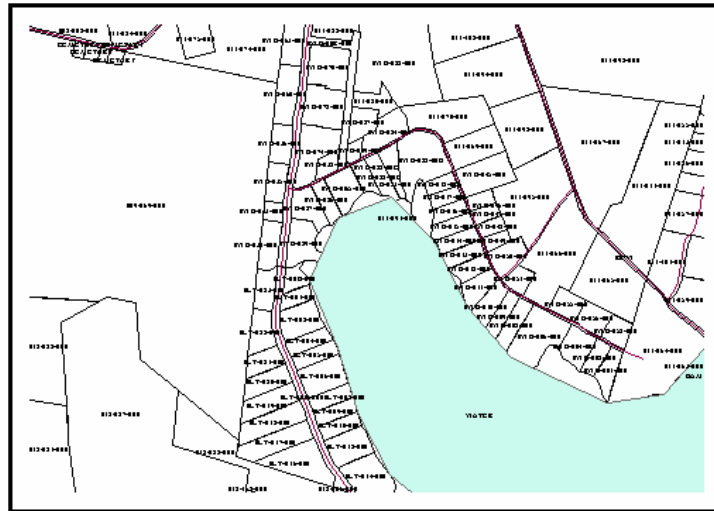


# RIGIS

## STANDARDS FOR DIGITAL PARCEL DATA SETS FOR USE IN A GEOGRAPHIC INFORMATION SYSTEM



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For Use in a Geographic Information System  
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# **RIGIS Standards for Digital Parcel Data Sets For Use in a Geographic Information System**

## **PREAMBLE**

The need for and ability to development digital parcel data sets for inclusion in a geographic information system database accentuates the convergence of professions and technologies related to the management of land information at the local level. On the one hand there is a need within city and town hall for the inventory, analysis of attribute information and graphic display of property parcels for basic land use planning and property value assessment. On the other there is a legal requirement and designated responsibility for authoritative boundary determination and formal definition and description of real property itself. As described in this document, the former is an interest of the GIS practioner for which these standards are offered, and the latter is the exclusive responsibility of the licensed Professional Land Surveyor. The line between the two is best detailed in the laws of the various states now experiencing this convergence. Interpretation of these laws is a national issue for which professionals in many states are seeking solutions. With the offering of the standards contained in this document, we are attempting to reach an understanding of these issues to better define requirements and needs of all affected parties including those of elected and appointed municipal officials, GIS practioners, and the community of Professional Land Surveyors in Rhode Island.

### **Statement from:**

#### **The Rhode Island State Board of Registration for Professional Land Surveyors**

The standards, specifications and application of spatial accuracy and issues related to any aspect of authoritative or legal property boundary definition constitute the practice of land surveying which fall under the jurisdiction of the Rhode Island Board of Registration for Professional Land Surveyors. Related topics which appear in this document may be used solely for preliminary planning, property assessment and graphic map display.

Furthermore in accordance with the definition of land surveying as set forth in R.I.G.L. 5-8.1-2(10), GIS specialists and project managers are hereby advised that “...*any service or work, the adequate performance of which involves the application of special knowledge of the principles of mathematics, the related physical and applied sciences and the relevant requirements of law for adequate evidence to perform, the act of measuring and locating lines, angles, elevations, natural and manmade features in the air, on the surface of the earth, within underground workings, and the beds of bodies of water for the purse of determining areas and volumes, for the monumenting of property boundaries and for the platting and layout of land and subdivisions thereof, including the topography, alignment, and grades of streets and for the presentation of maps, record plats, field note records and property descriptions that represent these surveys.*” Further, in accordance with the criteria set forth in R.I.G.L. 5-8.1-13, GIS administrators, managers or their consultants are hereby advised that they may be required to obtain a Certificate of Authorization from the Board as well.

As the science of Geographic Information Systems evolves, a multitude of functions are becoming available to the GIS specialist that will require oversight and supervision by a licensed Professional Surveyor. Examples of these activities are included in the parcel mapping and survey data manipulation capabilities of commercially available GIS software packages such as ESRI ArcGIS Survey Analyst, Intergraph Geomedia Parcel Manager, and the MapInfo

Professional RTC extension among others. Certain functions within such software provide the non-surveyor with capabilities which require great caution as “*only licensed land surveyors have the training and experience to understand and take responsibility for the establishment of survey control for photogrammetry and mapping, authoritative boundary determination, and the official location of man made features.*” The Rhode Island State Board of Registration for Professional Land Surveyors urges thoughtful care in utilizing features and engaging in activities that constitute the practice of land surveying. GIS Administrators are urged to contact the Board for clarification of the law. Additionally, GIS Administrators are encouraged to review with their legal counsel, any proposed activity that may cross over into the Board’s jurisdiction. The Board will firmly implement its charge of protecting the health, welfare, safety and well being of the public.

