



Geographic Information Systems (GIS) Policy

Version: 2.0

Effective Date: Click or tap to enter a date.

Approved By: Choose an item.

Review Cycle: Annual, as needed

Contact: Choose an item.

1.0 Purpose

This document ("Policy") establishes requirements and standards governing the creation, maintenance, and management of geospatial data used by the Greater Salt Lake Municipal Services District (MSD) in service of its Member Entities. The purpose of this Policy is to ensure the development and ongoing operation of a high-quality, well-documented Geographic Information System (GIS) that supports organizational operations and, where appropriate, integrates with geospatial data sources across the Salt Lake Valley.

2.0 Definitions

ArcGIS Online (AGOL)	A cloud-based geographic information system (GIS) platform developed by ESRI. It allows users to create, share, and manage maps, apps, and spatial data entirely online without needing to install software locally.
Attribute	Data that describes a geographic feature (e.g., name, population, etc.), stored in a table and linked to spatial features (like points, lines, or polygons).
Authoritative Data	Official or trusted data recognized as accurate and reliable by an authoritative organization or an organization having jurisdiction. Often used as the primary source for decision-making.
Base Dataset	A foundational map layer used as a reference for other data, often containing essential information such as boundaries or terrain, upon which other thematic data layers may be overlaid or related.
Cached Layer	A map layer with pre-made tiles for faster display to improve performance and speed when displaying maps in web or mobile applications.
Coordinate System	A framework that defines how spatial data is mapped onto the earth's surface using coordinates (like latitude and longitude or X and Y values), ensuring feature accuracy and alignment.
Derived Dataset	Data created by processing or analyzing original datasets, often combining or transforming information.
Domain	A defined set of valid values or rules applied to attributes to maintain data consistency and integrity.



Geographic Information Systems (GIS) Policy

Dynamic Layer	A map layer generated on-the-fly from source data, updating in real-time rather than using pre-cached images.
Environmental Systems Research Institute, Inc. (“ERSI”)	The company that develops ArcGIS software and provides GIS technology worldwide.
External Dataset	Data sourced from outside an organization’s internal systems, imported for analysis or mapping.
Feature	A spatial object on a map, such as a point, line, or polygon, representing real-world objects and entities.
Geodatabase	A database designed to store, manage, and organize spatial and attribute data for GIS applications.
Geographic Information System (GIS)	A system designed to capture, store, analyze, manage, and visualize spatial or geographic data. GIS integrates maps with attribute data to help users understand relationships, patterns, and trends in the context of location, supporting decision-making across many fields.
Government Records Access and Management Act (GRAMA)	A law governing public access to government records, including GIS data, found at Title 63G, Chapter 2 of the Utah Code.
Health Insurance Portability and Accountability Act (HIPAA)	A federal law that regulates the privacy and security of health-related data.
Member Entities	Those jurisdictions and communities served by the MSD, currently the Town of Brighton, Copperton, Emigration Canyon, Magna City, City of Kearns, White City, and unincorporated areas in Salt Lake County.
Metadata	Information that describes the content, quality, condition, and other characteristics of a dataset.
Portal	A web-based platform for sharing, managing, and accessing GIS maps, data, and applications within an organization.
Primary Source Dataset	Original data collected directly from real-world observations or measurements, not derived from other data.
Projection System	A method for transforming the 3D curved surface of the Earth onto a flat, 2D map. It defines how latitude and longitude are converted to planar coordinates, affecting shape, area, distance, or direction accuracy.

3.0 Scope

This policy applies to:



Geographic Information Systems (GIS) Policy

- All employees, users, contributors, and contractors acting for or on behalf of the MSD and/or a Member Entity who create, update or request GIS data for areas within the MSD's corporate boundaries or on land owned or managed by the MSD.
- New GIS users, who are strongly encouraged to participate in an orientation and training explaining the MSD's GIS Policy and best practices.
- All GIS users, who are strongly encouraged to participate in technology meetings or GIS special training.

All MSD employees outside of the GIS/IT teams who interact with GIS data or services are required to:

- Complete the "GIS Fundamental" course provided by ESRI or another provider selected by the MSD.
- Participate in a one-hour sit-down session with the MSD GIS team to discuss GIS content, data usage, and departmental integration.

