service areas that public water systems currently supply potable water to and are updated annually."[37]

"The Water Use, Projections, & Planning Division at the TWDB is responsible for collecting and maintaining the boundary data in the Viewer. Public water systems will be asked to update boundaries annually in partnership with the TWDB's annual Water Use Survey program. The application will be open from January through July every year with the survey cycle. During that time, any boundary changes made by authorized PWS personnel will be updated through the application for the public to view after it is reviewed by the TWDB for known inaccuracies. Once the boundary editing period is closed, no changes will be made until the following year. Each system's boundary will display the last updated (or PWS verified) date."[38]

Last Updated: October 2023

Publication Date: 2019

Method: "Partnering with the Water User Survey program each year, water systems are asked to use the Viewer to update or verify their service boundaries to reflect current retail water service areas. The boundaries that preceded the Viewer were developed through a research grant for the TWDB in 2009. This layer was created using a conglomerate of data sources, including governmental and self-reported boundaries. The Viewer provides authorized water system personnel a starting point to verify or update boundaries for their retail water service areas. The last update date represents when the boundary was last submitted by the water system or reviewed by state representatives through the Viewer."[39]

Coverage:

- 4,552 PWSs in the file.
- Includes 4,532 of the 4,655 active CWS in SDWIS (97%).

[37] Texas Water Development Board. *Water Service Boundary Viewer* https://www3.twdb.texas.gov/apps/WaterServiceBoundaries/Home/Overview
[38] Texas Water Development Board. (January 2024). *Frequently Asked Questions & Guidance Videos for Water Use Survey and Water Service Boundary Viewer*. https://www.twdb.texas.gov/waterplanning/waterusesurvey/faq.asp
[39] *Ibid.*

Data Fields:

Field	Description	Type	Field Values
PWS ID	Public Water System Identification Number, maintained by TCEQ	Text	e.g., TX1520067
PWS Name	Public Water System Identification Number, maintained by TCEQ	Text	e.g., 114TH STREET MOBILE HOME PARK
PWS Review Date	The date the last time a representative of the Public Water System verified the boundary	Date	e.g., 6/18/2020
Area (sq mi)	Area of boundary in square miles	Numeric	e.g., 0.015
County	Primary county of the Public Water System maintained by the TCEQ	Text	e.g., Lubbock

Metadata:

- "Metadata.pdf" included with the download of the shapefile of service areas from the Water Service Boundary Viewer (https://www3.twdb.texas.gov/apps/WaterServiceBoundaries). The full metadata text is included below.

Assessment of Dataset and Available Data Elements

- Metadata contains information on development of the file as well as some accuracy information, but no shape-specific method/quality aspects.
- Does not include active/inactive field.
- Does not overlap with Census Places.
- A small number of shapes overlap with each other, but Texas is making an effort to update these.
- 99 percent of the shapes have been reviewed in 2020 or later.

Texas Water Service Area Boundary Metadata

1. Identification Information:

- Originator: Texas Water Development Board (TWDB)
- Publication Date: 2019
- Title: Texas Water Service Boundaries
- Edition: Dynamically Updated

2. Publication Information:

- Place: Austin, Texas
- Publisher: TWDB
- Acknowledgment of Support: This material is based upon work supported by the U.S. Geological Survey under Cooperative Agreement No. G17AC00016.

3. Description:

Abstract:

The TWDB has developed a statewide community public water system service boundary mapping application. The application allows verified representatives of community public water systems to update or verify service boundaries annually in conjunction with the Water Use Survey. This application strives to provide the most up-to-date and best data available on the service areas for all community public water systems within Texas. Boundaries represent the service areas that public water systems currently supply potable water to and are updated annually.

Purpose:

This dataset was created to:

- Aid in annual population estimates for water utilities, as well as population projections for the State Water Plan.
- Disseminate data related to public water systems across the state in a geographic format.