## **RIGIS Standards for Digital Parcel Data Sets For Use in a Geographic Information System**

- 1. Introduction and Credits:** This document was prepared by a subcommittee of the Rhode Island Geographic Information System (**RIGIS**) Executive Committee, the oversight management and advisory body for the state's GIS (Geographic Information System) effort. It has been reviewed by other selected units of State and Municipal government with interests in and needs for parcel level data as well as by private consultants and registered land surveyors knowledgeable in matters relating to GIS and land records information systems. These standards were accepted by the full RIGIS Executive Committee and are recommended for use by parties interested in developing and maintaining such data for use within a GIS in Rhode Island. In considering elements to be included in this standard, we have reviewed similar documents from other states including New York, Massachusetts, Vermont and Wisconsin. We have borrowed heavily from the standards document "MassGIS Standard for Digital Parcel Files and Related Data Sets", July 2001 developed by the Massachusetts GIS, an element of the Massachusetts Executive Office of Environmental Affairs. More detailed listings of sources of information and reviewers who have contributed to this document are included in Appendix A and B.

**Caveat:** *The standards for spatial accuracy and detail of property boundaries and related attribute information presented in this document are intended to be used at the planning, property assessment, and graphic map display level. There is no intent to provide authoritative definition or specify limits for legal boundary determination or property conveyance purposes. Matters related to those more definitive interests remain the purview of the professional title attorney and/or registered land surveyor.*

## **2. Purpose:**

A. To provide general content standards for digital data with respect to spatial accuracy, attribute coding, and documentation (metadata) for Rhode Island's cities and towns when creating new or updating existing digital data representing municipal parcel or tax assessment maps for use in a municipal GIS.

B. To encourage a common spatial base for municipal parcel and related attribute data to better enable possible future use in a statewide or regional geography involving multiple town analysis of land related information.

C. To establish requirements for use by cities and towns producing or maintaining digital parcel data funded or partially funded by grants received from Rhode Island state government agencies.

*These standards are not intended to be a complete Request for Proposals to prospective vendors developing digital parcel level data for a municipality. They may, however, be suitable as a basis for the preparation of technical specifications for such a document.*

**3. Background:** Geographic Information System (GIS) technology is coming into more common use by municipalities in Rhode Island. For use within city and town hall the primary GIS data layer is often the assessor's map or parcel map. To be used in a GIS, these printed maps must be converted to a digital form or digitized. In Rhode Island some cities and towns have already converted their parcel maps into computerized or digital files. Recently other municipalities have initiated efforts to do the same. It is anticipated that at some point in the future all Rhode Island cities and towns will have parcel level data that may be used in an automated system such as a GIS. For these data to be of continued use and value, they must be maintained and updated on a regularly scheduled basis as close to a near current time state as possible. This document presents standards to cities, towns and their consultants in creating and maintaining digital data sets of property parcel level information. It is intended to support the development of GIS data sets consistent throughout the state whereby parcel level map information can be used and compared within and across town lines and in the future on a statewide basis.

**4. Project Team:** Creating a digital parcel data set for use in a GIS is a complex task involving a number of disciplines and interests within city or town government. Before starting the process it is recommended that a team of interested and knowledgeable people be assembled to provide both oversight management and more detailed hands on supervision of the work to be done. This should include not only those who have an interest in the immediate use of the data, but also those that might have a potential need to access it in the future. Within city and town government this might include representatives from the Information Systems Technology, (IS/IT), GIS, City or Town Clerk, Tax Assessment and Collection, Engineering or Public Works, Planning, Zoning and Building Departments. Those persons within the municipality that have traditionally been involved with the creation or updating of the existing parcel maps as well as the database files associated with them will be essential to the overall effort. It may also be

advisable that a professional land surveyor be available for consultation during the map digitization or update process. If the municipality employs or has on retainer a registered land surveyor that person should be part of the project team. If not, obtaining the consultant services of a professional surveyor during the map digitization process should be considered. The knowledge of that person with regard to land records, property boundary determination, and platting and layout of subdivisions will prove invaluable. When the project involves surveying tasks as described in the Preamble of this document, a licensed surveyor must be part of the project team. If the creation or maintenance of the digital data set is to be performed by a private firm or consultant(s) they should become involved with the project team as early in the formative stages as possible and remain so throughout the project.

