

**FORT BEND COUNTY    FY 2010**  
**COMMISSIONERS COURT AGENDA REQUEST FORM**  
Return Completed Form by E-Mail to: Agenda Coordinator, County Judge's Office

Date Submitted: 11/09/2009

Submitted By: P. Batts

Court Agenda Date: 11/17/2009

Department: Engineering

Phone Number: 281 633 7507

**SUMMARY OF ITEM:** Take all appropriate action to approved revisions to the Fort Bend County Geographic Information Systems (GIS) Policy that was created, reviewed and recommended by Engineering and Information Technology Departments, the County Attorney's Office and Human Resources, and the Fort Bend County Inter-Departmental GIS Committee F9(FBIG)

**RENEWAL AGREEMENT/APPOINTMENT**

YES ☐ NO ☐

**FINANCIAL SUMMARY:**

**BUDGETED ITEM:** YES ☐ NO ☐

**FUNDNG SOURCE:** Accounting Unit:  
Activity (If Applicable):

Account Number:

**DESCRIPTION OF LAWSON ACCOUNT:** \_\_\_\_\_

**Instructions to submit Agenda Request Form:**

- Completely fill out agenda form: incomplete forms will not be processed.
- Agenda Request Forms should be submitted by e-mail, fax, or inter-office mail, and all back-up information must be provided by Wednesday at 2:00 p.m. to all those listed below.
- All original back-up must be received in the County Judge's Office by 2:00 p.m. on Wednesday.

**DISTRIBUTION:**

**Original Form** Submitted with back up to County Judge's Office ☐ (✓ when completed)

If by E-Mail to [ospindon@co.fort-bend.tx.us](mailto:ospindon@co.fort-bend.tx.us)

If by Fax to (281) 341-8609

Distribute copies with back-up to all listed below. If by fax, send to numbers below:

<input type="checkbox"/> Auditor (281-341-3774)	<input type="checkbox"/> Comm. Pct. 1 (281-342-0587)
<input type="checkbox"/> Budget Officer (281-344-3954)	<input type="checkbox"/> Comm. Pct. 2 (281-403-8009)
<input type="checkbox"/> Facilities/Planning (281-633-7022)	<input type="checkbox"/> Comm. Pct. 3 (281-242-9060)
<input type="checkbox"/> Purchasing Agent (281-341-8642)	<input type="checkbox"/> Comm. Pct. 4 (281-980-9077)
<input type="checkbox"/> Information Technology (281-341-4526)	<input type="checkbox"/> County Clerk (281-341-8697)
<input type="checkbox"/> Other:	<input type="checkbox"/> County Atty (281-341-4557)

**RECOMMENDATION / ACTION REQUESTED:**

**Special Handling Requested (specify):**



# Fort Bend County Engineering and Information Technology Geographic Information Systems Policy

Version Number: **04**  
Version Date: **09/11/09**

## **Background**

Since 1996, the Engineering department was able to provide basic Geographic Information Systems (GIS) support, map services and GIS technical advice to other county departments and offices. GIS data and applications have grown larger, more complex and were shared amongst various county departments and offices. More county departments/offices began to purchase GIS applications and maintain GIS data on their own. During 2005, the GIS upgraded from a file-based system to an enterprise geodatabase system called ArcSDE.

Since GIS data is now shared amongst county departments/offices, changes needed to be made to the way GIS data was managed so that it could be kept consistent and up to date for all departmental/office GIS users.

## **Summary**

This policy provides a model for departments who use GIS applications to edit and create their own data as well as share their data with all other county departments/offices. This policy also establishes a set of inter-departmental GIS procedures and data controls that are needed to maintain and plan for future GIS growth and development within the existing de-centralized Fort Bend GIS.

Finally, an inter-departmental GIS group was formed to allow GIS users in other departments or offices to meet and coordinate policy, data exchange and discuss changes that may occur within the core GIS.

