Scott County GIS

Cadastral Data Conversion Project

Request for Proposals

September 29, 2006

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Introduction and Background

Scott County is soliciting proposals for parcel conversion services. The conversion project concerns all land including both incorporated and unincorporated Scott County. Your firm has been pre-selected to respond to this RFP based on the qualities and strengths of your response to our earlier RFQ. We appreciate your response and look forward to your involvement in our project.

1.1 General Information

Scott County is located in eastern Iowa along the shores of the Mississippi River. It is 180 miles east of Des Moines and 180 miles southwest of Chicago. The county is approximately 468.5 square miles of which 9.3 sq. mi. is covered by the waters of the Mississippi. Scott County is currently the third largest county in Iowa and is home to 160,141 people. There are 17 incorporated cities within the county. Davenport is the largest, home to nearly 100,000 residents and is also the designated county seat. Davenport has its own City Assessor. Bettendorf is the second largest community with 31,615 residents. Countywide there are about 75,000 parcels. Population figures were obtained from U.S. Census Bureau 2004 estimates for counties and places. Area estimates were derived from the Iowa DOT county boundary layer for Scott County and the National Wetland Inventory GIS dataset available via the Iowa DNR GIS Library.

County departments are faced with manual, antiquated processes, redundant, independent workflow, and multiple systems that are not synchronized. Not only is there an increased number of public requests for GIS and/or digital data, but there is a growing expectation that we have it. By direction of the Scott County Board of Supervisors, a GIS Steering Committee was formed with representatives from multiple county departments, municipal government and our regional COG. It is the aim of the GIS Steering Committee to develop a county-wide or “enterprise-wide” GIS solution.

To this end, Scott County with assistance from GeoAnalytics, Inc., has created a GIS Strategic Plan and is moving towards GIS implementation as outlined by the plan. Consultants are strongly encouraged to review the Scott County Strategic Plan as it contains valuable information and insight into Scott County operations and future designs. A copy can be downloaded at http://www.scottcountyiowa.com/it/gis_strategic_plan.php. Please note that while the content of the plan is still relevant, some details and many of the dates listed in the Implementation Plan are outdated. The GIS project was originally planned to start in 2003 but was postponed until late 2005 due to the emergence of other county projects.

1.2 Existing Mapping Summary

Scott County currently has a paper based parcel mapping system. Plat Room staff maintain the maps on a daily basis, drafting new parcels in by hand from plats and other source material. Plat maps are drawn at varying scales of either 1”=50 ft, 1”=100 ft, 1”=200 ft or 1”=330 ft.

The Cities of Davenport and Bettendorf already have a mature GIS in place. Both systems were developed independently of the county and have been in use for many years. They currently maintain and update their GIS parcel layers regularly. There are approximately 37,500 parcels in the Davenport GIS and 14,500 parcels in the Bettendorf GIS. While the cities are not obligated to use the future Scott County parcel database, it is our hope and expectation that they will as it eliminates redundant efforts and presents a common land base. As such, we believe that to the extent possible we must build and maintain a quality county-wide land database which meets standards typical of an urban scale GIS.

The Cities of Davenport and Bettendorf parcel layers are stored in ESRI format (pGDB/SHP).

The cities' parcel layers will be made available for reference or to facilitate transfer of attributes such as parcel numbers or addressing however it is the county's intent to reconstruct the entire county parcel base including all incorporated areas.

Additional sources of property data include platted subdivisions, deeds, surveys, road books, 2005 aerial orthophotos (100 and 400 scale), GPS survey control and digital data stored in tax, document management, and assessment and appraisal software. The aerial orthophotos have a documented accuracy of +/- 3 feet horizontal for the 400 scale images (1 foot ground pixel resolution) and +/- 1 foot horizontal for the 100 scale photos (6 inch ground pixel resolution).

Representative samples of the main source materials to be used for the property conversion have been included on the DVD provided. Scott County offices are open from 8:00 A.M. to 4:30 P.M. Monday through Friday; source maps are available for inspection.

1.3 Tax Parcel Maps and Parcel Numbering System

The plat maps maintained by the Scott County Auditor's Office are updated daily by plat room staff. The Auditor reviews the legal description of deeds of transfer prior to going to the Recorder to ensure that the description is correct. The County Auditor's Office transfers ownership for properties within the City of Davenport and the County Assessor transfers property for the rest of the county.

The following statistics are approximate and are provided for informational purposes based on the best and most recently available data:

Plat Map and Parcel Count

Number of parcels:	75,000
Number of Plat Book Volumes:	68
Number of plat map pages:	3,206

1.3.1 Tax Parcel Map Inventory

Location	Township / Volume	Pages
Bettendorf	Vol. A	16
Bettendorf	Vol. B	20
Bettendorf	Vol. C	40
Bettendorf	Vol. D	42
Bettendorf	Vol. E	62
Bettendorf	Vol. F	20
Bettendorf	Vol. G	57
Bettendorf	Vol. H	54
Bettendorf	Vol. I	49
Blue Grass	Twp. T77N-R02E	50
Buffalo	Vol. A	50
Buffalo	Vol. B	73
Davenport	Vol. A	65
Davenport	Vol. B	65
Davenport	Vol. C	73
Davenport	Vol. D South	33
Davenport	Vol. D North	32

Location	Township / Volume	Pages
Davenport	Vol. E	49
Davenport	Vol. F	61
Davenport	Vol. G	65
Davenport	Vol. H North	33
Davenport	Vol. H South	32
Davenport	Vol. I	68
Davenport	Vol. J	56
Davenport	Vol. K	49
Davenport	Vol. L	33
Davenport	Vol. M	28
Davenport	Vol. N	63
Davenport	Vol. O	34
Davenport	Vol. P	48
Davenport	Vol. R	57
Davenport	Vol. R1	69
Davenport	Vol. R2	38
Davenport	Vol. R3	54
Davenport	Vol. S	58
Davenport	Vol. T	67
Davenport	Vol. U	53
Davenport	Vol. V	68
Davenport	Vol. V1	49
Davenport	Vol. W	34
Davenport	Vol. W1	41
Davenport	Vol. X	33
Davenport	Vol. X1	48
Davenport	Vol. Y	55
Davenport	Vol. Y1	41
Dixon/Donahue		17
Eldridge	Vol. A	86
Eldridge	Vol. B	72
LeClaire	Vol. A	41
LeClaire	Vol. B	47
Long Grove/Maysville/McCausland		44
Parkview	Twp. T80N-R04E	12
Princeton		48
Riverdale	Twp. T78N-R04E	41
Township - Allen’s Grove	Twp. T80N-R02E	40
Township - Blue Grass	Twp. T78N-R02E	55
Township - Buffalo	Twp. T77N-R02E / Vol. A	52
Township - Buffalo	Twp. T77N-R02E / Vol. B	43
Township - Butler	Twp. T80N-R04E & Twp.	64