Time Period of Content:

- Time Period of Information: Data is available year-round.
- Status: On-going.
- Maintenance and Update Frequency: Editing of boundaries is allowed by authorized users between January 1st and July 1st of each year, and updated boundaries will be inspected for known inaccuracies and published frequently during that period.

Spatial Domain:

- West Bounding Coordinate: -106
- East Bounding Coordinate: -93
- North Bounding Coordinate: 36
- South Bounding Coordinate: 25

Spatial Reference:

- Datum: North_American_1983

Attribute Information:

- PWS ID: Public Water System Identification Number, maintained by TCEQ
- PWS Name: Public Water System Identification Number, maintained by TCEQ
- PWS Review Date: The date the last time a representative of the Public Water System verified the boundary
- Area (sq mi): Area of boundary in square miles
- County: Primary county of the Public Water System maintained by the TCEQ

Data Quality Information:

- Analytical Tools: Boundaries were simplified for editing purposes using Mapshaper.org using the Douglas-Peucker method and without removal of shapes. The Douglas-Peucker algorithm uses a point-to-edge distance tolerance.
- Accuracy Report: Published data submitted by Public Water System representatives have been reviewed by the TWDB, however; no guarantees are made to the accuracy of the data.

Use Constraints:

"The data in the Texas Water Service Boundary Viewer represents the best available information provided by the TWDB and third-party cooperators of the TWDB and is believed to be accurate and reliable. However, the TWDB provides information via this web site as a public service. Neither the State of Texas nor the TWDB assumes any legal liability or responsibility or makes any guarantees or warranties as to the accuracy, completeness or suitability of the information or boundaries for any particular purpose. These service boundaries and info provided in the application do not alter legal boundaries as regulated by the Public Utility Commission and the Texas Commission on Environmental Quality (TCEQ). TWDB systematically revises or removes data discovered to be incorrect. If you find inaccurate information or have questions, please contact TWSBV@twdb.texas.gov.

"The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Geological Survey. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Geological Survey."[40]

4. Citation:

By using any data generated by the TWSBV application (via download or map viewer), you are agreeing to cite: www.twdb.texas.gov/apps/serviceboundary, Texas Water Development Board, and the date of download. By downloading the using the data you understand the stated disclaimer included with the download. Cite the TWDB when developing applications or reporting results derived from the service area boundaries accumulated within the TWSBV.

5. Point of Contact:

Texas Water Development Board
Economic and Demographic Analysis Department
PO Box 13231
Austin, Tx 78711-3231
TWSBV@twdb.texas.gov

[40] Texas Water Development Board. *Water Service Boundary Viewer*
https://www3.twdb.texas.gov/apps/WaterServiceBoundaries/Home/Disclaimer

Utah

Source: https://gis.utah.gov/data/utilities/retail-culinary-water-suppliers/

Title: CulinaryWaterServiceAreas (Utah Department of Water Resources)

Description: "This dataset attempts to represent the culinary water suppliers service area boundaries for the State of Utah, with a small selection of suppliers in Idaho and Wyoming represented as well. The suppliers in Idaho and Wyoming are present due to their involvement in the Bear River Drainage Basin.

"Currently (2023), this dataset represents approximately 1,341 culinary water suppliers. Some public community suppliers have been split at county boundaries for accounting purposes. These include public community, public non-community (transient), self-supplied industry (non-transient), and non-public water suppliers. This feature class includes system boundaries that are historical and no longer active. It also includes some systems that are outside the state. Historical and outside-the-state systems can be filtered using the ENDYEAR and STATE fields, respectively. SYSTEMTYPE = 'C' (Community) AND ENDYEAR IN (2021) will give currently active public community suppliers within the state. Supplier types can be further filtered using the SYSTEMTYPE field. These boundaries are derived from many different sources. They include spatial data received directly from the supplier, municipal boundaries, phone call descriptions of service areas, printed maps that had hand-drawn boundaries that were then digitized, etc.