## **Revisions:**

- Addition of dual monitors (for editor users) within the **Hardware Requirements 2009** section.
- Revision of the sharing of GIS software installation between I.T. and GIS staff – item 4 under **Software Installation and Update**.
- Addition of the service level agreement (SLA) – item 6 under **Software Installation and Update**.
- Addition of **Web Services and Applications** section



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### **Departmental GIS Personnel**

- 1) The Fort Bend County Engineering department employs a GIS Coordinator and GIS Assistant (Engineering GIS staff) who manage a core set of engineering specific GIS layers. See glossary of terms for a complete listing of core layers. These core layers and many others are shared with all County departments/**offices** as well as the Fort Bend GIS consortium, Houston-Galveston Area Council (H-GAC) and the general public.
- 2) It will be up to each county department **or office** which utilizes GIS applications or GIS data on a regular basis, to have or employ its own designated GIS staff person in order to edit, view, print and manage GIS data, layers and applications specific to their department.

### **Software**

- 3) All GIS software within Fort Bend County will either be ESRI (ArcGIS) or fully compatible with ESRI software unless or until the Fort Bend GIS Consortium changes software.

### **Software Installation and Update**

- 4) The Information Technology (IT) department and Engineering GIS staff will perform the installation of ArcGIS applications, upgrades and patches, which include ArcView, ArcEditor, and ArcInfo. Engineering GIS staff will test all new software versions and patches before they are deployed to departments/offices with GIS applications.
- 5) Departments utilizing GIS will pay yearly maintenance fees to ESRI, which will allow for software updates and patches as well as free online and phone technical support.
- 6) Service Level Agreement (SLA): All attempts will be made to schedule a date for GIS software installation within three (3) business days of the receipt of a GIS service request.

### **Training / Education**

- 7) The Engineering GIS staff will assist departments with one to two hours of basic training for ArcGIS products when the GIS application is initially installed. For more advanced training including layer editing, database design, and/or other





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advanced features within ArcGIS, departments may need to coordinate with either ESRI or an ESRI business partner.

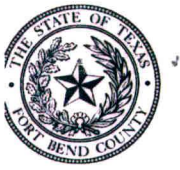
- 8) If there is a GIS editor or experienced user within a department, the Engineering GIS staff will train the experienced user on how to install and update existing ArcGIS applications.
- 9) After departments have exhausted their online search to solve a GIS issue they may call the Engineering GIS staff for help. For questions that cannot be resolved internally, the ESRI Technical support line will need to be utilized.

### **Data Exchange and Sharing**

- 10) All GIS data will be shared with the Engineering GIS staff and distributed, upon request, to all other county departments /offices and GIS users.
- 11) Distribution of GIS data will be done using the ArcSDE server when bandwidth and software permits. Otherwise, data will be shared with the Engineering GIS staff via email, portable hard drive, FTP server or other appropriate means.
- 12) Data sharing file format should be shape file, personal geodatabase, file geodatabase, or any other ESRI GIS data format.
- 13) In the event that a particular data layer is sensitive and a department cannot share the information due to county, state or national security, the sensitive data set need not be shared with all departments. However, the sensitive data should be provided to the GIS Coordinator for archiving and data storage purposes.
- 14) Any GIS data shared with outside agencies is provided "as is" and does not substitute for official documents filed with the Fort Bend County Clerk.
- 15) Computer processing and/or hardware storage fees (CD or DVD) will be assessed for data compilation unless the client is an internal county department, office, or government related tax collecting entity.

### **GIS Layer Editing and Maintenance**

- 16) If a department is the primary source or stakeholder of geographic layer or layers, or utilizes a specific layer on a consistent basis, that department will maintain and update that particular layer or layers and share the data with the GIS Coordinator.
- 17) The department or stakeholder, who edits a layer, will be held responsible for the accuracy and integrity of that layer's geographic or attribute information.



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- 18) Departments with a license of ArcInfo or ArcEditor will edit their data layers within the ArcSDE database through the versioning process. Departments with a license of ArcView will edit their data within a Microsoft Access personal geodatabase, **file geodatabase**, or shape file. For third party applications that cannot read/edit personal geodatabases, data will be edited using shape file format. All data (except for sensitive data) will be shared with the GIS Coordinator.
- 19) It will be the responsibility of each department to coordinate with the IT department in regards to how shape files and personal **or file** geodatabases will be backed-up on local machines.
- 20) The IT department will maintain daily back-ups for the ArcSDE/database.

