City of Tigard

GIS Data Standards

December 29, 2016

Revision History	Purpose
March 10th, 2015	Standards Published
December 29th, 2016	Update data formats/metadata sections

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1.0 Purpose

The purpose of these standards is to provide guidance for geospatial data development of GIS data prepared for and delivered to the City of Tigard. GIS data standards ensure quality, compatibility, and interchange of data between the city, other agencies and the private sector. These GIS Data Standards are based on the Broadband User Group (BUG) GIS Infrastructure Group (GIG) GIS Standards, adopted November, 2014.

2.0 Contact City GIS Program Administrator

Firms developing GIS data and corresponding maps for the City of Tigard must contact the GIS Program Administrator at the start of projects to verify data needs and elements of the project involving the development of geospatial data, tools (e.g., Geoprocessing tools), and geospatial data hosting scenarios. If GIS data is sufficiently complex conceptual data models (e.g., entity/attribute diagram, data dictionary, Visio diagram) must be submitted for review prior to the development of physical data models.

3.0 Horizontal Spatial Reference Standard

The City uses the following horizontal spatial reference standard:

Name

NAD 1983 HARN State Plane Oregon North FIPS 3601, International Feet

Details

Projection: Lambert Conformal Conic
False Easting: 8202099.737533
False Northing: 0.000000
Central Meridian: -120.500000
Standard Parallel_1: 44.333333
Standard Parallel_2: 46.000000
Latitude of Origin: 43.666667
Linear Unit: Foot (0.304800)

Geographic Coordinate System: GCS North American 1983 HARN
Angular Unit: Degree (0.0174532925199433299)
Prime Meridian: Greenwich (0.000000000000000000)
Datum: D North American 1983 HARN
    Spheroid: GRS_1980
    Semimajor Axis: 6378137.000000000000000000
    Semiminor Axis: 6356752.314140356100000000
    Inverse Flattening: 298.257222101000020000

4.0 Vertical Standard

The City uses the following vertical standard:

Z Coordinate System Standard for GIS Data
NAVD88 datum, the standard used by the State of Oregon.

5.0 Data Model Standards –Vector Models

Vector Data Format
The following are acceptable vector formats:

- SDE feature class
- File geodatabase feature classes and supported data types (see also 6.2 below for Attachments)

5.1 Attribute Standards

5.1.1 Attributes names of the format: AttributeName (Pascal Case). This does not apply to ESRI system attributes, such as OBJECTID.

5.1.2 Null should only represent values that are not known.

5.1.3 Values such as -1, 999 should not be used when a value is unknown, but rather a null value.

5.1.4 If for coded values, an attribute value can be unknown, the coded value domain should have an unknown choice.

5.1.5 Boolean values should be represented by a single character data type with values of Y or N.

5.2.6 Dates should be stored using the database's native datetime format.

6.1.7 Derived classes may store the year or month as a separate column, in order to facilitate queries, symbology, etc.

5.1.8 For edited feature classes, use of the ESRI built in editor tracking functions is recommended, including separate fields for created and modified information (for a total of 4 attributes).

5.1.9 Global IDs should be used.

5.2 Feature Classes & Tables

5.2.1 Use coded domain values.

5.2.2 Use of subtypes is not recommended, unless required for a specific purpose, such as geometric network connectivity rules.

5.3 Topology Standards

5.3.1 Snapping tolerances: ensure coincidence of vertices for common feature geometries (e.g. line endpoints snapped to junctions, adjacent polygon edges).

5.3.2 For datasets representing one-way networks, lines should be digitized in the direction of flow.

5.3.3 For geometric networks, complex edges and simple junctions are recommended.

5.3.4 All tables should include a unique identifier that is distinct from the primary key created by the parent database system. This not the same as the OBJECTID or FID.

5.3.5 Each feature's unique ID should be logically independent of other features. The use of concatenated, "smart", or otherwise logically dependent IDs is discouraged since they increase the risk of logical inconsistencies within the data.

5.3.6 Use of text-based, incremented values is recommended for unique IDs.

5.3.7 Within geometric networks, the unique IDs for both the from-and to- nodes should be stored as separate attributes on the joining edge feature.

6.0 Data Standards-Raster Data Models

6.1 The following is the preferred raster standard: Uncompressed Geo-TIFF for data exchange. Other acceptable formats include:

- ESRI Standard Raster Format
- Tagged Image File Format (TIFF)
- Geo-TIFF
- Joint Photograph Experts Group (JPEG)
- Digital Elevation Model (DEM)

6.2 ESRI Attachments are highly recommended when images accompany records in feature classes. Documentation must be provided in the data model.

7.0 Map Accuracy Standards

A geographic data set's value is directly related to its fitness for a particular purpose - a critical measure of fitness is data quality. Providers of geospatial data must provide documentation of the geographic data quality of the data provided about the following:

7.1 Positional Accuracy
How closely coordinate descriptions compare to their actual location. Heads up digitizing should include a statement about maximum scale (for example 'no greater than 1:24,000). Data providers must state positional accuracy, e.g. registered to tax lots or accurate within one meter.

7.2 Attribute Accuracy
How thoroughly and correctly the features in the data set are described. Data providers must state attribute confidence level of data set within the metadata, such as low, medium, or high. Comments describing why confidence might be less than high are suggested.

8.0 Metadata Standards

The following minimum metadata sections must accompany final delivered GIS products to the City.

8.1 Abstract (Description in ESRI metadata format)
Briefly describes what the data or object is about (who, what, where & when). Include any limitations of the dataset, assumptions made, and if there is anything special that the user should be aware of.

8.2 Purpose (Purpose in ESRI metadata format)
Briefly describes why the data set was created.

8.3 Data Accuracy
Statement of accuracy for attributes (data quality), as well as vertical and horizontal accuracy if applicable.

8.4 Field Definitions
Defines each field.

8.5 Attribute Domain Definitions
Defines any attribute domains. If used, coded domains must have values identified.

8.6 Positional Accuracy
How closely coordinate descriptions compare to their actual location. Heads up digitizing should include a statement about maximum scale (for example 'no greater than 1:24,000).

9.0 Data Delivery

Contact the GIS Program Administrator at the city prior to delivery of digital data.

9.1 Acceptable GIS data formats include:

- File Geodatabase (preferred)
- Shapefile (only with approval of the GIS Program Administrator)

9.2 Acceptable Delivery Formats include:

- Media (e.g., DVD)
- Dropbox
- FTP
- Email (depending on data size)

Data may be in zipped folders, ESRI Map Packages