Location	Township / Volume	Pages
	T81N-R04E	
Township - Cleona	Twp. T79N-R01E	38
Township - Hickory Grove	Twp. T79N-R02E	37
Township - LeClaire	Twp. T78N-R05E	33
Township - Liberty	Twp. T80N-R01E	42
Township - Lincoln	Twp. T79N-R04E	33
Township - Pleasant Valley	Twp. T78N-R04E	35
Township - Princeton	Twp. T79N-R05E	44
Township - Winfield	Twp. T80N-R03E	46
Walcott		51

Information placed on the Scott County plat maps includes:

- Property Owner Name
- Document Number
- Address
- Date
- Transfer book and page

Occasionally the parcel number is also included but this is the exception not the rule.
The Scott County Auditor's Office has been maintaining transfer books digitally for the past three years. Bound paper transfer books were maintained prior to that.

1.3.2 Parcel Numbers

Parcel numbers for properties within Davenport are assigned by the Auditor's Office. All other properties are assigned parcel numbers by the County Assessor's Office. As a consequence of having both a City and County Assessor's Office, there is a unique parcel numbering scheme for each jurisdiction. Parcel numbers for Davenport properties are referenced by the tax plat map volume number and page while all other properties are referenced to the public land survey system of tiers (townships) and ranges. And while there are some parcel numbers which do not conform to this schema, they generally are structured as follows:

Davenport City Assessor Parcel Numbers:

Plat Book Volume Number Page Number/Part † Lot/Parcel Number	OR	Plat Book Volume Number Section Number Page Number/Part † Lot/Parcel Number
(e.g.) A0001A27 *Plat Book A, Page 1, Pt. A, Parcel 27*		(e.g.) M1516C03 *Plat Book M, Sec 15, Page 16, Pt. C, Parcel 03*

† In most cases the page numbers or parts correspond to ¼ sections, ¼ ¼ sections or ¼ ¼ ¼ sections.

Scott County and all cities other than Davenport:

Township (tens digit is suppressed so Twp 78 is displayed as '8').
Range (single digit).
Section
Quarter-Quarter (a two-digit odd integer represents each quarter quarter)
Lot/Parcel Number
(e.g.) 931207002
Twp 79N, Rng 3E, Section 13, QQ 07 (NE¼, NE¼) Parcel/Lot 002.

1.4 Other Hard Copy Map Sources

In addition to the tax parcel maps, the County Auditor's Office has several Subdivision Plats and Plats of Survey on file. The following statistics are approximate and are provided for informational purposes based on the best and most recently available data:

Number of subdivisions (hard copy in Auditor's Office):	2,731*
Plats of Survey (hard copy in the Auditor's Office):	2,847

** Includes 855 large hard copies (most are 24"x36" prints) and 2,731 small copies (11"x17" or smaller). All of the large hard copies should have duplicates in the small print files.*

Additional sources of potential use to the Consultant include miscellaneous surveys, county road maps and other ancillary maps. Microfilm dating back to 1971 exists for recorded documents including plats, deeds and other land records. Earlier deeds and related land record information exists in bound books (typical of many county offices) which are stored in the Recorder's Office Vault Room.

1.5 Digital Data Sources

The main land record related software applications in use by the county (and Davenport City Assessor) includes Tyler/Incode CMS (tax and parcel ownership), Vanguard CAMAVision (assessment), Tyler/CLT UNIVERS (commercial assessment), COTT Systems Resolution (document management/imaging), and various sketch programs. In addition to these third party applications, the City of Davenport also uses a custom residential assessment program written in the ZIM programming language.

These software systems contain parcel numbers, addresses, and other valuable information that will be of particular use to the Consultant during the conversion process. In addition to the typical tax and assessment data, the county has land records imaged and indexed in digital image format dating back to 1989. Samples of databases and images will be made available on DVD in Microsoft Access format for use by the Consultant. This information can also be accessed via Scott County's viewer applications on the web.

The Recorder data can be found at:
http://www.scottcountyiowa.com/recorder/records.php.

Tax and Assessment data can be found at:
http://www.scottcountyiowa.com/query.php.

For reference purposes we queried both systems for the total number of subdivisions and came up with the following information. The statistics are approximate and are provided for informational purposes based on the best and most recently available data:

Database

Number of subdivisions in CMS tax system:	7,626**
Number of subdivisions in Recorder's Resolution software:	3,998

**A*n inflated figure. Many of the "subdivisions" identified in the tax records are condos, anomalies or non-traditional entries to support miscellaneous taxable features such as buildings on leased land, assessed machinery, residential on AG land, etc. The 3,998 figure listed in the Recorder's software is more representative of the actual number. This is not the "active" number however since many have been replatted over the years.*

1.6 Field Verification, Deed Research

The Consultant will not be required to perform field verification as part of this effort. Deed research may be necessary on occasion. The Consultant will be assisted by Scott County staff as availability and time allows but should have a contingency plan in case the County is unable to keep up with the requests.

1.7 Existing and Planned GPS Control Project

Scott County is currently documenting available property corner information that will support and enhance the parcel mapping effort. Sources of existing control include recorded PLSS corner monuments, unrecorded corner monuments maintained by the Secondary Roads Department, survey grade GPS control (property corners) in the City of Bettendorf and the GPS control developed to support of the 2005 aerial photo project.

After our inventory of control is complete, Scott County will contract with a survey/mapping firm to capture coordinates of several PLSS corners and other significant property features. This project will serve to provide a source of correction and control to help increase the accuracy of the cadastral features. The survey project is independent of the parcel conversion project and will be presented in a separate RFP. However, we anticipate a close collaboration between the Consultant of the Parcel Conversion Project and the GPS Survey Project Consultant. Survey will necessarily precede parcel conversion for any given area but will be delivered systematically so that areas are surveyed, mapped, and reviewed incrementally (perhaps by township).