4.0 Policy

4.1 Dataset Types

A geodatabase consists of geospatial datasets represented as points, lines, polygons, tables, and imagery. The MSD uses geospatial data produced internally, developed by contracted vendors under the direction of or in consultation with the MSD, and obtained from external public or private sources.

- I. Base Dataset – A foundational collection of spatial reference layers used by the MSD to ensure locational accuracy in data creation. These layers include, but are not limited to, the Salt Lake County Address Coordinate Grid and Coordinate Reference Systems.
- II. Primary Source Dataset – A dataset with a direct or indirect tie to the base dataset, created by the MSD.
- III. Derived Dataset – A new dataset created from existing internal or external datasets.
- IV. External Dataset – The MSD may be required by law to use datasets created by outside agencies, e.g.: US Census Bureau data, US Congressional District data, etc. The MSD may not meet the specific requirements of an external data creator except when required by law.
- V. Imagery – Aerial imagery used for building MSD-wide GIS data shall be the rectified imagery.

4.2 Data Security

Certain GIS data may contain sensitive or confidential information and must be clearly identified as such by the data creator. Access to this sensitive or confidential data shall be strictly limited to individuals with a legitimate business need. To ensure that data access remains controlled and secure, data can only be shared with the written approval of the MSD's Director of IT.

By default, access to GIS data created by the MSD is restricted to the MSD, provided, however, that MSD management and/or the MSD GIS/IT team may authorize access for additional users as deemed appropriate provided that the access is in conformity with the requirements of this Policy.

Furthermore, any changes to authoritative GIS data must undergo review and approval by the MSD GIS/IT team to evaluate potential impacts on both internal users and external agencies. Upon



Geographic Information Systems (GIS) Policy

receiving approval, only the designated employee responsible for the data creation or the GIS/IT team is authorized to implement the approved modifications.

4.3 Data Sharing

No MSD team shall distribute data that is created by another MSD team. This is not intended to prohibit the production of maps that use data created by another team, but is intended to allow the creating MSD team to maintain control over the distribution of geographically attributed data created by that team.

Internally created data shared via the repository will be read-only, and changes will only be accepted from the original creating MSD employee/team.

Notwithstanding anything to the contrary in this Policy or elsewhere, the MSD will comply with the Government Records Access and Management Act (GRAMA) and the Health Insurance Portability and Accountability Act (HIPAA) when distributing data outside of the MSD. Subject to GRAMA and HIPAA, the MSD employee/team that creates GIS data is responsible for setting the conditions under which the data may be distributed.

If a third party that has contracted with the MSD to perform geographic work requires access to MSD data, that data is to be subject to the distribution restrictions stated in this Policy. The contract must include provisions that restrict the contractor from using or sharing the data for any purpose outside the scope and duration of the contract with the MSD. Data may not be shared until the contract has been finalized, approved, and signed by all relevant parties, which may include MSD leadership/management, the Director of IT, the GIS/IT team and other involved MSD teams.

The MSD may share data with Member Entities and with other municipalities and public entities by contract. Such data sharing does not remove the requirement that the creating entity retains final authority over data distribution.

When the MSD contracts with a third party vendor or consultant, or establishes a contract with another public entity, the contract must require adherence to the standards set forth in this Policy. Requests for redistribution of derived or external datasets originating from outside vendors, consultants or agencies shall be referred to the original third-party data creator for review and approval.

Any sharing of GIS data with external agencies must adhere to terms, conditions, and responsibilities for external data access and use set forth by the GIS/IT team.

4.4 Data Standards

To follow best practices, it is important that MSD employees document methods used when creating data. All data created by the MSD will use the following:

	Desktop Applications	Cached Layers	Dynamic Layers
Datum	NAD83	D-WGS 1984	NAD83
Projection*	State Plane	Mercator Auxiliary Sphere	State Plane
Zone	Utah Central Linear		Utah Central Linear
Unit	US Foot	Meter	US Foot

**When changing between projection and coordinate systems, confirm that shifting does not occur.*

Geographic Information Systems (GIS) Policy

Geographic data intended for long-term use must include properly named attributes that accurately describe each feature. All geographic features shall be created from and referenced to the most accurate and reliable data sources available. When creating features, the following considerations are essential:

- Points should represent a single feature or location.
- Lines must not overlap except where there is a specific need for accurate data representation. Lines represent a network, and at intersections the lines must be snapped to a node. Lines must be created with the minimum number of vertices; and vertices should not be stacked.
- Polygons, when applicable, must not have gaps and/or overlaps if the features represent contiguous areas.
- Each geographic feature must be attributed with a unique ID and name. Other attributes will be added to meet the requirements of the feature set.
- Attribute field names must meet established standards; and attribute field names must have descriptive names that may help interpret the purpose of the field.
- When possible, domains shall be used for attributes that have a definable set of values.

