AUS

DIGITAL GOVERNANCE

GIS Standards

November 07, 2023
Version 1.1

Austin-Bergstrom International Airport

HNTB

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Content highlighted in yellow within this document are yet to be determined. Discussion with AUS stakeholders is required to generate the standards for these items. The outcome will be documented and provided in a future version of this manual as it becomes finalized.

NOTE: This document is optimized for duplex (double-sided) printing.

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SUMMARY OF REVISIONS:

V 1.0 – Original issue date 05 May 2023

While this document is intended as a reference that can be cited in agreements such as contracts and BIM Execution Plans, it is recognized that the use of Geographic Information Systems (GIS) in design and construction is evolving. To accommodate this evolution this document will be updated periodically in clearly identifiable versions.

A project can adopt a specific version with the option to remain with that version or update if an updated version is published. Initially the target update frequency is annually but may change as interim updates are required.

Table 0.01 summarizes changes made to the GIS Standards from the previous approved version. Information displayed is for reference only.

TABLE 0.01: REVISION HISTORY

Revision	Date	Author	Approver	Description
1.0	05MAY23	HNTB	HNTB	First version of GIS Standards
1.1	07NOV2023	HNTB & KSA	HNTB	Section 1.03 for data updates in Database snapshot

INTRODUCTION

When used effectively, Geographic Information Systems (GIS) provides a diverse audience of end user with the ability to understand spatial patterns and relationships through a map-based context. A standards-based enterprise GIS program, matched with well-adopted processes for quality and completeness, provides improved communication and efficiency as well as better management and decision making.

To achieve these ends, GIS must be conducted in a manner to meet the required purposes. This manual describes AUS requirements for the production and use of GIS in design, construction, and maintenance of its facilities.

STANDARDS ADHERENCE

It is the expectation of AUS that the standards herein are reviewed, understood and adhered to if GIS or spatial data is to be retrieved from or shared with AUS. This expectation applies to AUS staff, regional partners, and contractors or consultants performing services for AUS.

All submissions of GIS deliverables received from external parties will be reviewed in accordance with these standards. Should all or part of a deliverable not be satisfied as adhering to these standards, it will be rejected and the originator will be required to correct and resubmit.

The GIS Standards is a live document and should be maintained by the AUS GIS Department. External Companies are required to contact the AUS Planning and Development Project Manager or GIS department for the current version and referenced documentation.

REFERENCES

1. City of Austin GIS Data Standards White Paper
   (Contact the AUS GIS Department for a copy of this document)
2. FAA AC 150/5300-18B (Direct Link)
3. FAA AC 150/5300-18B Information Page
4. ISO Geospatial Metadata Standards

CHAPTER 1: DELIVERABLES

All GIS data deliverables to AUS shall be in an Esri compatible format. The recommended approach to data submission is to acquire an Esri geodatabase template (or shell) that contains feature class and relationship schema from which to populate. The geodatabase template can be provided in the format of a zipped .GDB or as a .XML file.

You must coordinate with your AUS Project Manager to contact the AUS GIS department for acquiring a geodatabase template prior to the execution of any work.

1.01: ACCEPTABLE DELIVERABLE FORMAT(S)

Data submitted to AUS shall be submitted within one of the following formats, in order of preference:

1. Esri File geodatabase template that has been populated and amended with new data
2. Esri ArcGIS Pro Layer Package, permitting it contains data and not a reference to external data
3. Esri ArcGIS Pro Map Packaged, containing multiple Layer Packages
4. Esri ArcGIS Pro Project Package, if Map Packages contain additional tools, or if geoprocessing history is required as a project deliverable

At the time of this standard version, all File geodatabase or Packages must be compatible with ArcGIS Pro 2.8-3.0.

Data formats that are not acceptable and will be rejected as a form of delivery include:

- Shapefile
- KMZ or KML
- CSV or XLS
- Personal geodatabase

The AUS GIS team anticipates sharing or delivering data as secure Esri REST (web services) in the future, but this is currently not a supported delivery approach.