"These boundaries or service areas are not legal descriptions, and are meant to generally represent service areas. No claim is made regarding boundary accuracy, and the data should be used with that understanding."[41]

Last Updated: October 26, 2023

Publication Date: May 6, 2020

Method: "These boundaries are derived from many different sources. They include spatial data received directly from the supplier, municipal boundaries, phone call descriptions of service areas, printed maps that had hand-drawn boundaries that were then digitized, etc.

"Service area boundaries change constantly due to factors such as new development, infrastructure, and agreements. The Utah Division of Water Resources, in coordination with the Utah Division of Water Rights, works throughout the year with local water systems and planners to continually modify and update systems' service boundaries."[42] The data are provided by Utah Division of Water Resources, Utah Department of Natural Resources, (Data Steward).

Coverage:

- 1,350 PWSs in the file (records, many records do not have PWSID).

[41] Adam Clark, Utah Division of Water Resources. (May 6, 2020). *CulinaryWaterServiceAreas*. https://www.arcgis.com/home/item.html?id=dc62a286013f447e88fc45480077c944&sublayer=0
[42] *Ibid*.

- 1,144 active; 181 inactive (many records do not have active or inactive).
- Includes 499 of the 505 active CWS in SDWIS (98%).

Data Fields:

Field	Description (interpreted. No description provided by UT)	Type	Field Values
FID	Feature ID	Numeric	e.g., 988
WRENAME	UT Division of Water Resources (DWRe) water system name	Text	e.g., Mountain View SSD
WRNAME	UT Division of Water Rights (DWRi) water system name	Text	e.g., Mountain View Special Service District
DWNAME	UT Division of Drinking Water (DDW) water system name	Text	e.g., Mt. View Spec. Serv. Dist
SYSTEMTYPE	Water system type	Text	• C (Community) • NTNC (Non-Transient Non-Community • NP (Non-Public) • NC (Non-Community
WATERRESID	UT DWRe System ID	Numeric	e.g., 559
WRID	UT DWRi System ID	Integer	e.g., 11047
DWSYSNUM	UT DDW System ID (equivalent to SDWIS PWSID)	Text	e.g., UTAH11037
WRLINK	Link to system's webpage on the UT DWRi website	Text	e.g., https://www.waterrights.utah.gov/asp_apps/viewEditPWS/pwsView.asp?SYSTEM_ID=11169
WHOLESALER	Water wholesale supplier name	Text	e.g., Bicknell Town Water System
LABEL	Abbreviated version of Water wholesale supplier name	Text	e.g., Bicknell
STATE	Water system state	Text	e.g., Utah
COUNTY	Water system county	Text	e.g., Iron
BASIN	Water system basin	Text	e.g., Cedar/Beaver
SUBAREA	Water system subarea number	Text	e.g., 06-02-02
SUBAREANAM	Water system subarea name	Text	e.g., Escalante Desert
LANUM	Water system land area number	Text	e.g., 06-02-02a
LANAME	Water system land area name	Text	e.g., Escalante Desert
ENDYEAR	Last active year	Numeric	e.g., 2021

Field	Description (interpreted. No description provided by UT)	Type	Field Values
DATASOURCE	Service area boundary original data source	Text	• DWRe • DWRe/Supplier • DWRe/DWRi/Supplier • Supplier • AGRC/DWRe • AGRC • AGRC/DWRe/Supplier • DWRe/DWRi • DWRe/DDW/Supplier
SOURCEDATE	Date service area boundary was originally sourced	Date	e.g., 2021/09/08 00:00:00+00
EDITOR	Latest editor of the record	Text	• ADAMCLARK
EDITDATE	Date last edited	Date	e.g., 2021/11/19 00:00:00+00
STATUS	Active or inactive status of the water system	Text	• Active • Inactive
Shape_Leng	Mapped shape length	Numeric	e.g., 6132.97249987
SHAPE_Area	Mapped shape area	Numeric	e.g., 693398.524000217