## **5. Definitions:**

*Assessor's Database* - A database of property assessment information maintained by a tax assessor; it may be referred to or be part of the tax roll, Grand List, property list, CAMA system, CAMA database, or appraisal database.

*Attribute* - A single element of non-graphic (e.g. number or character text string) information stored in a database field and usually, in context of this standard, associated with a single geographic feature (e.g. a property parcel on a map) such as name of owner, property area, property value, etc.

*Base Map* - A map portraying basic reference features such as roads, lakes and streams onto which other thematic spatial information such as property or parcel outlines, easements, rights of way or other special features are placed.

*CAD - Computer Aided Drafting (Design)*- CAD or CADD technology utilizes computer software for vector line representation of spatial features in an map, engineering drawing, plan or graphic representation. CAD software produces and uses data in a specialized file format (*DWG and DXF files*).

*CAMA – Computer Assisted Mass Appraisal* – The process of using a computer to assist in property tax appraisal and equity evaluation. A CAMA system will include one or more relational databases and may also have a GIS component.

*Deed* - The historic record of conveyance for property ownership. It is the primary legal record defining the property and its boundaries and is usually stored in the Land Evidence records maintained by the city or town.

*Digital Parcel File* - A computer file or files containing a graphic (vector) representation of the boundary information originally depicted and maintained on a city or town assessor's maps. These files may also include public and private rights of way and various kinds of easements. In a GIS database the digital parcel file contains attribute information in or from a relational database further identifying individual graphic features represented by points, lines or polygons on the map.



*Digitizing* - The process of rendering geographic features illustrated on a scanned image or hard copy map into a digital vector file format through tracing on an electronic grid tablet or by on screen or "heads up" tracing from a computer monitor screen.

*Georeference* - The registration of a map, map layer or map feature to a real world coordinate system such as the system of Latitude and Longitude or the Rhode Island State Plane Coordinate System. This process is usually done by referencing known coordinate locations on the ground to points on the map in the digital image or vector line map layer.

*GIS* - (Geographic Information System) A collection of computer hardware and software tools used to enter, store, manipulate and display geographically referenced information.

*Image File* - A computer file created by scanning a graphic display or photograph into a digital file format viewable on a computer monitor. The digital image, sometimes referred to as a raster file or raster image, consists of columns and rows of cells called pixels. *Example file formats: jpg, jpeg, tiff, gif, MrSid.*

*Lot* - A closed polygon feature representing a distinct portion or plot of land taxed under unique ownership.

*Metadata* - Specific information about the digital data including sources, scale, accuracy, currentness etc. usually collected in a separate document or record(s) attached to and supporting a digital data set or data set package.

*Parcel* - A closed polygon feature representing units of land by ownership or interest on a city or town assessor's map. A parcel may contain one or more lots taxed under unique ownership.

*Parcel Identifier (PIN)* - A numeric or character string identifying each parcel in the assessor's database. This may be the result of a merging or concatenation of the respective tax assessor's map, plat, lot, subplot identifying coding for a polygon on a parcel map and in its respective GIS digital parcel file.

*Plat* - An individual map containing a number of individual parcels representing a section of an assessor's city or town parcel map commonly identified by a single numeric or alpha-numeric code.

*Polygon Unique Identifier (PUID)*- A numeric or character string identifying each polygon in a digital dataset. This may be the same as the *Parcel Identifier (PIN)* if all polygons in the map layer or data set are defined as parcels, or may be a separate and unique coding (if other polygons such as lakes or roadways are also included in that data set).

*Property* - In this guideline, this refers to a feature representing real property with a record in an assessor's database.

*Quality Assurance* - Procedures implemented after the initial data compilation and generation processes to ensure standards of accuracy and completeness detailed in specifications and

controlled by the quality control processes have been met.

*Quality Control* - Methods and techniques employed during the processes of data compilation and generation to ensure product specifications are being realized.

*Registration* - The process of assigning or identifying points in a Cartesian coordinate system to uniquely fix and identify locations on a map. When further registered to a real world coordinate system, the map or map layer is termed georeferenced.

*Scan* - The process of converting a hard copy document into a digital image file useable in a Computer system. A scanned image can be registered to a geographic location on the ground through an additional process (georeferencing) for use in a GIS.

*SubLot* - A property polygon further broken down by the division of a lot or the assignment of attribute coding for separate ownership units within a parcel such as in a condominium.

