

ORDINANCE NO. 00-35

AN ORDINANCE RELATING TO THE ADOPTION OF GIS MAPPING STANDARDS FOR MADISON COUNTY, KENTUCKY

WHEREAS, Madison County, Kentucky is in need of standardized engineering plats, in digital format, as it relates to GIS Mapping of Madison County, Kentucky

WHEREAS, this would include Minor Plats, Major Plats, and Subdivisions in Madison County, Kentucky

NOW, THEREFORE BE IT ORDAINED AND ENACTED, by Madison County Fiscal Court that:

SECTION 1: Adoption of the GIS MAPPING STANDARDS/DIGITAL FORMAT

That minor, major and subdivision plats be submitted to the Madison County Planning and Development Office in digital format by surveyor/registered civil engineer in accordance with the following details:

**Requirements for Subdivision Plan Submission
In Digital Format**

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Introduction

The Madison County Fiscal Court will require subdivision plans and plats to be submitted in digital format beginning November 2000. This requirement is in addition to the existing hardcopy submission requirements. The intent of this document is to enable the required hardcopy and digital submission to be produced from the same digital data without significant modification. Some rudiments of structure are required such as layer designation and line type. **However, there are not database linkage requirements.** Additionally, some subdivision plan requirements, as stated in the Land Use and Subdivision Regulations, have been un-enforced in the past and will now become vital and enforced.

The purpose of this prerequisite is to allow the Madison County Fiscal Court's geographic information system (GIS) to be as current as possible. A GIS allows multiple users the ability to share computerized or digitized base maps, and link a variety of information to geographic features within the maps. For example, property value information can be linked to parcels, construction information can be linked to utilities, and floodplain information can be layered over districts or census tract information. A GIS also reduces the redundancy in map maintenance.

In order for the GIS to be fully utilized by the Madison County Fiscal Court and other agencies, it must be as current as possible. An excellent example of this is the Enhanced 911 system that indicates the address of callers requesting emergency assistance. Many GIS users have requested that preliminary layouts of subdivisions be available in digital format, fully realizing that the plans are subject to change prior to final recording of the plat. The submitted digital data may be used for computational purposes in reviewing the map, maintaining digital landbases, or used in a document retrieval system. A disclaimer of liability will be placed on all digital files and file copies. **The hardcopy will continue to be the official document.**

Requirements for Subdivision Plan Submission

In Digital Format

- I. Purpose The purpose of this document is to outline the minimum content and format required of **all** subdivision plans, submitted in digital format, before being considered "officially filed."
- II. Format Requirements The format for digital submission of subdivision plans and plats is the (*.DWG) format.
- III. Data Layering and Submission Requirements
 - A. All other data not required or desired by the Madison County Planning and Development (MCP&D) office, as indicated in the table below should be transmitted on other layers.

LAYER	DATA OR FEATURE	PRELIMINARY PLAN	IMPROVEMENT PLAN	FINAL PLAN
BOUNDARY	Boundary Lines	X	X	X
BNDTXT	Boundary text, survey calls, etc.	X	X	X
EXESMNT	Existing easements	X	X	X
EXCONT	Existing contours	X	X	X
FLOODPLN	Floodplain	X	X	X
FLOODTXT	Floodplain text	X	X	X
LOTLINE	Lot lines	X	X	X
LOTTEXT	Lot numbers	X	X	X
MONTEXT	Monument description	O	X	X
MONUMENT	Monument icon	O	X	X
NEWESMENT	New easements	X	X	X
NEWESTXT	New easement descriptions	O	O	X
PROPCONT	Proposed contours	X	X	X
ROW	Street right-of-way	X	X	X
SETBACK	Building setback line	X	X	X
SITENUM	Address numbers	O	X	X
STARTPT	Starting point	X	X	X
STRNAME	Street name text	X	X	X
TITLE	Appropriate title	X	X	X
MISC	Miscellaneous data, disclaimers, etc	O	O	X
HYDRO	Proposed stream relocation	O	X	X
RETBASIN	Proposed retention basin	X	X	X
DETBASIN	Proposed detention basin	X	X	X
HYDROTXT	Stream text	O	X	X
STPIPE	Storm pipes and culverts	X	X	X
STMH	Manholes and junction boxes	X	X	X
HEADWALL	Headwalls	X	X	X
STPIPTXT	Culvert and pipe text	X	X	X
STMHTXT	Manhole and junction box text	X	X	X
HWTXT	Headwall text	X	X	X
SAPIPE	Sanitary sewer pipe	X	X	X
SAMH	Sanitary sewer manhole	X	X	X
SAPIPETXT	Sanitary sewer pipe text	X	X	X
SAMHTXT	Sanitary sewer manhole text	X	X	X

X – Required in digital format

O – Desired but not required in digital format

C. In cases where a linear element between two points applies to more than one feature (i.e. a boundary line and lot line may be coincidental), this data may, at the submitter's discretion, be submitted as one graphical element. If such is the case, the following hierarchy must be utilized to determine the appropriate layer for the graphics data.