Metadata:

Metadata available from ArcGIS item published by Utah Division of Water Resources: https://www.arcgis.com/sharing/rest/content/items/dc62a286013f447e88fc45480077c944/info/metadata/metadata.xml?format=default&output=html

Metadata available from REST services provided by the Utah Geospatial Research Center: https://mapserv.utah.gov/arcgis/rest/services/BBEcon/MapService/MapServer/11

Assessment of Dataset and Available Data Elements:

- DATASOURCE field provides some information about the source of the data which may inform method/quality.
- Does not define service area boundary type.
- Does include active/inactive indication.
- Some shapes overlap with each other.
- There is an update and verification procedure outlined by the data stewards.
- Includes equivalent SDWIS PWSID field, that is DWSYSNUM.

Washington

Source: https://geo.wa.gov/datasets/WADOH::drinking-water-service-areas/about

Title: Drinking Water Service Areas

Description: "This data set is used as a reference layer for geographic information systems to show the areas serviced by Washington State public water systems.

"Polygons delineate general areas served by Washington State public water systems.."[43]

"More than 6.2 million Washington residents get their drinking water from a Group A or Group B public water systems. That's 85 percent of the state's population." [44]

The CWS in Washington's data include Group A, which comprises larger CWS, and Group B. Group A systems are regulated by the Environmental Protection Agency. "Group B public water systems serve fewer than 15 connections and fewer than 25 people per day. The Office of Drinking Water and local health jurisdictions regulate Group B systems in our state."

Washington State Department of Health also publishes Source Water Assessment Program (SWAP) maps, which include CWS: https://fortress.wa.gov/doh/swap/index.html.

"The Source Water Assessment Program (SWAP) GIS mapping tool was developed to provide a graphical representation of drinking water source protection areas. Making this information available helps utilities protect their sources from unintended contamination. This site provides information about drinking water sources and known contaminants, helping users determine if their activity could impact a drinking water source."[45]

Last Updated: October 16, 2023

Publication Date: June 21, 2021

Method: New data are added every Monday morning and are collected from Washington State Department of Health. Data sources include:

- GIS data.
- Paper map.
- Written description.
- Water System Plan PDF/map.
- Verbal description.

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[43] Washington State Department of Health (October 16, 2023). *Drinking Water Service Areas*. https://geo.wa.gov/datasets/WADOH::drinking-water-service-areas/about

[44] Washington State Department of Health. *The Office of Drinking Water (overview)*. https://doh.wa.gov/community-and-environment/drinking-water/office-drinking-water

[45] Washington State Department of Health. *Source Water Assessment Program (SWAP) Mapping Tool*. https://doh.wa.gov/community-and-environment/drinking-water/source-water/gis-mapping-tool

- Service addresses.
- Scanned map.
- Plat names.
- Phone conversation.
- Parcel map, number, or description.
- Local knowledge.
- Legal description.

Within the data, there is some variation in capitalization and wording of the above categories from system to system.

Coverage:

- 3,927 systems in the file, 2,990 are CWS Group A or Group B.
- Includes 1,750 of the 2,373 active CWS in SDWIS (74%).

Data Fields:

Field	Description	Type	Field Values
Comments	GIS related editing comments	Text	
Connection_Category	Unknown	Text	• See approved numbers • Un-determined by DOH • Unspecified – See WSP • Unapproved
Contact_F_Name	First name of contact	Text	e.g., MICHAEL
Contact_L_Name	Last name of contact	Text	e.g., JENNINGS
Contact_Phone	Contact phone number	Text	e.g., (360)825-5541
County	Administrative county for the water system	Text	e.g., PIERCE
DataSource	Source of original data provided to DOH	Text	e.g., Yakima County
DataSourceDate	Date data was provided	Date	e.g., 06/27/2023, 8:00 PM
DataSourceType	Source of original data provided to DOH	Text	• GIS Data (digital data was provided) • Paper Map (Hardcopy map was provided and scanned)
DOH_Apprvd_Srvcs	Unknown	Numeric	e.g., 21
EffctDate	Date the water system became active	Text	e.g., 01/01/1970
EMailAddr	Contact email address	Text	e.g., waterwork@whidbey.com
FT_ResPop	Full time residential population served	Numeric	e.g., 560
GroupADate	Date the water system became classified as group A	Date	e.g., 5/16/1996