*Vector Files* - Digital files of spatial data consisting of points, lines or polygons. *Examples: ESRI shapefiles, MapInfo tab files, AutoCad dxf files*

## **6. Approaches to Parcel Map Automation**

### **A. New Mapping from Property Deed Record Level Information:**

The entry of deed record level metes and bounds measurement and direction with descriptive textual information into a digital form using specialized coordinate geometry (COGO) and specialized mapping software will provide the most accurate and detailed level of parcel data. In order to do so in a GIS database, exact and common georeferencing of each deeded parcel with its respective neighboring parcel must be attained. This may require extensive new mapping to be created including the densification of town-wide geodetic survey control and a resurveying of individual parcel property boundaries. *By law, (General Laws of Rhode Island, Title 5, Chapter 8.1) authoritative definition of property boundary lines, determination and setting of precise geodetic control points for property boundary monumentation, base mapping and location of fixed engineering works, as well as the making of maps for such purposes falls within the practice of land surveying. All such work must be performed under the direct supervision of a professional land surveyor registered to practice in the State of Rhode Island.* These methods and the processes needed to attain them are beyond the scope of this document and will not be further addressed in these standards. For further information see sources listed in Appendix B.

### **B. Automation of Existing Parcel Maps**

#### **1. Manual Digitizing of Original Maps by Trace Digitizing**

Municipalities with existing higher quality parcel maps may choose to automate these map products by trace digitizing them directly into a digital vector format with CAD or GIS software. It is important in doing so that the city or town ascertain the quality of the original maps through careful research into the processes and source documents used to create them. The automation can then be most easily done if the original maps are on a stable base medium (mylar), are of a like scale, and/or contain adequate (usually a minimum of 4 points per sheet)

geodetic survey control to enable registration of each map to a common base. If this work is accomplished in other than town offices extreme care should be exercised for the transfer, handling, storage and return of the original maps to ensure no damage occurs to them. If diligence is used in the automation process and good quality control methods are employed this can result in a high quality digital parcel product.

## **2. Scanning Hardcopy Parcel Maps**

Currently, the most common method of automating parcel maps in Rhode Island has been to scan existing source maps into digital images for further digitization into vector GIS files. In this case, the maps, (usually the Tax Assessor's Plat/Lot Maps) are scanned, registered to a common geographic coordinate system, and digitized into a vector format. This may be done utilizing raster-vector recognition software, or by tablet or "heads-up" on-screen digitizing techniques. The use of raster-vector recognition software may require exceptionally clean original maps, extensive data scrubbing, and special quality control techniques to obtain the desired result. Interactive digitizing techniques using tablet or on screen methods generally allow for continuous quality control as individual parcel lines are reduced into a digital product. An alternative procedure is to digitize with CAD software and convert those files into a GIS file format with proper georeferencing included. This approach allows for the use of CAD technology that often has more powerful digital drafting techniques available.

## **3. Conversion of existing CAD files**

Some cities and towns may already have good quality digital vector files of parcel level data available, usually in a Computer Aided Drafting (CAD) format. In these instances it is possible with the inclusion of georegistration information to transform these data directly into a GIS vector format. With the addition of unique polygon parcel identification it is then possible to add feature attribute data for usage in a GIS database. Verification of the scale and accuracy of the original sources from which the CAD data files emanated should be included in the metadata.

**4. Best Fitting to a Common Map Base (Digital map feature layer or Photogrammetric Base).** A capability to produce a seamless digital data set compatible with other town GIS data, RIGIS data and with digital parcel data of adjacent towns is necessary. The RIGIS is presently moving toward standardizing much of its data with 1:5000 orthophotography in RI State Plane Coordinate (RISPC) feet (US) based on the NAD83. Data in this mapping scale has an accuracy of 10-15 feet with respect to true position on the ground when measured against National Map Accuracy Standards for that scale. The RIGIS currently has a standard vector road and street database developed from 1:5000 scale 1997 aerial photography. This data set is being maintained and updated by the RIDOT using information from the RI E-911 system. In addition, RIGIS has vector river, stream, pond and lake boundary data also based on the same 1:5000 scale photography. These data can be made available to municipalities creating digital parcel data. It is suggested these data be considered as base map material for municipal parcels.

