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Salt Lake County Public Works Engineering GIS Standards

Purpose

Implementing a GIS Data Standard will facilitate data sharing, integration, and compatibility within the GIS system for the County. These standards provide GIS data guidelines for Salt Lake County Engineering and the Flood Control Engineering Division in addition to policy 10-13, "Standards for Geographic Information Systems."

Objective

In order to maintain compatibility and consistency across spatial data platforms, it is the responsibility of the owner of the data to complete the data requirements to the specifications listed below and described in accordance with the County's GIS Engineering Standards.

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Spatial Reference Info

- Projection: NAD_1983_StatePlane_Utah_Central_FIP_4302 _Feet
- Geographic Coordinate System: GCS_NORTH_AMERICAN_1983
- Datum: D_NORTH_AMERICAN_1983
- Vertical Datum: NAVD_1988_Foot_US

Linear Unit: U.S. SURVERY FEET **Features - All geospatial data have to meet these requirements listed below.**

1. Tolerances and Coordinate Precision

- Double Precision format and scale of 5 and a precision of 8.
- Text format fields should have minimum of 10 and maximum of 150 characters depending on type of feature.
- For Latitude and Longitude, the format needs to be in decimal degree rather than degrees, minutes and seconds. Decimal degrees must have 8 digits in order to maintain accuracy.
- A feature that requires vertical degree (3D Attribute) needs to have the Z factor included.

2. Spatial Reference Information

- Projection
- Geographic Coordinate System
- Datum
- Linear Unit

3. Metadata Standards

- Abstract
- Purpose
- Contact
- Citation
- Attribute Data Dictionary
- Time Period

4. File Naming Requirements for Attribute Item and Field Naming

- File name and for geospatial data use abbreviated name.
- Use abbreviated attribute names for each feature.
- All features must have design date of completion.
- All geospatial data must be in Geo Database format (GDB).
- File names will be entirely in lowercase.
- No spaces or dashes. Underscores are acceptable
- Common and County Abbreviations Standards must be used.

GIS Data Features Abbreviations and Descriptions

1. **ADA Ramps** - wheel chair ramps for sidewalk use
   Abbreviation: ada_ramp
2. **Crosswalks** - a designated location on the road to indicate where pedestrians can cross
   Abbreviation: cr_walk
3. **Curb** - the edge where a raised sidewalk meets an un-raised roadway
   Abbreviation: curb
4. **Striping** – an indication on the road to guide and convey information to drivers
   Abbreviation: striping
5. **Side Walks** - indication of sidewalk features and condition
   Abbreviation: s_walks
6. **Street Lights** - street light ID and wattage information
   Abbreviation: s_light
7. **Storm Drain Cleanout Box (Manhole)** – top opening cover to an underground utility vault used as an access point that connects storm drainpipe lines.
   Abbreviation: sd_cleanout
8. **Detention Basin Inlet** – an opening allowing the flow of water to be stored in a detention basin.
   Abbreviation: db_inlet
9. **Detention Basin Outlet** – an opening allowing water to be drained out of a detention basin.
   Abbreviation: db_outlet
10. **Storm Drain Catch Basin -** A device used to collect storm water.
    Abbreviation: sd_cb
11. **Bridge** – a structure built for the purpose of providing passage over a body of water such as a creek or river.
    Abbreviation: bridge
12. **Culvert** – a structure built for the purpose of channeling water under an elevated area that is open to a channel on both ends.
    Abbreviation: culvert
13. **Storm Drain Pipe** – a structure built for the purpose of channeling storm water.
    Abbreviation: sd_pipe
14. **Detention Basin Area** – a low lying area designed to temporarily hold water.
    Abbreviation: db_area
15. **Drainage Area** – an area of land where surface water covers the basin.
    Abbreviation: drain_area
16. **Fire Hydrants** – for emergency management and geographic reference.
    Abbreviation: f_ Hydrant

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Salt Lake County Engineering GIS Data Requirements Check List

GIS Data Features		Office Use Only
Date: Received by:	Submitted by:	
Data is required to be in the following ESRI shapefile/geodatabase format Projection Coordinate System: **NAD_1983_StatePlane_Utah_Central_FIP_4302_Feet** Geographic Coordinate System: **GCS_NORTH_AMERICAN_1983** Datum: **D_NORTH_AMERICAN_1983** Linear Unit: **U.S. SURVEY FEET**		