1.8 Parcel Management Reengineering Project

Scott County is currently working on a parcel management and work flow analysis project. Through this project we will consider the impact of GIS on existing business processes as they relate to parcel management.

The Consultant for parcel conversion services will not be responsible for this project. However to the extent that this analysis may influence the design of the physical or logical cadastral model, maintenance, training or other component of the parcel conversion project we will require collaboration of the Consultant to incorporate these outcomes. Scott County anticipates working with GeoAnalytics, Inc. headquartered in Madison, WI on this project.

Scope of Services

2.1 General Requirements

Scott County's objective is to create a digital property base to facilitate GIS functions. To do this, the County has determined that the best approach will involve coordinate geometry (COGO) reconstruction of the parcel base from source documents to the extent that it is feasible to do so. Where source material is missing, incomplete or requires inordinate effort to research then secondary sources such as existing plat maps, aerial photos or other sources may be used.

While the Scott County tax parcel maps are an invaluable resource for staff and members of the public alike they are still a derivation of the true land record (i.e. plat, survey, deed, etc). It is expected that the Consultant refer to original land records whenever possible in reconstructing the GIS parcel database.

The anticipated approach will be to use source materials in descending order of accuracy and tied to existing control as follows:

- GPS/Survey Control Points.
- Subdivision Plats, Plats of Survey, Original Town Plats, Deeds, Condominium Regime.
- Miscellaneous surveys, road books, etc.
- Scott County plat books (no scanning/warping).

Digital Orthophotos combined with the various map sources will provide sufficient guidance for the proper digitization of the tax parcels and related features.

The required digital mapping products must be topologically structured digital data sets delivered in the most recent ESRI ArcSDE geodatabase format running on SQL 2005 (currently ArcSDE 9.2). The geodatabase will store points, lines, and areas using the Iowa State Plane Coordinates, NAD 1983, South Zone, and have attribute data and/or annotation associated with each graphic feature.

The Consultant shall furnish all materials, labor, management, transportation or other components required to complete the property conversion work. The Consultant should use procedures and commonly accepted professional techniques that will assure complete compliance with the specifications and should outline such procedures in the proposal.

2.2 Data Acquisition

2.2.1 Initial Data Acquisition

Scott County will provide the Consultant with access to all source data required to begin the parcel conversion project. We will provide copies and/or remote access to all digital property records. Paper maps and documents will need to be scanned and indexed by the Consultant. Scans will be captured and indexed in such a way as to allow subsequent reference or links to features in the GIS database, stored as standard image files (e.g. JPG) or in a raster geodatabase. Scott County will retain ownership of all scanned products created in the data acquisition process.

Scanning will include the Auditor tax parcel maps and index books, subdivision plats and plats of survey. The county has a large format production scanner located in the Secondary Roads Department which may be used for this purpose and/or the Consultant may supply scanning equipment of their own. In no case will the Consultant be permitted to take unique source

material off County property for the purposes of scanning.

Scott County's scanner is a black and white multi-function printer/scanner/copier (KIP 3000 model). It is capable of scanning 36" wide source maps to a variety of image formats up to a maximum of 600 dpi (though 150-300 dpi is a more suitable target resolution). The KIP 3000 is located in the Scott County Annex building, across the street from the Scott County Administrative Center where most of the property maps are kept.

2.2.2. Supplemental Data Research

As the project develops it may be necessary to research or acquire other property records not gathered with the initial data. Scott County will be available to assist the Consultant in this effort to the extent that we are able, given the daily demands of county operations. If Scott County is not able to keep up with property research, the Consultant should be prepared to offer alternative solutions.

In the RFP response, Scott County would like the Consultant to explain their approach to parcel boundary research and source data decision making.

2.3 Cadastral Conversion

2.3.1 Projection/Coordinate System

The delivered system will be geo-referenced to real-world coordinates in the Iowa State Plane Coordinate System. The delivered database will form a contiguous, seamless, edge-matched base of the county's cadastral maps. The system will be built upon the North American 1983 (NAD83) datum, using feet as the default unit of ground measurement. All cadastral data shall be referenced to the Iowa State Plane Coordinate System.

2.3.2 Project Area

The county is approximately 468.5 square miles of which 9.3 sq. mi. is covered by the waters of the Mississippi. There are 13 townships, 17 incorporated cities and approximately 75,000 parcels. Area estimates were derived from the Iowa DOT county boundary layer for Scott County and the National Wetland Inventory GIS dataset available via the Iowa DNR GIS Library. The parcel estimate was drawn from the 2006 Scott County tax software.

2.3.3 Cadastral Data Compilation Requirements

It is the County's intent to use original property records to create GIS cadastral features insofar that is it feasible and cost effective to do so. We expect that the best available source will be used, and in the absence of that, the next best source and so on. However, Scott County does not anticipate resolving all features from original sources due to the level of effort required to research "difficult" properties. For example, some subdivisions are readily available, have excellent ties and can easily serve as a quality source document. Other subdivisions may be poorly referenced, have other problems which limit their usefulness or are missing altogether. In general, the existing tax parcel maps should be considered the source of last resort. This is not meant to be an indictment of the quality of the tax parcel maps, but rather an acknowledgement that the tax parcel maps are derivations of primary, legal property descriptions and are therefore not an original source document.

In situations where existing tax parcel maps are to be used the Consultant shall not trace (digitize) from scans, or warp scans to fit the digital orthophotos, but rather will use existing measurements to reconstruct the feature(s).

