Digital Data Submission Technical Guide

Information Technology Department

Geographic Information Systems (GIS) Division

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Document Updates

Date	Changes Made

1.0 Introduction

1.1 GIS

Augusta Richmond County has adopted geographic information systems (GIS) technologies to store, manage, and maintain spatially-related (geographic) data. The land development, engineering, and surveying communities have also embraced digital technologies in their respective professional communities. Because development plans are now created using computer aided design and drafting (CAD), it is the goal of Augusta Richmond County to leverage such advanced techniques to expedite the design and plan review processes within the County. For such an effort to succeed, standards must be implemented to allow CAD data to be integrated into the County GIS while preserving the referential and positional accuracy of the original measurements.

The mission of the GIS Division of the Augusta IT Department is to establish a foundation of geographic information to support community decision-making. The resulting foundation of fundamental geographic data elements will be a representation of features that comprise our community and are not intended to convey legal boundaries of any kind.

1.2 Timeframe for Submission and Approval

All developments (residential and commercial) are required to submit preliminary (proposed) and as-built (plan of record) digital plans in accordance with the standards outlined below. Proposed digital submissions must be accepted by the IT- GIS staff by the last business day of the month to be placed on the following months Planning Commission Agenda. For commercial developments, the Planning Department staff cannot authorize development until an accepted digital submission is received. Three business days are required to review each digital submittal package to ensure that it meets the digital data submission standards (example: submitted by developer on January 23rd, 2013, accepted by IT-GIS Staff on January 29th, 2013, placed on February 4th, 2013 Planning Commission Agenda). Similarly, digital as-built (plan of record) in accordance with the standards outlined below must be accepted by IT-GIS staff prior to the scheduling of the final inspection and prior to the transfer of right-of-way maintenance duties. For commercial developments, a digital 'as-built' submission must be accepted by IT-GIS staff prior to the issuance of a certificate of occupancy.

These data submission standards are intended to improve the process of reviewing plans and help maintain a digital database of geographic information for the County. As the GIS program develops and foundation data are established, the County will be able to offer base layers to the development and engineering communities. The County understands that these GIS layers cannot be used for construction; however, the multiple layers of data are expected to provide potential users with descriptive information that will be invaluable in planning and property valuation.

2.0 Digital File Format

In addition to standard paper documents, each engineering document/plan delivered to Augusta Richmond County will be accompanied by several digital files relating to that submission. Digital files to be submitted include:

- A completed original CAD drawing in .dwg format named using the development name (i.e. Fernwood_phases56.dwg). This file shall include all layers and graphic elements included in the submitted paper document (geography, text, legend, scale, labels, etc.). This file will include features classified in the standard layers defined in Appendix A. If the drawing contains layers that are not included in Appendix A, then a list of these layers shall also be submitted (ASCII text file labeled: 'subdivisionname_phasesXX_xlyrspec.txt'). The completed CAD drawing file shall contain text in

standard fonts that can be read without third-party software. Contact our office to ensure your software version will be compatible with our GIS software.

- A metadata text file containing information listed in Appendix B. This file includes submittal information as well as technical parameters that may be necessary to review if problems in data conversion occur. The ASCII text file will be named using the following convention: (subdivisionname_phasesXX_meta.txt).

- An ASCII text file containing elevation points. When submitting plans that include surveyed ground surfaces, a separate ASCII text file containing all elevation points shall be delivered. This file shall be named using the following convention: (subdivisionname_phasesXX_elev.txt)

- A complete copy of the development plan in .pdf format.

3.0 Digital File Submission

To expedite the conversion of CAD data into the County GIS, the following requirements shall be met:

- Submissions may be zipped and emailed to gisdevplanning@augustaga.gov with the Subdivision name in the subject field and contact information in the body. Files may be sent via other media (thumb drive or CD/DVD ROM) if technical issues preclude the user of email. The submitted media shall be labeled with the title of the drawing (drawing file name), type of drawing (i.e. As-built, Preliminary, etc.), project contact information (name, affiliation, phone number, etc.), and a submittal and file creation date.