GIS Data Features				Office Use Only
	Attribute Needs to Include:	Attribute Name:	Type:	Accepted
Object: **ADA Ramps** Shape File: **Point**	1. Surface Material 2. Pattern 3. Slope 4. Construction Comp Date	material pattern slope date	Text Text Double Date	
Object: **Crosswalks** Shape File: **Poly Line**	Attribute Needs to Include: 1. Width of Crosswalk 2. Construction Comp Date *3D - Polyline with Z factor	Attribute Name: width date	Type: Short Date	Accepted
Object: **Curb** Shape File: **Poly Line**	Attribute Needs to Include: 1. Type of Curb 2. Design Completion Date * 3D - Polyline with Z factor	Attribute Name: type date	Type: Text Date	Accepted
Object: **Striping** Shape File: **Poly Line**	Attribute Needs to Include: 1. Type of Stripe 2. Width 3. Design Completion Date 4. Construction Comp Date	Attribute Name: type_s width date date	Type: Text Short Date Date	Accepted
Object: **Street Lights** Shape File: **Point**	Attribute Needs to Include: 1. Fixture Type 2. Pole Type 3. Wattage 4. Pole Number 5. Address 6. Construction Comp Date	Attribute Name: fixture_ty pole_type wattage pole_num address date	Type: Text Text Float Double Text Date	Accepted

GIS Data Features				Office Use Only
Object: **Fire Hydrants** Shape File: **Point**	Attribute Needs to Include: 1. Fire Authority 2. Water Authority 3. Flow Rate 4. In-Service/Out_of_Service 5. Hydrant ID 6. Construction Comp Date	Attribute Name: f_author w_author flow_rt serv_stat hy_id date	Type: Text Text Double Text Text Date	Accepted
Object: **Sidewalks** Shape File: **Poly Line**	Attribute Needs to Include: 1. Width 2. Park Strip 3. Side of Road 4. Install Date 5. Design Date 6. Condition 7. Construction Comp Date	Attribute Name: s_width strip rd_side in_date des_date condition date	Type: Short Text Text Date Date Text Date	Accepted
Object: **Detention Basin Outlet** Shape File: **Point**	Attribute Needs to Include: 1. Structure ID 2. Structure Type 3. Structure Shape 4. Structure Length 5. Structure Width 6. Type of Material 7. Number of Grates 8. Sump Elevation 9. Surface Elevation 10. Outlet Invert Elevation 11. Rim Elevation 12. Outflow (Max cfs) 13. Structure Status 14. Municipality 15. Construction Comp Date	Attribute Name: structureID structureType structureShape structureLength structureWidth mater gratesNumber elevationFloor elevationSurface outlet_el rim_el cfs status municipality date	Type: Long Text Text Short Short Text Short Double Double Double Double Double Text Text Date	Accepted
Object: **Storm Drain Catch Basin** Shape File: **Point**	Attribute Needs to Include: 1. Structure ID 2. Structure Type 3. Structure Shape 4. Structure Length 5. Structure Width 6. Number of Grates 7. Sump Elevation 8. Rim Elevation 9. Invert Elevation 10. Structure Status 11. Municipality 12. Construction Comp Date	Attribute Name: structureID structureType structureShape structureLength structureWidth gratesNumber elevationFloor rim_el inv_el status municipality date	Type: Long Text Text Short Short Short Double Double Double Text Text Date	Accepted

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GIS Data Features				Office Use Only
Object: **Bridge** Shape File: **Poly Line**	Attribute Needs to Include: 1. Width 2. Deck Elevation 3. Upstream Low Chord Height 4. Downstream Low Chord Height 5. Upstream Channel Invert Elevation 6. Downstream Channel elevation 7. Over Channel 8. Construction Comp Date	Attribute Name: width deck up_lchord down_lchord up_elev down_el channel date	Type: Short Double Short Short Double Double Text Date	Accepted
Object: **Culvert** Shape File: **Poly Line**	Attribute Needs to Include: 1. Type of Culvert 2. Structure Shape 3. Width in Feet 4. Height in Feet 5. Directional Flow (N, S, E, W) 6. Up Stream Invert Elevation 7. Down Stream Invert Elevation 8. Slope of Culvert 9. Type of Material 10. Design Flow (cfs) 11. Construction Comp Date	Attribute Name: type structureShape width height dir_flo up_elev down_el slope mater cfs date	Type: Text 25 Text Short Short Text Double Double Double Text Double Date	Accepted
Object: **Storm Drain Pipe** Shape File**: Poly Line**	Attribute Needs to Include: 1. Line Material 2. Pipe Diameter 3. Height 4. Width 5. System Type 6. Slope 7. ChannelType 8. Flow Direction 9. Channel Status 10. Upstream Invert Flow Line Elevation 11. Downstream Invert Flow Line Elevation 12. Design Flow (cfs) 13. Design Completion Date 14. Municipality 15. Condition	Attribute Name: lineMaterial pipeDiameter height width systemType slope channelType flowDirection status up_elev down_el cfs date municipality condition	Type: Text Short Short Short Text Double Text Text Text Double Double Double Date Text Text	Accepted