The successful Consultant must adhere to the following compilation requirements:

- Edge Matching - All captured line features must be both visually and coordinate edge matched with adjacent features.
- Common Boundaries - All graphic features that share a common boundary, regardless of digital map layer, must have the exact same digital representation of that feature in all common layers. The Consultant shall describe the method used to accomplish this.
- Point Duplication - No duplication of points that occur within a data string is permitted.
- Connectivity - Where graphic elements visually meet, they must also digitally meet. All confluence of line, area, tangent, and polygon data must be exact mathematically. No "overshoots", "undershoots", offsets, or "pseudo nodes" are permitted. Lines that connect polygons must intersect those polygons precisely; that is, every end point must be an intersection point of the respective polygon.
- Line Quality - A high quality cartographic appearance shall be achieved. Transitions from straight line to curvilinear line segments shall be mathematically tangent, smooth, and without angular inflections at the point of tangency. No zero length line features shall be included. Curvilinear graphic features should be smooth with a minimum number of points. When appropriate, line-smoothing routines shall be used to minimize the angular inflection in curvilinear elements. All straight lines (lines that should be straight) shall be defined by the two terminus points only.
- Segmentation - The digital representation of linear elements must also reflect the visual network structure of the data type. All data elements representing differing features shall be distinguished in the database by layering or other effective method. An element should not be broken or segmented unless that segmentation reflects a visual or attribute code characteristic, or unless the break is forced by data base limitations.
- Point Criteria - All point features shall be digitized as a single X, Y coordinate pair at the visual center of that graphic feature.

The structure of the cadastral data will not inhibit the execution of GIS functions across boundaries or artificial discontinuities (file edges or other delimitation). The Consultant shall process the database as the last step prior delivery of data to ensure that spatial continuity is achieved. All polygons and lines shall be verified by the Consultant prior to delivery for proper closure and connectivity as appropriate.

All data will be delivered in the latest ESRI ArcSDE format. ESRI topology validation must be performed prior to delivery, and the resultant error layers must be delivered to the county. A list of specific topology rules that will be applied should be included in your response. At a minimum, topology rules must be applied that enforce each of the topology business rules outlined above. Known topology exceptions must be marked in the geodatabase prior to delivery.

2.3.4 Annotation and Labeling

In general, annotation and dynamic labels should be used in concert to achieve an aesthetically pleasing and cartographically complete map. Annotation representing distances or other property measurements should reflect the deed, plat or survey dimensions not the actual measured distances of GIS features as they will necessarily vary from the legally accepted values. The following feature categories of annotation and dynamic labeling should be considered a basic expectation but can vary depending on Consultant recommendations.

Annotation should be used to represent the following features:

- Lot Dimensions
- Parcel Dimensions
- Railroad Right-of-Way Dimensions
- Road Right-of-Way Dimensions

- Subdivision/Condo Regime/Original Town Plat/Block Numbers
- Miscellaneous Text

Annotation will be optimized for the production of paper maps at one or more scales depending on location. The exact scales are yet to be determined, but may conform to the existing scales of the tax parcel maps. In general, the orientation and display of annotation shall follow accepted rules for cartographic production to ensure high quality, readable, and aesthetic map products for display and plotting. All annotation shall be consistent in terms of defined fonts, angles, and offsets.

Annotations shall be placed:

- To obscure the minimum amount of other map features
- To occur at least once on each map sheet for which the map feature appears
- To be uniform in orientation throughout the data base
- To be correct in regard to grammar and spelling

Dynamic labels should be used to represent the following features:

- Parcel Numbers
- Lot Numbers
- Political Townships
- Geographic Townships
- Water Bodies

The static nature of annotation provides for consistent printed maps and displays, but can also be challenging to use in the context of changing map scales and view. Feature linked annotation has not been thoroughly investigated at this point so we welcome any suggestions or insights into the appropriate use of this capability or any other annotation scheme.

2.3.5 Permanent Parcel Numbering System

The County maintains a single, geographically-based permanent parcel number that complies with the standards defined by the Iowa Department of Revenue. A separate parcel numbering system that includes reference to transfer books is maintained for the City of Davenport. It is the County's desire to retain and maintain both parcel numbering systems as part of the GIS project and yet provide an avenue for convergence in the future. The proposal should address the issue of maintaining a dual parcel numbering system and include a model for transition to a single parcel numbering system.

2.3.6 Cadastral GIS Data Model

The Consultant will design a data model to support the county business processes and demands of the GIS. In addition to any other data model descriptions, Scott County would also like the Consultant to specify how their model will address the following questions/issues:

- What topological rules should be enforced on parcels and/or related cadastral features. Which features will participate in topology?
- What are the suggested database rules, sub-types, relationships or other geodatabase behaviors that should be part of the cadastral data model?
- How do you propose to accommodate condominiums in a many-to-one owner to parcel environment.
- Consider how your model will include buildings on leased land, residential on AG land, and other miscellaneous taxable features that do not strictly represent parcels in the

normal sense.
- Parcel numbering in a multiple PIN environment.
- How does your model capture historical states of the parcel land database over time (e.g. physical changes such as parcel splits, combines, subdivisions as well as tabular changes such as change of ownership)?
- Hierarchical relationships between feature accuracies. For example, how do you plan to store information about the relatively accuracy of individual features (some may be constructed from plats and tied to GPS control (more accurate) while others may be constructed from parcel tax map dimensions and aligned to aerials (less accurate)). Moreover is there a way to manage this in an editing environment so that features of a higher accuracy are held fixed?
- How does the data model accommodate/integrate with other county databases, particularly with the tax and appraisal databases?

The cadastral data model will be designed by the Consultant with input from Scott County. The Pilot Project described in §2.7 will aid in the refinement of the model. As part of the Parcel Management and Reengineering project described in §1.8, GeoAnalytics may also contribute to the design and/or review of the cadastral data model.

2.3.7 Cadastral Features and Attributes

All cadastral data should be delivered in the latest ESRI ArcSDE format. This database must include one or more feature datasets that have pre-defined projections, coordinate systems, and map extents as previously described. Individual feature classes will reside within feature datasets where appropriate to support topology and full GDB functionality. All feature classes will be county-wide in extent, and all topology validation will be performed county-wide.

The tax and appraisal databases are both indexed by unique parcel identification number (PIN). It is expected that the majority of the parcel data displayed in the GIS will be joined or otherwise integrated with the tax/appraisal database using the parcel PIN. A perceived challenge of capturing the PIN for each parcel is the fact that parcel numbers are not currently listed on the tax parcel maps (in most cases). However, property addressing, ownership, transfer book/page and document numbers all exist on the tax parcel maps and can serve as a link to the parcel number in the tax/appraisal database. Data conflation may also be used to transfer attributes from the Bettendorf and Davenport parcel layers (including PINs) as long as there is QA/QC to verify the process.