1.02: METADATA POPULATION

Formal metadata shall be provided with all delivered GIS data. The following must be included with every submitted dataset or map layer. All information will be persisted through the enterprise geodatabase and Portal publishing process within the AUS environment:

- **Title** – meaningful title that clearly conveys the purpose of the dataset. No version numbers, or use of “test” or “iteration 3” are allowed
- **Summary** – a succinct but focused depiction of what the data represents
- **Description** – expand upon the Summary, as well as indication any specific processes required to produce the dataset (analysis steps, joining of multiple other datasets, etc.).
- **Terms of Use** – should the data only be used for specific purpose, including a limited audience, or for only certain accuracies, specify it here
- **Tags** – at least 3 to 5 tags that are specific to the dataset (not the agency or project). Generic terms are not desired (for example, “tree”), but rather more specific such as “tree mitigation” or “obstruction mitigation.” Tags helps other users find data more efficiently.
- **By Field** – field names should have a meaningful Alias value, and a short description indicating the type of content within each field

Metadata should also include, within the Description, the use of any processes, analytics, code and/or other tools used to develop the data or obtain results contained within the data. This may include the following details:

- Compatibility with the City of Austin Department of Aviation GIS system including but not limited to developing tools and processes with the latest version of coding language(s).
- Comments to accompany scripts and/or codes.
- Data capture methods, if any.
- Documentation on processes and/or tools including version of the tools and coding language(s).

1.03: DATA INTEGRATION PROCESS

Record information in GIS format will be submitted to the AUS GIS Department using a data integration process. Using the process described herein, the Engineer of Record for a project that includes utility improvements on the AUS campus will prepare and secure approval of record drawings of the improvements, receive a consultant copy of the AUS GIS GDB file, input utility as-built data into this file, and submit the updated consultant copy of the AUS GIS GDB file to the AUS GIS Department for quality assurance review and acceptance.

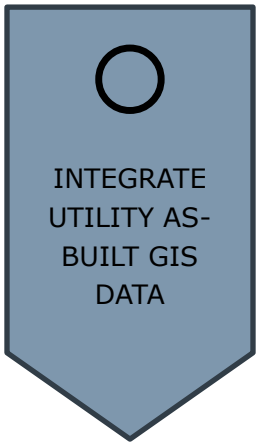
The Engineer of Record shall prepare the project record drawings in accordance with AUS Digital Governance standards and consultant contract requirements. Record drawings in both PDF and AutoCAD format shall be submitted to the AUS Project Manager for review and approval.

Record drawings shall be complete and correct, and any comments from the Deliverable Review must be addressed prior to the integration of this data into the AUS GIS geodatabase.

Only after approval of the record drawings by the Deliverable Review Team, the consultant shall submit a request via email to the AUS GIS Department for a consultant copy of the AUS GIS GDB file. The emailed request should include the following:

- Project Number
- Project Name
- Name of Department of Aviation Project Manager
- Date of Department of Aviation Record Drawing Approval
- Request for a consultant copy of the AUS GIS GDB file

Copy of the AUS GIS GDB file shall be provided through the AUS Project Management platform or other approved file transfer methods.



The consultant shall add all utility as-built data from the approved record drawings into the consultant copy of the AUS GIS GDB file to the relevant feature classes. Input all attribute information in each feature class table contained within the AUS GIS GDB file. An example of this information is provided in Appendix T. **Do not** create new feature classes, edit attribute tables, or modify attribute domains. The consultant may create a new feature class **only** if approved by the AUS GIS Department.

Quality and accuracy of the as-built GIS data is paramount. The data input shall adhere to the City of Austin GIS Data Standards White Paper and the latest ESRI geodatabase standards and best practices.

CAD data will not be accepted into the AUS GIS database. Any CAD data must be converted to an approved GIS format with the correct coordinate system and integrated into the consultant copy of the AUS GIS GDB file.

Contact the AUS GIS Department for any determinations on the integration of ambiguous or undefined utility data.