Field	Description	Type	Field Values
GWMA	Unknown	Text	• Y • N
JuriCode	Unknown	Text	• S • L • F
LERootId	Database identifier	Text	e.g., 52801
MaxTotalPop	Maximum total population	Numeric	e.g., 1,035
OBJECTID	Internal feature number.	Numeric	e.g., 28
OwnerID	Database ID	Text	e.g., 000060
Ownership	Type of ownership	Text	• Private • Investor • Association • Special District • City/Town • State • Federal • County
Region	Office of Drinking Water regional office oversight for water systems	Text	• Southwest • Northwest • Eastern
ResConn	Number of residential connections	Numeric	e.g., 48
ServiceAreaType	Type of service area	Text	• Current • Future • Indian • Retail • Old
Shape_Area	Area of feature in internal units squared.	Numeric	e.g., 1,862,314.164
Shape_Length	Length of feature in internal units.	Numeric	e.g., 8,954.807
SmaId	Satellite Management Agency Number	Text	e.g., 117
Suffix	Unknown	Text	e.g., J
Total_Conn	Total connections	Numeric	e.g., 472
UpdateDateTime	Date data was updated	Date	e.g., 12/21/2022, 7:00 PM
WS_Address1	Mailing address of the water system	Text	e.g., WHIDBEY WATER SERVICES
WS_Address2	Additional address information	Text	e.g., PO BOX 1202
WS_City	City of water system mailing address	Text	e.g., SPOKANE
WS_Grp	Water system group	Text	• A (Group A water system) • B (Group B water system) • U (Unknown)
WS_ID	PWS ID	Text	e.g., 00410

Field	Description	Type	Field Values
WS_Inactive_Date	Date the water system became inactive if applicable	Text	e.g., 12/1/2014, 6:25 AM
WS_Name	Name of water system	Text	e.g., GRANDVIEW CITY OF
WS_State	State portion of mailing address for the water system	Text	e.g., WA
WS_Status	Status of water system	Text	• Active • Inactive • No Longer Exists
WS_Type	Water system type	Text	• Comm (Group A Community Water System) • GRPB (Group B Water System) • TNC (Transient non-community) • NTNC (Non-transient and non-community)
WS_Zip	Zip code of water system mailing address	Text	e.g., 99021

Metadata:

- https://www.arcgis.com/sharing/rest/content/items/b09475f47a5a46ca90fe6a168fb22e6d/info/metadata/metadata.xml?format=default&output=html

Assessment of Dataset and Available Data Elements:

- Metadata contains some data quality information, including state contacts for the data. The metadata also contains information about when the data are updated.
- Includes active/inactive field.
- Shapes have some minimal overlap along boundaries.
- Includes ID (WS_ID) that can be linked to SDWIS PWSID (by adding “WA53”).

West Virginia

Source: https://www.arcgis.com/home/item.html?id=916c34274f334a5fb8c2d26668c0e042

Title: Water served area

Description: "The WV Infrastructure & Jobs Development Council (IJDC) is tasked under Section 31-15A-6(b) of the WV Code to 'develop a comprehensive statewide inventory of the water supply systems and sewage treatment systems' within the State of WV. To accomplish this mandate, the IJDC has developed a GIS department and statewide utility database. This database contains all the system features provided to the IJDC by the various utilities throughout the state. The quality of the information provided is variable and is presented as it was provided. IJDC collects and assembles system data; it does not generate it. The served areas are a combination of polygons provided by utilities or a 500' buffer created by the IJDC to estimate the served area using the assumption that a lateral connection would be no greater than 500' in general. Metadata is recorded in four fields:

- Source: This field contains the provider or source of a feature. It is the name of the provider entity, i.e. an engineering firm, utility, regional council or state agency.
- Quality: This field contains the generalized level of import quality of the feature using defined valid values.
- DateAdded: This field contains the date on which the feature was added to the geodatabase by agency staff.
- DatePublished: This field contains the date on which the feature was reviewed and published by the GIS Manager.