In addition to the PIN, The Consultant will capture an attribute that represents the accuracy and/or source of the parcel feature, (i.e. was it mapped from survey data, tied to a GPS control point, mapped using the information from tax parcel maps, etc). The Consultant shall describe their process for meeting this requirement. The Consultant will also capture the transfer book/page number from the tax parcel maps.

Each Consultant's particular data model may deviate from the classifications listed below. These should be considered as general feature dataset expectations. Cadastral features to be captured should include, but are not limited to the features described in the table on the following page.

2.3.8 Feature Class Table

Feature Class	Type†	Attributes
Corporate Boundary	A,L	Corporate Name
County Boundary	A,L	County Name
Land Hook	L,P	
Lot Boundary	L	
Lot Dimensions	T	
Misc Cartographic Symbols	L,P,T	
Parcel Boundary	A,L,P	PIN(s), Transfer Book/Page Number, Accuracy, Subtype (Standard, Condominium, Building on Leased Land, Residential on Ag Land, etc.)
Parcel Dimensions	T	
Quarter Quarter Boundary	L	
Quarter Section Boundary	A,L	Tier, Range, Section, ¼
Railroad Centerline	L	Railroad Name
Railroad Right-of-Way‡	A,L	
Road Centerline	L	Road Name
Road Right-of-Way‡	A,L	
Road Right-of-Way Dimensions	T	
Section Boundary	A,L	Tier, Range, Section
Simultaneous Conveyance Boundary	A,L,P	Conveyance Name
Subdivision/Condo Regime/Original Town Plat/Block Numbers	T	
Township Boundary, Geographic	A,L	Tier, Range
Township Boundary, Political	A,L	Political Township Name
Water	P,L	Water Name

† (A = Area, L = Line, P = Point, T = Annotation)
‡ Rights-of-Way that have parcel numbers should be treated as parcels.

2.4 Cadastral Data Maintenance Model

The Consultant will provide the County with a cadastral data maintenance model which describes the complete maintenance cycle. It should address such things as how to process new source material, updating GIS features/data, managing versions/history layers, and identify procedures used to synchronize updates in the GIS to the tax/appraisal systems. The cadastral data model (§2.3.6) should support the maintenance model.

A goal of the maintenance model is to streamline the map maintenance process so there should be emphasis on both functionality and ease of use. This data model must have the capability of publishing the feature classes on an as-needed basis for distribution. It is preferred that all aspects of the map maintenance workflow take place entirely within the geodatabase.

If specific software is proposed for parcel maintenance, please indicate whether this software is included in the project deliverable or needs to be purchased separately.

The Consultant will create a Procedures Manual which should outline conversion procedures, decision rules, quality control/quality assurance methods, the Cadastral Maintenance Model and maintenance procedures/programs to be employed.

2.5 Quality Control, Accuracy and Schedules

2.5.1 General Requirements

Quality control is an essential part to ensuring the integrity of the database. The Consultant shall describe in detail the various automated and manual quality control procedures implemented throughout the conversion process to detect errors at each step and achieve the accuracy requirements for the project.

The Consultant should present the specific rules that will be applied from the ESRI ArcMap geodatabase topology engine to validate the integrity of the GIS database. The resultant topology layers and/or validation results should be included as deliverable items.

The Consultant will achieve a one to one relationship between the tax and appraisal databases and the GIS parcel database. Any exceptions to this must be fully documented and provided to the County. Parcel numbers assigned to nontraditional features such as condominiums, buildings on leased land and the like shall be accounted for in the parcel data model.

2.5.2 Accuracy Requirements

The Consultant will adhere to the 1998 National Standard for Spatial Data Accuracy (NSSDA) for accuracy assessment and error reporting.

Scott County anticipates that the accuracy of the parcel lines will be established relative to well-defined indicators visible on the aerial images and/or available GPS control. For purposes of this conversion, well-defined indicators from aerial photos shall include any feature indicative of property ownership that can be sharply defined as discrete lines. Examples may include, but not be limited to, fence lines, hedges, buildings or other indicators of property boundaries. The County will select well-defined indicators in consultation with the Consultant. Optionally GPS field checks may be used to verify accuracy.

To the extent that source material permits, the data converted from the property maps shall not deviate from well-defined indicators by more than 3' for urban and rural areas at the 95% confidence interval as defined by NSSDA-98. The Consultant shall describe their ability to meet and report upon the indicated spatial accuracy requirements of the GIS parcel database.

2.5.3 Quality Control Checklist

Scott County will be responsible for performing quality checks on the geodatabase after each delivery and upon loading the GIS data into the County ArcSDE geodatabase. Although local staff will do the actual checking, the county requests that the selected Consultant provide a checklist of functionality and data-completeness for county staff to check off during quality control.

2.5.4 Acceptance Procedures

After initial checking, work increments will be categorized by the County as follows:

- ACCEPTED: Products that meet specifications and contain no errors, or so few errors as to be acceptable, will be formally indicated as accepted. The County may assume responsibility for minor corrections, after which the Consultant will be notified, so that the problems will not recur on subsequent products.

- RECEIVED-EDITED: The product has a number of errors that do not permit acceptance. For the product to be accepted, the Consultant must correct all errors noted by the County.

- REJECTED: The number and character of errors detected by the County are such that the product is formally returned to the Consultant without a complete edit. The County will formally notify the Consultant of the rejected status of the product. The Consultant must edit and correct the mapping for resubmission to the County. If the County determines that there are an excessive number of rejected products, the County may require the Consultant to suspend production until the problems are resolved.

Completion of any required corrective actions shall not affect the Consultant's production schedule. The acceptance procedure will apply to all deliverable products to be received.

2.5.5. Review Schedule

The Consultant shall provide the County with accuracy assessments to coincide with incremental delivery of the cadastral features. The County will examine GIS data and respond in a timely manner so that the Consultant's technicians are still familiar with the area being reviewed. Scott County requires the Consultant to provide monthly progress reports at a minimum. This will facilitate a smooth delivery schedule and QA/QC process.

2.6 Pilot Project

Scott County requires the Consultant to meet the specifications and deliverables for a pilot area before compiling all of the parcels. The Contractor is expected to use this aspect of the project to clarify all requirements of GIS parcel map database conversion and adjustment including geographic priorities for data conversion, conversion procedures, decision rules for parcel boundary construction and fitting, source data needs, County expectations for product accuracy, structure, topological rules, attribution, format and overall parcel data model design.