### **GIS Licensing**

- 21) Departments with GIS licenses will budget and pay for their GIS licenses and software maintenance fees. The license key code(s) will be provided to the Engineering GIS and IT staff for back up purposes.

### **GIS Vendor Software Data and Applications**

- 22) Before a department purchases a third party GIS application, it will be that department's responsibility to contact the GIS Coordinator who will act as a consultant to assist with any technical advice. **All software purchases must be approved by the IT department.**
- 23) If a department uses a third party GIS application, it will be that department's responsibility to coordinate the maintenance and update of that application with the vendor. **It will also be that department's responsibility to notify Engineering GIS and IT staff of any third party GIS vendor's updates or changes.**
- 24) Any fees associated with third party applications, will be the responsibility of the department, which utilizes the third party application to pay.
- 25) It is the responsibility of each department's GIS representative to keep third party vendors updated on changes which may occur within Fort Bend County's GIS application upgrades and core layer changes.
- 26) It is preferable that all third party vendors be an ESRI business partner. The vendor software must either be ESRI software or compatible with ESRI software.





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### **Web Services and Applications**

- 27) The ArcGIS Server is set up, administered, and maintained by the Engineering GIS staff and the IT department only.
- 28) Engineering department will choose and purchase a main GIS web application software from a chosen ESRI business partner vendor. Any department may request an interactive web mapping site to be set up for them, provided that the proper data exists or is acquired.
- 29) All web services and web applications will be set up, administered, and maintained by the Engineering GIS staff and IT department only.
- 30) Other departments may choose and purchase additional web applications from other vendors. (Please see GIS VENDOR SOFTWARE AND APPLICATIONS for third party policies). ESRI Business partners are preferred and Maintenance Agreements are required for applications hosted on the ArcGIS Server. Software updates for Web Applications must be coordinated with Engineering GIS Staff and IT department. All software purchases must be approved by the IT department.

### **Fort Bend Inter-Departmental GIS Group**

- 31) The purpose of the Fort Bend Inter-Departmental GIS group (FBIG) is to share data, software update information, ideas, information, GIS knowledge and keep departments abreast of regional GIS policies.
- 32) It will be the responsibility of a department, currently using GIS or planning to use GIS, to send one GIS representative (preferable the GIS editor or main user) to the FBIG group meetings. All meetings will be scheduled using the GroupWise calendar.
- 33) FBIG group meetings will be held at least once per quarter, or at the request of a FBIG group member, or prior to when a significant GIS change is implemented.
- 34) FBIG group meetings will be held at the Engineering department and the alternate location will be the IT/MIS department.
- 35) All FBIG group members will be made aware of new software versions and patches once ESRI informs its users. Engineering GIS staff will test new software



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versions and patches. Once a software version has been accepted as stable by the Engineering GIS staff, all FBIG group membership hardware will be updated with the new GIS version by the IT department or Engineering GIS staff. No FBIG member will install new versions or patches unless approved by the IT and Engineering GIS staff.

### **Map Plotting and Printing**

- 36) County maps currently produced and plotted by the Engineering department's GIS staff will continue to be plotted and printed by the Engineering department's GIS staff.
- 37) When 15 or more full sized maps need to be printed for a department, the County Engineer or the Assistant County Engineer will determine whether the GIS will print the maps for the department. Fees may also be charged to departments that request 15 or more maps.
- 38) If a map is 11"x17" in size or smaller and the department requesting the map has a printer which can print 11"x17", a PDF map will be produced and emailed to the requesting department for printing purposes.
- 39) Departments which employ a GIS editor and / or that need maps plotted on a regular basis, should purchase their own plotter to plot their own maps.
- 40) Map printing / plotting and possibly computer processing fees will be assessed unless the client is an internal county department or government related tax collecting entity.