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GIS Data Features				Office Use Only
Object: **Detention Basin Area** Shape File: **Polygon**	Attribute Needs to Include: 1. Area 2. Other Use / ex. School, soccer 3. Capacity of Basin 4. Construction Comp Date	Attribute Name: area use_ cap date	Type: Double Text Double Date	Accepted
Object**: Drainage Area** Shape File: **Polygon**	Attribute Needs to Include: 1. Area 2. Construction Comp Date	Attribute Name: area date	Type: Double Date	Accepted
Object**: Storm Drain Cleanout Box (Manhole)** Shape File: **Point**	Attribute Needs to Include: 1. Structure ID 2. Structure Type 3. Structure Shape 4. Structure Length 5. Structure Width 6. Number of Grates 7. Sump Elevation 8. Rim Elevation 9. Invert Elevation 10. Structure Status 11. Depth of Cleanout Box 12. Size of Outlet 13. Direction of Outflow 14. Combo Box 15. Municipality 16. Construction Comp Date	Attribute Name: structureID structureType structureShape structureLength structureWidth gratesNumber elevationFloor rim_el inv_el status depth out_siz dir_out combo_b municipality date	Type: Long Text Text Short Short Short Double Double Double Text Double Double Text Text Text Date	Accepted
Object: **Detention Basin Inlet** Shape File: **Point**	Attribute Needs to Include: 1. Structure ID 2. Structure Shape 3. Structure Length 4. Structure Width 5. Type of Material 6. Number of Grates 7. Sump Elevation 8. Structure Status 9. Type of Inlet 10. Size of Inlet 11. Inlet Invert Elevation 12. Rim Elevation on Bubble Up Box 13. Municipality 14. Construction Comp Date	Attribute Name: structureID structureShape structureLength structureWidth mater gratesNumber elevationFloor status type size in_el rim_el municipality date	Type: Long Text Short Short Text Short Double Text Text Double Double Double Text Date	Accepted

More Descriptions

Line Feature

Field Name	Description	Examples
OBJECTID	N/A	N/A
Shape	N/A	N/A
Shape_Length	N/A	N/A
lineID	generated by attribute rule	N/A
lineMaterial	construction material	Clay, Combo, Concrete Channel, Concrete Channel/Natural Bottom, Concrete Pipe, Concrete Pipe Non-Reinforced, Concrete Squash Pipe, Concrete Vault, Corrugated Metal Pipe, Corrugated Metal Squash Pipe, Corrugated Plastic Pipe, Corrugated HDPE, High Density Polyethylene, Natural, Open Concrete Channel, PVC, Plastic, Polyethylene, Polypropylene, Reinforced Concrete Pipe, Steel Pipe, Unknown
pipeDiameter	measurement in Inches for circular structures	measured in one-inch increments
height	measurement in Inches for non-circular structures	measured in one-inch increments
width	measurement in Inches for non-circular structures	measured in one-inch increments
systemType	water system type	Stormwater, Irrigation Water
grade	difference between in and out elevation divided by pipe length	
channelType	description of conduit type	Open Channel, Pipe, Vault
inElevation	measurement from the top of the conduit	measured in US feet to the thousandth
outElevation	measurement from the bottom of the conduit	measured in US feet to the thousandth
flowDirection	cardinal/ordinal direction of flow	
status	operational status	
municipality	locality structure is located in	
notes	relevant notes	any notes related to connected pipes/structures

Structure Feature

Field Name	Description	Examples
OBJECTID		
Shape		
structureID	generated by attribute rule	N/A
structureType	the structures' function	Abandoned Headgate, Burried Utility, Canal Grate, Catch Basin, Combo Box, Headwall, Natural Bottom, Pipe Inlet, Pipe Outlet, Storm Drain Vault, Storm Manhole, Unknown Structure, Creek Crossing, Curb Outlet Box, Detention Basin, Ditch Outfall, Flume, Headgate, Inlet Box, Irrigation Box, Irrigation Manhole, Irrigation Vault, Pipe End, Pipe Outfall, Storm Drain Lift Station, Storm Drain Vault Manhole, Sump, Vault Catch Basin
structureShape	shape of structure	Custom, Rectangle, Round, Square, Triangle, Unknown, N/A
structureLength	measurement in inches for non-circular structures	measured in one inch increments
structureWidth	measurement in inches for non-circular structures	measured in one-inch increments
manholeType	material and configuration	Cast Iron, Ductile Iron, Solid, Vented, Solid, No Lid, Unknown N/A
manholeDiameter	measurement in inches for circular structures	measured in one-inch increments
gratesNumber	number of grates	1, 2, 3, etc.
grateMaterial	construction material	Cast Iron, Diamond Plate, Steel, Woven Steel
elevationFloor	the bottom or floor of the structure	measured in US feet to the thousandth
elevationSurface	the top of the surface structure	measured in US feet to the thousandth
status	operational status	Planned, Existing
municipality	locality structure is located in	Brighton, Copperton, Emigration, Kearns, Magna, White City, Unincorporated