1. Boundary
2. Right-of-way
3. Lot line

By utilizing this approach, there is no duplication of data.

D. Text layers will be used to provide attribute data on each structure where text is requested. The following lists information that each layer will require:

STPIPTXT	Pipe or culvert size, material, in elevation, out elevation, slope and length
STMHTXT	Type, rim elevation, diameter, dimensions (x,y,z) for junction boxes, and grate type
HWTXT	Headwall type
SAPIPETXT	Pipe or culvert size, material, in elevation, out elevation, slope, and length
SAMHTXT	Type, rim elevation, diameter, dimensions (x,y,z) for junction boxes, and grate type

E. Shapes and blocks will not be permitted as a valid data element for point feature symbology.

F. The digital file for the preliminary plan must be submitted along with twenty (20) hardcopy prints to:

Madison County Planning and Development Office
 Attn: Administrative Official
 321 N. Madison Avenue
 Richmond, KY 40475

IV. File Naming Convention – Filenames shall be appropriately assigned based on the alphanumeric plan number assigned by the Planning and Development Office. Filename extension should include: **.DWG**, **.DXF**, **.SHP** or other file type that is compatible with AutoCad r.14, ArcInfo, or Arcview.

B. The following definitions will be considered valid data elements and line types for the specific layers:

LAYER	DATA OR FEATURE	DATA ELEMENT
BOUNDARY	Boundary Lines	Polyline
BNDTXT	Boundary text, survey calls, etc.	Text
EXESMNT	Existing easements	Line
EXCONT	Existing contours	Polyline
FLOODPLN	Floodplain	Polyline
FLOODTXT	Floodplain text	Text
LOTLINE	Lot lines	Line
LOTTEXT	Lot numbers	Line
MONTEXT	Monument description	Text
MONUMENT	Monument icon	Point
NEWESMENT	New easements	Line
NEWESTXT	New easement descriptions	Text
PROPCONT	Proposed contours	Polyline
ROW	Street right-of-way	Line
SETBACK	Building setback line	Line
SITENUM	Address numbers	Text
STARTPT	Starting point	Point
STRNAME	Street name text	Text
TITLE	Appropriate title	Text
MISC	Miscellaneous data, disclaimers, etc	Line Text Point, etc.
HYDRO	Proposed stream relocation	Polyline
RETBASIN	Proposed retention basin	Polyline
DETBASIN	Proposed detention basin	Polyline
HYDROTXT	Stream text	Text
STPIPE	Storm pipes and culverts	Line
STMH	Manholes and junction boxes	Point
HEADWALL	Headwalls	Point
STPIPTXT	Culvert and pipe text	Text
STMHTXT	Manhole and junction box text	Text
HWTXT	Headwall text	Text
SAPIPE	Sanitary sewer pipe	Line
SAMH	Sanitary sewer manhole	Point
SAPIPETXT	Sanitary sewer pipe text	Text
SAMHTXT	Sanitary sewer manhole text	Text

IV. Media Requirements

A. The following methods of data transfer are considered acceptable for digital submission of subdivision plans:

1. DSHD diskettes (1.44MB)
2. Zip Disk
3. CD Rom

NOTE: Files requiring more than one diskette may be compressed using methods employed by the Madison County Planning and Development Office. No other files will exist on the media. No additional information will exist in the file aside from data being specifically transmitted to the Madison County Planning and Development Office.

B. All diskettes, Zip disks, and CD-ROM's being submitted to the Madison County Planning and Development Office will require a label indicating the following information and will be signed by the licensed Surveyor/Registered Civil Engineer submitting the map. The purpose of the signature is to verify the transmittal of the data, not professional responsibility for the data. It is understood, by the receiving organization, that the digital data does not constitute a professional delivery. It is the responsibility of the receiving organizations to refer to the recorded map for the correct information.

Label requirements:

Subdivision:
File Name:
Date:
LS/PE:
Registration Number:
Format:
Signature:

EXAMPLE:

Subdivision: Windy Acres Unit 1B
File Name: 95999P01.DXF
Date: May 1, 2000
LS/PE: Smith and Jones Engineering
Registration Number: L.S. 2005
Format: *.DWG
Signature:

NOTE: Data received via FTP will require an accompanying ACSII text file (i.e. "readme" file) as substitute for the label.

C. Submitted diskettes, Zip disks, and CD-ROMs will not be returned by the Madison County Planning and Development Office.

V. Conventional Hardcopy Submittal Requirements

The following requirements pertain to the hardcopy maps, which are submitted in conjunction with a digital submittal. In order to facilitate the map inspection process and to enable direct correlation between the hardcopy map and the digital submission, the following points should be noted:

- A. Any distance on or internal to the boundary of the map must meet National Map Accuracy Standards or scale to within 1/40th inch at map scale plus one part per one thousand.