- All drawing elements shall be submitted referencing Georgia State Plane (GSP). Features in drawing files that are stored in drawing units must be translated to represent real world locations as referenced by GSP coordinates Georgia East, Zone 3651, Datum NAD83, Units Feet. Caution must be exercised in performing all conversions involving submitted data to ensure the correct use of the International Foot. Errors in conversion can exceed four linear feet. It is not the intention of Augusta Richmond County to replicate legal surveys. With this in mind, control of plan features may be tied to the GSP system using traditional surveying or GPS methods. The method employed to gain geodetic control shall be identified in the submitted metadata file.

- Drawing features shall include layer names as suggested in Appendix A. Features other than those thematically defined by the individual layer name/description shall not be included in that layer. Systems using numbered levels, such as Microstation, include a conversion table in the .dxf file creation process that can be used to specify named layers.

- No annotation shall be included in any feature layer and no feature shall be included in any annotation layer. Annotation for each layer shall be placed in annotation layers as specified in Appendix A.

- No polylines or annotation shall be stored in blocks. Explode all blocks that do exist. (*Block references migrate to GIS as a single point at the block's insertion point.*)

- All points shall be stored as "POINT" or "BLOCK REFERENCE" (*can't be softdesk point or aecc_point or any other feature type*).

- All Augusta Richmond County required layers shall be made visible prior to submission – all other layers can be turned off.

- Closure is critical in converting CAD elements to GIS features. If appropriate (i.e. parcel boundaries, subdivision boundary, buildings), all polygonal features shall be 'snapped' closed.

- Submitted .dwg files shall contain only complete parcel polygon features. All partial polygons (parcel boundaries) shown for reference in drawings are not to be included in the PARCEL1 layer (Appendix A). Such features can be included in an unnamed layer in the submitted .dwg file.

- All elevation points shall be delivered in a single comma-delimited ASCII text file. Each line of the file shall contain values (in GSP coordinates) for a single point as follows:
  Easting, Northing, Elevation
  6812374.63, 1253633.30343, 447.52
  6812371.81, 1253642.06532, 447.49
  6812370.56, 1253651.25382, 447.62
  6812369.81, 1253660.04853, 448.02
  …

- Additional layers (not identified in Appendix A) may utilize any open layer beyond the 60 reserved layers. As outlined above, a list of these layers shall also be submitted (ASCII text file labeled: 'subdivisionname_phasesXX_xlyrspec.txt').

Appendix A

Graphic File (.dwg) Suggested Specifications

Layer #	Layer Name	Feature Type	Layer Description
1	BLDG1	Polyline	Building/structure outline or footprint
2	PARCEL1	Polyline	Parcel/lot boundaries
3	SUBDIV1	Polyline	Subdivision boundaries
4	ROW1	Polyline	Rights of way delineating private/public land boundary
5	COMAREA1	Polyline	Public areas such as street islands/community entrances
6	GCP1	Point	Ground control points (existing, surveyed, or GPSed)
7	POLE1	Point	Lamp poles, power poles, traffic light poles, etc.,
9	GAS	Polyline	Gas Pipe
10	ELECTR	Polyline	Electrical lines
11	TELCO	Polyline	PHONE LINES
12	CTVFIBR	Polyline	Cable TV and/or fiber datacom lines
14	PAVEDGE1	Polyline	Edge of pavement
15	CNTRLIN1	Polyline	Street/road centerlines (paved and unpaved)
16	SIDEWLK1	Polyline	Sidewalks (including ramps, if any)
17	CURB1	Polyline	Curb/gutter
18	CARPRK1	Polyline	Parking lots
19	RAIL1	Polyline	Railroads
20	HYDLIN1	Polyline	Linear hydrography, creeks/streams
21	HYDPOL1	Polyline	Polygonal hydrography, lakes/ponds
23	EAS	Polyline	Utilities, wildlife, transp., storm drainage/detention, etc.
24	EASBLD	Polyline	Building setback
25	BUFF	Polyline	Buffer (riparian, vegetation, etc.)
27	FP	Polyline	Flood Plain
28	FW	Polyline	Flood way
29	WETLAND	Polyline	Wetlands
31	SDLINK	Polyline	Storm drain culvert, ditch, pipe, etc.
32	SDNODE	Polyline	Storm Drain structure (Manhole, junction box, etc.)
33	SDTEXT	Text	Annotation describing storm drainage (SD) features
35	SSLINK	Polyline	Sanitary sewer pipe
36	SSNODE	Point	Sanitary sewer manholes, pumps, junctions, etc.
37	SSTEXT	Text	Annotation describing sanitary sewer (SS) features
39	WTRLINK	Polyline	Water pipe
40	WTRNODE	Point	Water access/junction box, valves, etc.
41	FIREHYD	Point	Fire hydrant
42	WTRTEXT	Text	Annotation describing water service (WTR) features
43	CTOUR1	Polyline	Un-broken contour lines (* design/as-built)
45	LOTNUM1	Text	Proposed parcel lot number
46	LOTDIM1	Text	Bearings, distances, acreage, and x/y of POB
47	SUBNAM1	Text	Subdivision name
48	RDNAME1	Text	Street/road name
49	RDNAME2	Text	Road number (Federal, State, County highways, etc.)
50	PAVTYPE1	Text	* Pavement type
51	RAILNAM1	Text	Railroad name
52	HYDNAM1	Text	Hydrographic feature name
53	EASTYPE	Text	Type of easement (utility, transp., wildlife, storm, etc.)
54	CTOURVAL	Text	Elevation of individual contours