2.6.1 General Requirements

A geodatabase conforming to the accepted parcel and related cadastral data model design and check plots will be produced and delivered by the Contractor to the County. The County will review the pilot area products for quality, completeness, and accuracy. The pilot project is expected to be an iterative process with refinement to conversion procedures and geodatabase specifications. Upon agreement of final geodatabase design specifications and conversion procedures, delivery of final data for the pilot area is expected. Incorrect or inaccurate data will be returned to the Contractor for resolution until specifications are met as per the standard acceptance procedures outlined in §2.5.4.

The County will provide the required materials and the pilot area boundaries. The pilot will be comprised of three to four (3-4) dissimilar areas of the County. Each area will be approximately one square mile. The delivery specifications are identical to the project deliverable, outlined in Section 3.

2.6.2 Pilot Project Completion Requirements

The pilot project will be completed when these conditions are met:

- Problem areas have been thoroughly researched and listed for County review, and remedied.
- Data model specifications and conversion procedures have been validated and revised if necessary to reflect pilot project results.

- Final digital parcel and related cadastral data for the pilot area has been accepted by the County and successfully loaded into a SQL Server ArcSDE GDB format on the County's GIS system and hardcopy maps produced.

Based upon the approval of Scott County, the remaining parcels of the project can be compiled as per the delivery specifications.

2.7 System Integration

Scott County currently uses various tax cycle administration software and appraisal software systems and would like to integrate these systems with the GIS cadastral database as seamlessly as possible. A real-time interface between the GIS and these systems is the preferred solution. The Consultant with input from the County will propose and install a real-time interface between the tax and appraisal systems, and the cadastral database in the GIS project. The cadastral database will be interfaced to these systems through the use of the parcel number link. A data pointer will be maintained and attached to the parcel feature and/or a parcel centroid, and the parcel number will serve as the conduit through which inquiries and searches can be conducted.

We do not expect that the GIS interface will be used to edit tax or appraisal data; the existing applications will continue to be used for that purpose. However, the GIS should push parcel changes to the tax and appraisal systems for verification, acceptance and attribution. Changes in the tax/appraisal systems should be propagated to the GIS database. System integration should be an essential part of the overall Cadastral Data Maintenance Model.

2.8 Implementation

We are requesting that the Consultant provide a level of expertise necessary to ensure that Scott County staff can successfully complete the following tasks:

- Load the cadastral geodatabase into the latest version of ESRI ArcSDE for SQL Server 2005.
- Create and assign appropriate user accounts and permissions within the ArcSDE environment.
- Ensure that the Cadastral Data Model is in place. This will require that ArcSDE and SQL settings and controls are tuned and set appropriately. ArcSDE and SQL should be tuned for efficient database performance, security and failure recovery.
- Deliver and install all applications, scripts, batch routines and all other necessary components of the Cadastral Data Maintenance Model.
- Interface between GIS data and other County databases will be installed.

2.9 Training and Support

The Consultant shall provide an adequate amount of training to allow County to fully use and maintain the GIS database. Proposals should describe the training program that will be provided, including supporting documentation that will be provided. Scott County has a computer training lab with 12 stations that will be made available for on-site training.

Scott County expects to perform regular maintenance and update of cadastral layers in-house, but technical support may be required from time to time. Please indicate if there is any technical support, warranty/review periods or other support arrangements included in your standard contract that we should be aware of and whether they are included in the price of the project or available as an additional service or fee. At a minimum, the Consultant is expected to be available to provide support on a subscription or as-needed basis after the project has been completed.

Project Deliverables

3.1 Pilot Project Deliverables

- Digital parcels and related features (identified in Section 2.3.7) delivered and loaded into Scott County's current version of the ESRI ArcSDE format for the agreed upon (three or four) individual square mile pilot areas.
- Finalized data model for the parcel geodatabase and related cadastral features.
- Paper check plots and PDF files of each pilot project area.

3.2 County-wide Production Parcel and Cadastral Conversion

The County will work with the Consultant to establish incremental delivery areas. The delivery rate of cadastral data shall be evenly distributed over the course of the project and shall not exceed the County's capacity for quality control.

- Digital parcels and related features identified in Section 2.3.7 and 2.3.8 in the current version of the ESRI ArcSDE format for the entire project area (and conforming to the final data model design).
- FGDC compliant metadata for all feature datasets.
- All scanned source material acquired by the Consultant.
- Final data model ER diagram.
- QA/QC accuracy reports for all cadastral data delivered in NSSDA98 standard report format. Topology exception reports, documentation of exceptions between the GIS database and the tax/appraisal databases, and any other custom reports.
- Load all final geodatabases at the County into ESRI ArcSDE for SQL Server format. Including any performance tuning or setup of the ArcSDE database as described in §2.8.
- Deliver and install all applications, scripts, batch routines and all other necessary components of the Cadastral Data Maintenance Model.
- Procedures Manual which should outline conversion procedures, decision rules, quality control/quality assurance methods, the Cadastral Maintenance Model and maintenance procedures/programs to be employed.
- Training for cadastral data update and maintenance (on-site).
- Optional Services deliverables including (§4.1) Farmland Assessment Application installation and instruction, (§4.2) Map Book Plotting Application installation and instruction and/or published maps sets described in §4.3.

Optional Services

These additional items should be fully explored and explained by the Consultant but will be included in the subsequent formal contract at the County's option. They should be itemized in the Project Fee Schedule.

4.1 Farmland Assessment Services and Software

As an optional element of this project, the Consultant will provide a GIS-based Farmland Assessment solution. This option should include software that offers the capability to perform automatic assessment of agricultural land. This application shall employ GIS spatial analysis to compare parcel soil data, agricultural land use and crop productivity data. Software shall provide the ability to proportion calculated acreages to assessed acreages within user-defined tolerances. The software shall provide the ability to calculate final assessments through to value and export the data prior to valuation to the County's tax system. The software shall also provide the ability to generate digital and printed reports for individual parcels as well as the entire agricultural parcel database and any subset thereof. Data integration services to incorporate farmland assessment data into the County's current tax administration system shall be described and included.