Regardless of the compilation method used, parcel polygon features will be registered and/or adjusted to match apparent features on the base map. Georeferencing should be on the RISPC in feet and the NAD83 to be compatible with the RIGIS. How much the parcel polygon features are adjusted to "fit" the base map will depend on the compilation method and the accuracy of the original maps, with more adjustment occurring when digitizing polygon lines from the assessor's maps and less adjustment occurring when the property boundaries are based on deed research. The base map should be aligned with the 1:5000 scale RIGIS or Rhode Island

Department of Transportation orthophotos (approximately 1 in. = 400 ft.) and/or derivative vector transportation and hydrographic data or some other at least as accurate orthophoto or planimetric base. When compilation involves registering the parcel polygon features to an orthophoto base, the registration should be accomplished by matching visible features on the map to corresponding features on the orthophoto base. Roads, structures, and water bodies will be the most common such features.

The suggested minimal standards for geographic registration to and compilation of the base map are as follows:

- a. Parcel polygon lines are often coincident with clearly defined and visible features on the base map. These include features such as the "back-of-the-sidewalk" (where there are sidewalks), stonewalls, hedges and tree lines, etc. Therefore, within the limits of the orthophoto base map's absolute accuracy and other constraints (such as what can reasonably be interpreted from the orthophoto imagery), and when appropriate as determined by the map compiler, parcel polygons should be registered as accurately as possible to features visible on the base map. When using the RIDOT orthophotos as a compilation base, such features should not be displaced in excess of ten (10) feet relative to corresponding features on the base map. Note that parcel polygon lines may or may not be coincident with visible features, and that some features (e.g. the coastline, river banks, and pond/lake edges) can move over time, or be obscured by tree cover. Therefore, assumptions about coincidence with visible features must be carefully reviewed on a case-by-case basis.
- b. Vector features from a road centerline GIS or CAD data set that meets National Map Accuracy Standards at a mapping scale of 1:5000 or better, should lie completely within the rights of way shown on the parcel map. An exception to this requirement would be if in the judgment of the organization performing the original conversion or reviewing such conversion the street was NOT in fact built within the right of way. Also, there may be "paper streets", "driftways" or newly constructed roads for which no representation exists in a road centerline file.
- c. As a general rule, the street rights-of-way depicted on the assessor's maps should be compiled so that they coincide with the apparent "back-of-the-sidewalk" on the orthophoto base map. However, if in locating the outlines depicting the public street right of way there is an inconsistency between following visible "back of sidewalk" features and maintaining a correct and consistent width of the right of way, priority should be given to showing a correct and consistent width. It may be possible to obtain road width information from the city or town Public Works Department to assist in this task. Obviously this criteria lends itself more to an urban than a rural setting.
- d. Where map section or subdivision information of known survey level accuracy is included in the municipalities assemblage of parcel or assessor's maps to be incorporated into the GIS, the compilation procedure should respect the accuracy of that information relative to the rest of the map. It may become necessary to move, rotate, or adjust map sections or subdivisions in their entirety, but if at all possible

subdivision polygon lines should not be adjusted relative to adjacent polygons unless the adjacent or surrounding parcel polygon arcs are conclusively determined to be more acceptable for inclusion in the overall data set. It is often necessary to refer to other boundary records such as the property deeds or final approved subdivision plans to resolve differences in parcel polygon line differences that may occur between adjoining map sheets or inclusive map sections such as may be found in separate subdivision maps. In cases where interpretation of actual property lines forming the parcel polygons may be a factor, it is advisable to call upon the services of a registered professional land surveyor and may require input from the land surveyor that was originally involved in the determination of the property line(s) to be represented. Close cooperation among the members of the project team, assisting professional surveyors and consultants involved in the digitization process is highly recommended.

- e. Lines must be geometrically continuous and all polygons must be closed with no "undershoots" or "dangles" where lines intersect. The conversion process must not create "sliver polygons" (gaps or overlaps between properties) that are not on the assessor's maps. Polygons representing lakes, ponds, traffic islands, or other miscellaneous areas that are not property parcels, must be correctly identified in the polygon *FEATYPE* attribute (see Required Attribute Fields).
- f. No bends or other deformities in the boundary lines corresponding to seams in the original map sheet layout should be visible.