Once all utility as-built data is integrated, the consultant shall submit to the AUS GIS Department a copy of the approved utility record drawings in PDF and the complete updated consultant copy of the AUS GIS GDB file. A file hosting link will be provided by the AUS GIS Department for the online upload of these files for the quality assurance review.

Any deviation from these and reference standards found during the quality assurance review will result in the rejection of the submitted GDB file and require correction by the consultant.

Upon a satisfactory quality assurance review, the new data in the updated consultant copy of the AUS GIS GDB file will be accepted for final integration into the AUS GIS database by the AUS GIS Department for use in asset management, planning, and future project due diligence and design.

CHAPTER 2: DATA STANDARDS

All data must follow the City of Austin's Data Standards and Guidelines, as well as FAA Data Standards for applicable data. Pertinent information from the COA Data Standards are below. The full document is available upon request.

All data must be submitted in an appropriate GIS format with the following coordinate system: NAD 1983 State Plane Texas Central FIPS 4203 Feet.

Feature dataset, feature class, and attribute field names must meet the following requirements:

- Names must be unique and must be fully spelled out with underscores in lieu of spaces
- Avoid abbreviations or generic names, such as "Status" or "Date"
- Ensure that the dataset name is descriptive of the data it contains
- Names must begin with a letter, not a number
- Names must not contain special characters other than underscores
- Names must not contain reserved words, such as "select" or "add"
- Names must not contain a year or date, except for static data that represents a snapshot in time and will not be updated
- All feature classes/shapefiles shall have a defined primary key (unique identifier) OTHER than OBJECTID
- All geodatabase feature classes shall contain populated editor tracking fields:
    - created_user
    - created_date
    - last_edited_user
    - last_edited_date
- Acronyms are allowed provided it is defined within metadata

TABLE 2.01: FIELD NAME EXAMPLES

Acceptable Field Names	Unacceptable Field Names
Airfield_Light	AirfieldLight
Utility_Type	UtilTyp
Airport_Region	AirptRgn
FAA_ID	FAAid
Completion_Date	Date

APPENDICES:

APPENDIX A: BIM GUIDE AND STANDARDS

APPENDIX T: EXAMPLE ATTRIBUTE TABLE

AUS GIS Standards: Attribute Table Example

UTILITY LAYER: WaterLine

TYPE: Line

ATTRIBUTE	ALIAS	GIS	EXAMPLE
OBJECT_ID	OBJECT ID	Autofilled	12
Name	Name	Text	Water System Utility
Description	Description	Text	Master CAD File
Status	Status	Text	Active
Utility_Type	Utility Type	Text	Water System
Source	Source	Text	Geolocated
Owner	Owner	Text	Austin Water Utility
File_Name	File Name	Text	AWU_CentralPressureZone_MAP
Sheet_Number	Sheet Number	Text	677E-N154
Plan_Hyperlink	Plan Hyperlink	Text	\\AUS\CAD\WaterLine.dwg
As_Built_Date	As-Built Date	Date	2015-06-21
Project_Name	Project Name	Text	Austin-Bergstrom
AUS_Project_Number	AUS Project Number	Text	TE812
CIP_Project_Number	CIP Project Number	Text	5415.119
Line_Type	Line Type	Text	Main
Pipe_Diameter	Pipe Diameter	Long	8-IN
Pipe_Material	Pipe Material	Text	Ductile Iron
Asset_ID	Asset ID	Text	Refer to Asset Management Standards
Global_ID	Global ID	Autofilled	112345
created_user	created user	Autofilled	D. Smith
created_date	created date	Autofilled	2022-08-19
last_edited_user	last edited user	Autofilled	M. Sutton
last_edited_date	last edited date	Autofilled	2023-10-02
Shape_Length	Shape Length	Autofilled	14.65

TABLE OF FIGURES:

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WORKS CITED:

Placeholder

CREDITS

This manual was developed by HNTB Corporation. It is a tool that is provided to assist in the implementation of GIS as required per AUS standards and contracts.

Please direct any questions about this manual to the AUS GIS Department. Please do not contact any of the other contributors pertaining to this manual.

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