The intended use of the data must be clearly documented within the metadata. Compliant ISO metadata must be created in ArcGIS Pro and be maintained for every authoritative MSD dataset, for which the minimum requirements will be, as applicable:

- Item Description: Title, Description and Bounding Box
- Topics and Keywords: Topic Category
- Citation: Item Description Title and Dates
- Details: Language, Hierarchy Level, Hierarchy Level name and Parent Identifier
- Contacts: Name, Organization, Position and Role
- Resource Details: Language and Character Set
- Resource Extents: Extent, Geographic Description Code, Title and Dates

Additional metadata requirements may be added as needed. GIS contributors are encouraged to maintain more than the minimum metadata.

Web-based GIS data, layers, maps and services must meet the same data standards and sharing requirements as outlined in this Policy. Currently, the technologies are Portal and ArcGIS Online (AGOL), which may change over time without the necessity of amending this Policy. Portal and AGOL authoritative items must have a standard MSD thumbnail, description, and informative tags. Prior to the creation of any new web-based (cloud) dataset or service, it must be confirmed that the dataset or service has not previously been created and/or cannot be used by views or queries from an original or existing dataset.

4.5 Map Deliverables

All map deliverables, which may include printed maps, digital files (PDF, PNG), interactive web maps, and embedded GIS applications, must be reviewed by a Senior GIS Analyst and/or the Director of IT prior to external distribution and be archived pursuant to the MSD's GIS archiving procedures as they may exist from time-to-time. All map deliverables must include:

- Clear title, scale bar, north arrow, legend, and publication date.



Geographic Information Systems (GIS) Policy

- Authoring entity and contact information.
- Statement of data sources and disclaimers, if applicable.

When creating hard-copy maps or map products, any data creator, publisher, and date of publication must be identified and acknowledged on the map or map product with a statement similar to the following:

Map created by the Greater Salt Lake Municipal Services District in conjunction with Salt Lake County, the State of Utah and/or other local agencies on [insert date].

When creating web-based maps or map products, this statement shall be adapted and included as a disclaimer, on a splash page when possible.

4.6 Data Archiving Requirements

The MSD recognizes the long-term value of geospatial data and the importance of establishing comprehensive retention and disposition standards, guidelines, and procedures for the storage, management, and access of such data. GIS resources and capabilities must be considered in determining which data should be preserved, the accessibility of preserved data, and how the data will be managed over time. To this end, the MSD may develop criteria to identify datasets, maps, projects, imagery, and related outputs that require archiving, including the frequency of such archiving. These criteria are to align with relevant industry standards and the state of Utah's requirements, including GRAMA, and particularly those governing metadata, and will include retention and disposition procedures.

When archiving geospatial data and products, the GIS/IT team and the Director of IT will consider, at a minimum: methods for accessing data, verifying data authenticity, establishing standardized file naming conventions, security considerations, and hardware and software requirements. Additionally, a retention schedule will be agreed upon that clearly identifies datasets to be preserved, their retention periods, and any applicable access restrictions.

Data custody protocols should encompass metadata documentation, media migration and data conversion processes, preservation of backup copies, disaster recovery planning, identification of vital records, and provisions for secure off-site storage.

4.7 Exceptions & Proposed Policy Changes

Exceptions and proposed changes to this Policy must be presented for consideration by MSD management prior to presentation to the MSD Board of Trustees.

5.0 Policy Review, Updates, & Approval

This Policy supercedes and replaces the April 27, 2022 Geographic Information System Policy Standards and is to be reviewed at least annually and updated whenever federal or state law or operational needs change. In the event of an inconsistency between this Policy and an applicable federal or state law, rule or regulation, the law, rule or regulation shall control to the extent of the inconsistency.

Approved by the Board of Trustees of the Greater Salt Lake Municipal Services District this 8th day of July, 2026.



Geographic Information Systems (GIS) Policy

Keith Zuspan, Chair

Attest:

Marla Howard, General Manager

4927-1657-5163, v. 4

DRAFT