## **5. Linking or Joining Property Record Information (The Assessor's Database) to the Spatial Data Set**

Adding attributes from the assessor's database is typically accomplished by obtaining a copy of the existing assessor's information (e.g., as a comma delimited ASCII, or file or table from a relational database), importing it to a database table in the GIS software, and joining it to the digital parcel spatial data based on a database common identifier attribute field (*PIN* or *PUID*). In many cases it may not be desirable or practical to include all data in the assessor's database in the GIS database. Privacy issues or conflicting or redundant data fields may require further consideration. A list of required, recommended and suggested attributes is given later in this document under Digital File Contents and Technical Specifications. This is intended to include information commonly needed for GIS applications involving parcel data at the municipal, regional and state level. Attribute names are suggested to match those listed to allow parcel data from multiple towns to be used in regional applications. However, the ability to use data from adjacent communities is relevant not only for multi-town digital parcel files but also for use within individual towns. For example, parcel data from adjacent communities may be needed to support abutter notification mailings, "comparables" for property assessments, or reviewing proposed developments that straddle town boundaries. Public safety applications including police/fire tasks such as crime mapping, mutual aid dispatch support, and lost person searches will benefit from standardized data.

## **6. Municipal Boundaries**

If the boundary between adjacent cities or towns agrees in the digital parcel file from each community, it will be much easier to use digital parcel information jointly or in regional GIS applications. Town lines should be based on the legislated record of each town's boundary determination if available. However, determining a town boundary line for the digital parcel file based on the statutory boundary may involve resolving significant property boundary discrepancies that are beyond the scope of this document from both a legal and technical standpoint and should be left to a professional land surveyor and the proper legislative authority. In instances involving isolated parcel polygons it may be possible to work with officials of neighboring towns to resolve minor discrepancies of parcel polygons on a case-by-case basis.

## **7. Annotation or Text Labels**

The development of a digital parcel level data set can be a both technically complex and expensive endeavor in its own right. However, it sometimes may prove efficient and beneficial to develop ancillary data sets relating to the parcel data at the same time. Street centerline data, street name text and parcel line definition text as attribute labels or annotation layers are additional information that might be considered if resources permit.

### **a. Street Centerline Data and/or Street Name Labels**

People typically orient themselves on assessor's maps based on street names. Therefore, it may prove beneficial to include a GIS data layer containing a street line network to accompany a digital parcel data. The Rhode Island Department of Transportation (RIDOT) and Rhode Island (E-911) Emergency Telephone System through the RIGIS are standardizing road and street naming and addressing within the state. The RIGIS currently has a standard road and street with name attribute database developed from 1:5000 scale aerial photography. This data set is being maintained and updated by the RIDOT using information from the RI E-911 system. This data can be made available to municipalities creating digital parcel data. Street and road naming should be consistent with the E-911 GIS street data being developed for both local and statewide use. Municipalities desiring to develop their own road and street data should at a minimum meet the spatial accuracy of the RIGIS roads data. The street line network should also include a street name attribute. This attribute can be used to label the street network with street names. Where street naming in an assessors legacy database differs from the RIGIS/E-911 naming convention, alias fields may be used to reference attribute and text naming alternatives. Besides the street name labels, the following additional information associated with the street line network are suggested:

- Address ranges for each street segment stored in four separate databases fields (left "from" address, left "to" address, right "from" address, and right "to" address),
- Whether a street segment is one-way
- Whether a street segment is private or public
- Whether a street segment is built or not (i.e., streets may be created as part of a subdivision, but do not exist because the subdivision is not built)

In the above context, a street segment refers to that portion of the street between two intersecting streets, between an intersecting street and where the street crosses the city/town line, or between an intersecting street and a dead-end.

## **b. Other Text Labels**

Assessor's maps often include other important text-based information. These typically include labels such as lot numbers on parcels, block numbers, lot areas, lot deed area, property dimensions (length), and easement type/purpose (e.g., water/sewer/drain, vehicular access). These labels are not essential to create an initial digital parcel layer but can often add helpful information. They can be added in a future phase when needed if funds available for the initial automation effort are limited. Using GIS software capabilities for labeling property polygons based on database attributes is an acceptable and useful approach for labeling properties with lot numbers and areas. Other text labels that may be desired may include parcel boundary dimensions and easement type/purpose. One approach to creating text labels is to create an additional GIS data layer containing points or lines with the attribute needed for creating the desired text labels. So, for example, creating labels showing parcel dimensions would be achieved by creating short line segments just inside and parallel to each property boundary where a dimension needed to appear. Each of these lines would have an attribute containing the dimension of the adjacent property boundary. These dimensions could then be displayed on a computer screen or a map by symbolizing the line feature as white or "clear", and then labeling it with text from the attribute.