### **Glossary of Terms**

- 1) **Experienced User (GIS)**: Any individual employed by a county department who is either an editor of GIS data, a GIS data collector or is familiar with using the ArcGIS suite of applications either through hands-on experience, formal or informal GIS education. This person may or may not be the designated GIS user/editor for a particular county department.
- 2) **ESRI**: Environmental Systems Research International, the leading manufacturer of GIS software. ESRI software is the designated GIS software application for Fort Bend County.
- 3) **GIS**: Geographic Information Systems. GIS is both a graphical application and a database which allows users to perform spatial processes within the graphics or database in order to perform analysis.





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- 4) **ArcGIS**: The software suite of GIS applications developed by ESRI. The basic application is ArcView. ArcEditor is the mid-level application and ArcInfo is the flagship application. All 3 applications use one mapping interface called ArcMap which is used to draw and edit GIS layers of information. ArcCatalog is used as a file explorer and data management application to store and geoprocess various GIS layers.
- 5) **Geoprocess**: Using a computer to perform analysis on single or multiple geographic layers of information.
- 6) **ESRI Business Partner**: A third party vendor that has a working relationship and/or limited partnership with ESRI. The company may be a software developer for ESRI, a certified ESRI instructor or has some other form of business relationship with ESRI.
- 7) **File Geodatabase**: Introduced at 9.2. A collection of various types of GIS datasets held in a file system folder. This is the recommended native data format for ArcGIS stored and managed in a file system folder. Storage size is unlimited.
- 8) **Shape file**: Composed of between 3-6 various individual files; the shape file is the simplest way GIS data can be viewed, edited or geoprocessed. Shape files are feature classes that are not contained within a geodatabase.
- 9) **Personal Geodatabase**: A Microsoft Jet Access database which holds geographic feature classes. One personal geodatabase can hold many feature classes as long as the total file size for the database does not exceed the MS Access file size limit of 2 gigabytes. Performance degradation limit is between 250 to 500 MB.
- 10) **Feature Class**: A layer of point, line, or polygon data within a GIS.
- 11) **ArcSDE or Enterprise Geodatabase**: ArcSDE is a middleware application which allows ArcInfo or ArcEditor to edit feature classes within an Oracle or SQL Server database. ArcView can only view data within an Oracle or SQL server geodatabase.
- 12) **Oracle or SQL Server**: Robust databases with virtually unlimited storage and computing potential, by which the data is stored, backed up and recovered.





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13) **Core GIS Layers or Core Engineering Layers**: Any current or future layers that the Engineering department is the primary stakeholder.

- a) Streets/Roads
- b) Highways
- c) Mobility Projects
- d) Traffic Counts (points and lines)
- e) City Limits
- f) City Extra Territorial Jurisdictional Boundaries (ETJs)
- g) County Monuments
- h) County Line
- i) Landfills
- j) Master Planned Communities
- k) Lighting Zones
- l) Railroads
- m) Pedestrian Trails
- n) Bio-solid Zones
- o) Airports

### **Hardware Requirements (2009)**

ArcInfo, ArcEditor and ArcView workstation specifications:

1. Pentium 4-class processor (current processor is Intel Xeon 3200+) .
2. 1 GB physical memory minimum (2 GB recommended) 100Mhz ECC SDRAM.
3. 40 GB SCSI hard disk minimum (80-120 GB recommended).
4. 19-inch flat screen video display minimum. Dual (2) 19, 20 or 21 – inch monitors are recommended for daily users and/or editors.
5. Video display card should include 128 MB VRAM supporting minimum of 1280 x 1024 resolution and full color (additional VRAM will provide higher resolution and better display performance).
6. DVD-ROM is required for installation. A secondary CD-RW is recommended.



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7. 10/100-Mbps Ethernet controller.
8. Minimum Windows operating system is Windows 2000, SP4. Windows XP SP2 (32 or 64 bit) is strongly recommended for 9.3. Windows 2000 will not be supported in 9.4.
9. 1 (per department) Portable, 100GB USB drive for data delivery/backup and imagery transfer (recommended).

### **ESRI Software Prices (DIR)**

ArcInfo, ArcEditor and ArcView software prices:

[http://www.esri.com/special/texasdir/texasdir\\_catalog\\_2009.pdf](http://www.esri.com/special/texasdir/texasdir_catalog_2009.pdf)