This software solution must directly act upon GIS data residing in an ESRI geodatabase without any need for data export to an alternate format. The spatial analysis component of the solution must reside within the latest ArcGIS software and must utilize the spatial analysis functions of ArcMap applications. The reporting component must provide calculation to final valuation, and include calculation of discrepancy reports and perform land use, soil, and parcel code validation against known domain tables. Final calculations must be available as an ODBC compliant data source for import into administrative software packages.

4.2 Map Book Plotting Application

As an optional element of this project, the Consultant will provide a custom Map Book Plotting Application that will allow County staff to generate a new set of plat books on demand. This plotting solution will be fully integrated with the latest version of the ESRI ArcGIS software.

The Consultant must be able to demonstrate a plotting software solution which is a functional, documented and supported product. Documentation on how to use this application will be provided. The proposal response should include details regarding the software development, and how the cadastral database will be prepared for plotting. The plotting application should be capable of producing plat maps that conform to the current Scott County plat books on file in the Scott County Auditor's Office in terms of the size and number of maps, map scales and plat book and page references. The plotting application should also be capable of producing alternative layouts should the County wish to create custom map sets (for example 11"x17" books).

4.3 Published Map Set

As an optional element of this project, the Consultant will provide a set of paper maps and corresponding set of digital PDF files, both based on the current Scott County plat book layout design in terms of page size, number of maps, map scales and plat book and page references. The Consultant will deliver a set of paper maps conforming to the size of the existing plat book binders (approximately 22½" x 18"). Enhancements to the existing set of assessment maps are encouraged and should be thoroughly explained in the proposal. For pricing considerations, the Consultant will provide a price per map set in case the County would like to order multiple sets.

4.4 Other

The Consultant is encouraged to include descriptions and costs of other Additional Services as they deem them appropriate and of potential interest and benefit to Scott County provided that such Additional Services are clearly itemized in the Costs Section.

Proposal Requirements

In order to simplify the review process, and to obtain the maximum degree of comparability, it is requested that the proposal include the following items:

5.1 Letter of Transmittal

A letter of transmittal briefly outlining the Consultant's understanding of the scope of services to be provided, and general information regarding the firm and the individuals to be involved, is required.

5.2 Table of Contents

Include a table of contents which identifies the material by section, page number and a reference to the following information requested to be contained in the proposal.

5.3 Management Approach Summary

Describe your firm's commitment to your clients and to the products and services you provide, and the process or steps involved in achieving this goal. Describe your firm's management approach for this project and explain your organizational structure used for this or similar projects.

5.4 Technical Approach Summary

Describe in summary, your firm's planned approach for accomplishing all of the work and services described in this request for proposals. Note specifically any operations that may differentiate your technical procedures from others. You will provide more information with your response to questions contained in the RFP Worksheet.

5.5 RFP Worksheet

Please fill out the attached RFP Worksheet. This is essentially the same worksheet that was supplied to Consultants during the RFQ phase but it has been amended to include details of the Consultant's Proposal for the Scott County Project.

Please use the RFP Worksheet to include the requested information up through question 12. The additional questions are

5.6 Project Schedule

Prepare a detailed schedule that describes the all major tasks identified in the Project Scope including periodic meetings, reporting or review points, incremental delivery dates, and other milestones. A Gantt chart or similar is required.

5.7 Samples

Please provide samples prints and data for similar projects which you have completed. Scott County would like to receive one (1) urban scale (1"=50 to 1"=100) and (1) rural scale (1"=200 to 1"=660) printed map from a previous project. Ideally the prints should show the various features requested by Scott County in this RFP and should represent a typical tax parcel map. If the maps are created using the Consultant's Map Book Plotting Application as defined in §4.2, please indicate as much in your response. At your discretion, they may or may not show aerial photos. Please also include digital samples in ESRI pGDB or shape file format of the various GIS data layers shown on the prints.

5.8 Project Fee Schedule

The Consultant shall use the Attachment B, "Project Fee Schedule" to summarize the maximum fixed fee (lump sum) being proposed for the Scott County project in its entirety. Scott County has also requested that the fees for selected scope components be itemized.

If any part of the project will be completed outside of the United States by either the Consultant or a subcontractor thereof, the Consultant is required to provide a project fee which reflects the cost of the project using domestic labor versus the project costs using foreign labor. The intent of this requirement is to provide the county with a means to compare pricing equitably among firms.

The Consultant must indicate their intent to comply with this requirement and will be considered non-responsive should they fail to disclose this information. The Consultant ultimately chosen to work with Scott County will be subject to penalties and/or held in breech of contract if they failed to disclose this information.

5.9 Proposal Format and Copies

The Consultant will supply one bound, printed copy of their RFP response and one digital copy in PDF format on CD/DVD. Printed maps and digital data samples should also be included. Please refer to the Consultant Check List, Attachment C to ensure that you have enclosed all required materials.

5.10 RFP Submittal Schedule and Delivery Instructions

All questions regarding the RFP should be submitted in writing via mail or email to:

Scott County GIS
Attn: Ray Weiser, GIS Coordinator
Scott County Administrative Center
600 W. 4th St
Davenport, IA 52801-1030

The deadline for presenting questions is Friday, October 20, 2006. Questions will be routinely summarized and answered as received. A final list of all questions and responses will be distributed to all Consultants on or before Tuesday, October 24, 2006.

RFP's should be placed in a sealed envelope and mailed or delivered to:

Scott County Purchasing Department
Attn: Robert Holliday, CPPB Purchasing Specialist
Scott County Administrative Center
600 W. 4th St
Davenport, IA 52801-1030

RFP responses must be received by the Scott County Purchasing Department no later than 4:30 PM on Monday, October 30, 2006.

Standard Terms and Conditions

Before any work can be done for Scott County, you are required to comply with Scott County Policy as described in Attachment A, “Scott County Requirements”.

Please advise the County if you unable to meet any of the requirements.

Attachment A
Scott County Requirements

SCOTT COUNTY INSURANCE REQUIREMENTS:

The Contractor shall have in force during the period of this contract, insurance as listed below:

A. Bodily Injury and Property Damage Insurance: The CONTRACTOR shall take out and maintain during this contract, bodily injury and property damage liability insurance under a comprehensive general form and automobile injury and property damage insurance under a comprehensive general form.