## **8. Digital File Contents and Technical Specifications**

- a. **Composition and Content:** The digital parcel vector file will consist of polygon features for all parcels in the municipality's Tax Assessors database and /or shown on the respective municipal parcel map. All polygons must be defined by closed boundary lines without polygon overlaps or gaps or component line feature undershoots, overshoots or dangles. Every polygon will contain or be spatially referenced by a unique polygon identifier (*PUID*)
- b. Each polygon designated as a property parcel will be identified with a unique parcel identifying number (*PIN*) capable of digitally linking or joining it to the *Assessor's Database*.
- c. **Source Data:** Best and most current Assessor's Maps (mylar) base when possible and practical)
- d. **Georeference:** North American Geodetic Datum of 1983 in the Rhode Island State Plane Coordinate (RISPC) system with measurement units in U.S. Survey feet.
- e. **Base Registration** (*for RI State Standards*): RIGIS 1:5000 scale orthophoto series, the RIGIS 5K roads, the RI E911 roads or a more accurate spatial base. The accuracy of RIGIS 1:5000 scale base data is 3 meters (9.8 feet).

**f. Attribute Fields:**

**1. (Required)**

- ❖ *PUID*, Polygon Unique Identifier
- ❖ *PIN*, Parcel Identifier (if different from *PUID*)
- ❖ *TownCode*-Two digit character field identifying RI Town (see Appendix for codes)
- ❖ *FeaType*-Character field identifying polygon feature type if other than parcel polygons are included in the data set (parcel, water, right-of-way, median, etc.)
- ❖ *RIPUC*- Tax Property Use Code

**2. (recommended)**

- ❖ *Owner Name*
- ❖ *Owner Address*
- ❖ *Property Street Address*
- ❖ *ZIPCode*
- ❖ *ZoneCode* (Municipal Zoning Code)
- ❖ *SPUpDate* (date of last line or polygon feature update)
- ❖ *ATUPDATE* (date of last tax assessor's attribute database update)

**3. (Suggested)**

- ❖ *Plat number*
- ❖ *Lot number*
- ❖ *Sublot number*
- ❖ *GISArea* Polygon area computed by GIS (*Exclusion of this field from the published data set ultimately used by the town may be advisable especially if significant differences exist between it and the official parcel area TaxArea*)
- ❖ *TAXAREA* recorded parcel area from tax assessors database
- ❖ *SDUpdate* (time of last update of spatial data)
- ❖ *TAUpdate*-(time of last update of attribute (CAMA) data)

**4. (Optional) Annotation Text:** Digital text layers for graphic representation of map display features, parcel metes and bounds measurements etc.(see Section 7. above)

**g. Linking to Tax Assessor's Database**

Permanent Joins and Subsets (frequency to be determined by town, but should be at a minimum the time and frequency of the overall update of spatial data.)

Live Links (For computer network systems, to be determined by town))

Linkage Quality Assurance-Each parcel polygon has an assessor's DB parcel record, each record from the assessor's DB has a PIN.

**h. Metadata**

It is essential to realize that the GIS data being created by or for the town will exist long after those persons involved in creating them are gone. The GIS data development project should not be considered complete until metadata (information describing the GIS data) is also completed. This information will be



needed to properly understand and use any GIS data layer immediately upon product delivery as well as in the future. This is particularly true with digital data because they are much easier to disseminate than the original paper or Mylar maps. Creating complete metadata should be part of creating GIS data and is good professional practice. The Federal Geographic Data Committee's metadata content standard for minimum required items is required for the state standard and recommended for all users (*see example in Appendix F*).

**i. Minimum Included Items**

- a. Source Name, Map Scale, Accuracy, Date
- b. Data Attribute Definition and Coding Descriptions (Sometimes called a Data Dictionary) for all spatial and assessor's database attribute fields (see example in APPENDIX F.)
- c. Automation Process Methods and Dates (A description of methods used and company (if done by outside consultant) creating and/or updating data. The detail should also include the name and version of the CAMA software from which the parcel attributes were drawn and the file format of the extract from the assessor's database)
- d. Data Custodian, Contact and Creating Organization
- e. Date of currentness and/or last update
- f. Recommendations stating limitations of use. (See example below and in Appendix C.)

**ii. Metadata Format** - Metadata format should be compliant with the Federal Geographic Data Committee (FGDC) standard format. (For more information about metadata see the following web site: ([www.fgdc.gov](http://www.fgdc.gov))).

**iii. Additional Items** – A caveat statement such as the one shown below is highly recommended for inclusion in the supplemental information section of the metadata and on all hardcopy and softcopy map products derived from the digital data set. (also included in Appendix C.)