* Level 56 - Pavement type (PAVTYPE1) shall include the following standard surface designations:
-Asphalt Concrete
-Bituminous Surfacing
-Concrete
-Gravel
-Dirt

Appendix B

Metadata Text File ('subdivisionname_phasesXX_meta.txt') Specifications

Subdivision Name:
Submittal Date:
County:
City:
Parent Parcel #:
Number of Lots:
Type of Geodetic Control:
Monument Reference: Y / N

<u>Traverse to Monument</u>
Referenced Monument Name/Number:
Distance to Monument:

<u>GPS</u>
Unit Type:
PDOP of Control Points:
Differentially Corrected: Y / N
Elevation Reference: Y / N

Prepared by/Firm Name:
Engineer of Record:
Drawing/File Name:
Software/Version Used:

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CHECKLIST FOR DIGITAL DATA SUBMISSIONS

Project Name:	
Date Received:	**Date Failed:**
Date Passed:	**Review Name:**

The following is a checklist of required information needed in order to satisfy the Augusta-Richmond County digital data submission requirements. These steps are checked in ArcMap.

Section 1-Submittal		
Is the digital file a .dwg?	**Yes**	**No**
Drawing files named by Sub_Phase.dwg?	**Yes**	**No**
Metadata text file present?	**Yes**	**No**
Elevation text file present?	**Yes**	**No**
North American Datum 1983 State Plane coordinates, Georgia East, US Survey Foot?	**Yes**	**No**
Section 2-Linear Features		
Parcel present?	**Yes**	**No**
Parcel snapped closed?	**Yes**	**No**
Subdivision present?	**Yes**	**No**
Subdivision snapped closed?	**Yes**	**No**
Road Centerline present?	**Yes**	**No**
Road Speed Limit present?	**Yes**	**No**
Building(s) present?	**Yes**	**No**
Row(s) and size present?	**Yes**	**No**
Water link present?	**Yes**	**No**
Paved edge present?	**Yes**	**No**
Sidewalks present?	**Yes**	**No**
Section 3-Point Features		
Ground Control Points present?	**Yes**	**No**
Fire hydrants present?	**Yes**	**No**
Section 4-Annotation		
Lot numbers present?	**Yes**	**No**
Lot dimensions present?	**Yes**	**No**
Subdivision name present?	**Yes**	**No**
Road names present?	**Yes**	**No**
Addresses present?	**Yes**	**No**
Section 5-Features Present if Present on Paper Submittal		
Easements-Setbacks present?	**Yes**	**No**
Road names present?	**Yes**	**No**
Pavement type present?	**Yes**	**No**
Text describing water, storm water and sewer features present?	**Yes**	**No**