"Data quality is not recorded in a traditional manner of precision, but rather it is recorded as the quality of the import. This is due to the general lack of metadata associated with submissions from the utilities. The following are the meanings of the data quality attributes:

- Unknown: Feature is a legacy one prior to the recording of metadata.
- DigitizedP: Feature was digitized from preliminary drawings
- DigitizedF: Feature was digitized from final drawings
- ImportP:: Feature was imported from preliminary GIS files
- ImportF: Feature was imported from final GIS files
- Calculated: Feature was calculated from existing features (e.g. buffer)"[46]

Last Updated: June 27, 2019

Publication Date: July 5, 2018

[46] WV Infrastructure & Jobs Development Council. (July 5, 2018). *Water served area*. https://www.arcgis.com/home/item.html?id=916c34274f334a5fb8c2d26668c0e042

Method: The served areas are a combination of polygons provided by utilities or a 500' buffer created by the IJDC to estimate the served area using the assumption that a lateral connection would be no greater than 500' in general. The data provided by the utilities are of varying quality and the Quality field is not well populated: about half the dataset (331 out of 651) have a value of "Calculated" and the rest (321) are "Unknown."

Coverage:

- Did not compare PWS service areas to SDWIS as the data do not contain PWSID. Fuzzy matching on Utility name is doable.

Data Fields:

Field	Description (interpreted. No description provided by WV)	Type	Field Values
FID	Internal feature number	Numeric	e.g., 49
OBJECTID	Internal feature number	Numeric	e.g., 642
Utility	Name of service utility	Text	e.g., Beverly Municipal Water Department
Status	Status of water system (all are listed as "In service"	Text	• In service
Source	This field contains the provider or source of a feature. It is the name of the provider entity, i.e., an engineering firm, utility, regional council or state agency.	Text	• Thrasher • WVIJDC (West Virginia Infrastructure and Jobs Development Council)
Quality	This field contains the generalized level of import quality of the feature using defined valid values.	Text	• Calculated • Unknown
DateAdded	This field contains the date on which the feature was added to the geodatabase by agency staff.	Date	e.g., 5/31/2011, 8:00 PM
DatePublis	This field contains the date on which the feature was reviewed and published by the GIS Manager.	Date	e.g., 5/31/2011, 8:00 PM
Shape_Leng	Length of feature	Numeric	e.g., 31,727.24
Shape_Area	Area of feature	Numeric	e.g., 5,529,939.58
Shape__Area	Area of feature (calculated differently than "Shape_Area." One is probably based on FID and the other on OBJECTID)	Numeric	e.g., 8,888,857.34
Shape__Length	Length of feature, calculated differently than "Shape_Leng"	Numeric	e.g., 8,888,857.34

Metadata:

https://www.arcgis.com/sharing/rest/content/items/916c34274f334a5fb8c2d26668c0e042/info/metadata/metadata.xml?format=default&output=html

Assessment of Dataset and Available Data Elements:

- Does not appear to overlap with Census data (Census Place, etc.).
- Data field "Quality" includes indication of method/quality but records are only "Calculated, e.g., a 500 foot buffer drawn, or "Unknown."
- Does include active/inactive indication. The status field indicates all shapes are "In service."
- Shapes do not overlap with each other.
- Does not include PWSID (would need to fuzzy match on Utility name to determine PWSID).