Examples:

Map Scale	Distance	Allowable Scaling Error
1" : 40'	10'	1.01'
1" : 40'	800'	1.80'
1" : 100'	200'	2.70'
1" : 100'	1000'	3.50'
1mm : 1000m	61 m	.823 m
1mm : 1000m	100 m	2.51 m

- B. The following convention for monumentation symbology is the preferred and recommended convention. Three control monument symbols will be used. Control points represented by a solid triangle, found control monuments represented by a solid circle, and set control monuments represented by a solid square. Monuments will be numbered and the monument description will be called out separately as required.

VI. Data Integrity Requirements

The following requirements pertain to the mathematical integrity of the geometric data.

- A. The maximum error allowable between theoretically coincident points will be .03 feet (9mm).
- B. The maximum error allowable between points on a line and the line will be .02 feet (6mm).
- C. The difference between distances calculated by the inverse between the coordinates of points in the digital submission and the annotated distance shall not exceed .01 feet (3mm).
- D. The difference in seconds between bearings calculated by the inverse between the coordinates of points in the digital submission

and the annotated bearings shall not exceed the maximum of (1031/dist (ft), 1").

Distance (feet)	Allowable Error in Bearing (seconds)
50	21
100	11
200	6
1200	1
5000	1

- E. Boundaries will be transmitted as a closed figure. For example, in **.DXF** a boundary would be represented as one polyline rather than a series of lines, arcs and curves, in **.SIF** as a shape or a complex shape.
- F. Curvilinear boundaries (i.e. not lines nor arcs) will be represented by sufficient points to clearly define the boundary. Examples of curvilinear boundaries might include the centerline of a stream, high water mark, contour lines and transition curves on railroads.
- G. Annotation submitted digitally will be identical to annotation submitted on the hardcopy maps. The section *Data Layering and Submission Requirements* defines the prerequisites for submission of annotation.
- H. When displaying coordinates, the whole number for the coordinate will be shown (i.e. no constants will be applied).

VII. Ties to Horizontal Control

- A. The surveyor or engineer will be required to show those ties made to such control monuments in accordance with the Land Use Regulations. Coordinates published by the Madison County Planning and Development Office for these control monuments shall be shown on the hardcopy and the digital file when required by the *Data Layering and Submission Requirements* of this document.
- B. The **boundary** of the development plan shall be tied into the Kentucky State Plane Coordinate System, North Zone, NAD 83 in US survey feet, or latest revision or adjustment used by the Madison County Planning and Development Office in at least two locations. The locations will preferably be on opposite sides of the subdivision boundary or as mutually agreed upon by the Madison County Planning and Development Office.
- C. The basis of bearings for the plat shall be the Kentucky State Plane Coordinate System, North Zone, NAD 83, in US survey feet, the latest revision or adjustment used by Madison County, as established by the use of existing monuments, global positioning system surveys, or by astronomic observations.

- D. If the boundary of the development is a parcel or lot of a plat presently ties to the Kentucky State Plane Coordinate System, North Zone, NAD 83, in US survey feet, the requirements of section VIII, paragraph B, shall be waived, with the stipulation that the surveyor or engineer be required to show existing monumentation and coordinates of the plat.

VIII. Review of Digital Data

- A. All digital data will be reviewed for the following criteria:
 - 1. Correct layering
 - 2. Closure of the geometry of the boundary
 - 3. Verification that digital and hardcopy maps are consistent
 - 4. Correct geographical position (i.e. correct coordinate values for final submissions)
- B. The developer will be responsible for correcting any errors and resubmit the correct digital file prior to approval by the Madison County Planning Commission.

SECTION 2: EXCEPTIONS

Areas of the County, where due to lack of proper signal or other site specific hindrances that render it impossible to obtain the full data as required herein, shall provide the data at a scale of plus or minus ten (10) feet with a least one control point of reference.

SECTION 3: EFFECTIVE DATE

This Ordinance No. shall become effective on the date of the second reading and adoption.

DATE OF FIRST READING: Nov 28th 2000

MOTION BY: Larry Combs

SECONDED BY: William Zuder

VOTE:

YES

NO

JUDGE, KENT CLARK ✓
 MAGISTRATE LARRY COMBS ✓
 MAGISTRATE FORNISS PARKS ✓
 MAGISTRATE WILLIAM TUDOR ✓
 MAGISTRATE BILLY RAY HUGHES ✓

DATE OF SECOND READING:

December 12, 2000

MOTION BY:

Forniss Park

SECONDED BY:

Billy Ray Hughes

VOTE:

YES

NO

JUDGE, KENT CLARK ✓
 MAGISTRATE LARRY COMBS ✓
 MAGISTRATE FORNISS PARKS ✓
 MAGISTRATE WILLIAM TUDOR ✓
 MAGISTRATE BILLY RAY HUGHES ✓

[Handwritten Signature]

MADISON COUNTY JUDGE EXECUTIVE

Attest:

[Handwritten Signature]

MADISON COUNTY CLERK