The required limits of this insurance shall not be less than:

General Liability:

Personal Injury - each person	$1,000,000
Personal Injury - each occurrence	$1,000,000
Personal Injury - Aggregate	$1,000,000
Personal Damage - each occurrence including Broadform Liability Extension	$1,000,000

Automobile Liability - Owner, Non-Owned and Hired Vehicles:

Personal Injury - each person	$1,000,000
Personal Injury - each occurrence	$1,000,000
Personal Damage - each occurrence	$1,000,000

The above insurance shall cover the contractor's employees, the public and Scott County employees while in the buildings and on the grounds of Scott County.

B. Certificates of Insurance: The CONTRACTOR shall deliver to Facility & Support Services, 428 Western Ave., Davenport, IA 52801, certificates of insurance covering all above insurance in duplicate before starting project. Such certificates shall provide ten days prior notice by registered mail of any material change in or cancellation of this insurance.

C. Contractual Liability Insurance: The CONTRACTOR shall take out and maintain during this contract, liability insurance.

D. Products and completed Operations Liability Insurance: The CONTRACTOR shall also take out Products and Completed Operations Liability Insurance of limits not less than any of the above limits specified in these qualifications.

E. Workmen's Compensation and Employer's Liability:

(1) The CONTRACTOR shall maintain during this contract, the statutory workmen's compensation and employer's liability insurance for all his employees to be engaged in the maintenance work under the contract.

(2) The amount of Employer's Liability Insurance shall not be less than One Million ($1,000,000).

INDEMNIFICATION:

To the fullest extent permitted by law, the CONTRACTOR shall indemnify and hold harmless the Owner and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from the performance of the WORK, provided that any such claim damage, loss or expense (1) is attributed to bodily injury, sickness, disease or death or to injury to or destruction of tangible property (other than the WORK itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent act or omission of the CONTRACTOR and subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce and otherwise exist as to any party or person described in this paragraph.

OWNERSHIP OF DATA:

All data and other records supplied to the Consultant for this project shall remain the sole property of the County. The Consultant shall not, without written consent, copy or use such records, except to carry out contracted work, and will not transfer such records to any other party not involved in the performance of the Contract pursuant to this RFP.

LATE COMPLETION:

Should the Consultant selected as a result of this RFP fail to perform the work within the period of time stipulated in the contract, the Contractor shall pay to Scott County $400.00 as liquidated damages per calendar day from the day of default, unless extensions of time granted by the County specifically provide for the waiving of late completion charges. The liquidated damages represent the amount estimated to be lost as a result of untimely completion.

Scott County shall have the right to deduct the late completion charges from any monies in its hands, otherwise due, or to become due, to the Consultant, or to sue for and recover compensation for damages for nonperformance of this contract within the time stipulated.

SUBCONTRACTOR:

The County reserves the right to approve any subcontractor utilized by the prime Consultant and inclusion of any subcontractor in your proposal shall not be misconstrued as implied consent by the county to use that subcontractor.

If it is your firm's intent to abide by the Scott County project requirements as described, please have an authorized representative sign below.

_____

Consultant Company Name

_____	_____	_____
Authorized Signature	Title	Date

Attachment B
Project Fee Schedule

Fee Description

Initial Data Acquisition (§2.2.1):	$_____
Pilot Project (§2.6):	$_____
Training:	$_____
Implementation:	$_____
Parcel Conversion, et al.:	$_____
Subtotal	$_____

Option: Farmland Assessment Application	$_____
Option: Published Set of Plat Maps (per set price)	$_____
Option: Map Book Plotting Application	$_____
Options Subtotal	$_____

If any part of the project will be completed outside of the United States by either the Consultant or a subcontractor thereof, the Consultant is required to provide a project fee which reflects the cost of the project using domestic labor versus the project costs using foreign labor. The Consultant must indicate their intent to comply with this requirement and will be considered non-responsive should they fail to disclose this information. If no portion of the work is to be performed outside of the United States, please enter "N/A" next to the "Total Project Fee (Foreign)" line item.

TOTAL PROJECT FEE (FOREIGN) $_____

TOTAL PROJECT FEE (DOMESTIC) $_____

_____
Consultant Company Name

_____ _____ _____
Authorized Signature Title Date

Attachment C
Consultant Check List

_____ Letter of Transmittal

_____ Table of Contents

_____ Management Summary

_____ Technical Approach Summary

_____ Completed RFP Worksheet

_____ Project Schedule

_____ Printed Map Samples

_____ Copy of digital files shown on printed samples (CD/DVD)

_____ Attachment A – Signed Standard Terms and Conditions

_____ Attachment B – Signed Project Fee Schedule

_____ Attachment C – Consultant Checklist

_____ RFP Addendum (if applicable…see RFP Worksheet)

_____ One printed copy and one PDF file of your RFP response

Scott County GIS Cadastral Data Conversion Project
Procurement of Services Summary and Vendor "Shortlist"

In April of 2006, Scott County released an RFQ for GIS Parcel Conversion Services. After receiving responses and evaluating the candidates, eight firms matching our requirements were invited to respond to an RFP. The Scott County Cadastral Data Conversion Project RFP was released in September of 2006 and seven of the eight pre-qualified firms submitted proposals in response. The consultants submitting proposals on the project were:

Applied Data Consultants
2985 58th St
Eau Claire, WI 54703
http://www.adc4gis.com

Bruce Harris and Associates
21 North River St
Batavia, IL 60510
http://www.bruceharris.com

EI Technologies, LLC
19750 E Parker Square Dr, Suite 100
Parker, CO 80134
http://www.eitek.com

Midland GIS Solutions, LLC
501 North Market St
Maryville, MO 64468
http://www.midlandgis.com

The Schneider Corporation
Historic Fort Harrison
8901 Otis Ave
Indianapolis, IN 46216
http://www.schneidercorp.com

The Sidwell Company
675 Sidwell Court
Saint Charles, IL 60174
http://www.sidwellco.com

Smart Data Strategies, Inc
357 Riverside Dr., Suite 100
Franklin, TN 37064
www.sds-inc.com

Following an evaluation of the RFP responses, Scott County narrowed its selection of firms to Bruce Harris and Associates, the Schneider Corporation and the Sidwell Company. These three finalists were invited to interview and present to the Scott County GIS Selection Committee. After careful consideration the committee decided to pursue contract negotiations with the Schneider Corporation and expects to make a final recommendation to the Scott County Board of Supervisors in February of 2007.