*"This map (or data product) is for assessment and planning purposes only. It is not intended to be used for description, conveyance, authoritative definition of any legal boundary, or property title. This is not a survey product. Users are encouraged to examine the documentation or metadata associated with the data on which this map is based for information related to its accuracy, currentness and limitations."*

**9. Product Deliverables**

**a. Town GIS Parcel Digital File Format** – The file format should be specified by the municipality for compatibility with GIS computer software selected for use by the city or town. A widely used format that can be read by many different software packages is ESRI's "shape file" format. This format actually consists of several files with the same root name and various file type suffixes. The tabular information in a "shape file" consists of a

database file format (dbf file) widely used or convertible to many other commercial database software packages, therefore, lending itself to other uses. Other possible file formats include those for GIS software from Autodesk (Autodesk Map), MapInfo Corp., Caliper Corp. (Maptitude), Intergraph Corp. (Geomedia , MGE), and others.

**b. File Format For State Standard** - Topologically complete data sets derived from ESRI Coverages or Geodatabases delivered in a coverage interchange file format or shape file exported from a geodatabase feature data set. Topologically complete data sets are necessary for Quality Control purposes and merging of individual town data across town lines for statewide or regional studies. These are preferred file formats for inclusion in Rhode Island's state maintained geographic information system (RIGIS).

**c. Parcels updated to a defined cut off date** within the contract term.

Municipal parcel and property record management exclusive of a GIS is a dynamic process. In order to provide consistency with the town's property records management system or assessor's database, a set completion date for parcel digitization or update should be selected and specified before work begins. This will allow municipal officials the opportunity to extract copies of other property records from their databases to match the spatial data being produced to that particular cut off date.

**d. Enhanced or other newly created GIS data** – The processes involved with the creation of the parcel data set often include the creation of new GIS data or enhancement of existing data such as buffered road centerlines, rights of way, easements, historic parcel split lines, etc. These data should be identified and specified as deliverables along with the primary parcel data set.

**e. Town Data Custody and Ownership** – In order to clarify final custody of data and documents produced in a parcel digitization project, ownership by the municipality should be stated explicitly in contracts to consultants. (Inclusion of below ancillary data should also be a consideration.)

**f. Ancillary Products** –By-products of the parcel digitizing process such as Map Sheet Indexes, Digital Copies of Scanned Maps, Process and QA/QC Log Files, Macro Level Programs, a Project Report, etc. should be considered for inclusion with primary deliverable products. In some cases the delivery of ancillary may be a negotiable item between the municipality and the consultant.

**g. Metadata**- Including procedures report and problems logs should be considered primary deliverable items in all contracts.

## 10. Quality Assurance

Parcel data information is complex and can be extremely detailed in nature and content. Conversion of this information into a digital form requires careful attention to detail to ensure the resulting products meet desired needs. The technical specifications provide the ruler to measure these results. **Quality control** methods and techniques are continually employed during the processes of data compilation and generation. Often this is accomplished in an automated form through the use of computer programs and subprograms that check results with referenced standards as the data is being generated. **Quality assurance** should be implemented after the creation of the data sets and prior to any acceptance of deliverable products. It is recommended that quality assurance be conducted by persons or organizations separate from

those doing the actual compilation and generation of the deliverable digital data sets. Just as most authors do not proof read their own work, a separate set of eyes is often a more effective way to ensure a better final product when dealing with digital parcel data. Quality assurance should include:

**a. Spatial Data:**

- 1. Completeness** – The parcel dataset should be checked to ensure that all parcel polygons are represented
- 2. All polygons are closed** – All parcel line work should make up closed parcel polygons
- 3. No Dangles, Overshoots or Undershoots** – There should be no dangling line work within the parcel dataset. No lines should be overshoot or undershot, all line work should be snapped to abutting lines.
- 4. True representation of the source(s)** - A visual review should be conducted to ensure that parcels resemble how they appeared within the source material. For example parallel lines should remain parallel, they should not appear trapezoidal. In addition areas where parcel line adjustments have been made should be checked to ensure that they appear as expected.
- 5. All polygons have one and only one unique polygon identification number (PUID).**
- 6. Edge matching complete and satisfactory** – Data should be checked to ensure that it is a seamless representation of all parcels within the municipality and that all parcels along plat lines have been matched properly.
- 7. Data Sets are free from edit masks.**

**b. Attribute Data:**

- 1. Each polygon record has a unique polygon identifier number (PUID)**
- 2. Each polygon record has a Feature type (FeaType)** coding as either a parcel polygon or other feature type (water, road, etc.) identification.
- 3. Each polygon identified as a parcel by FeaType** has a *PIN* and a corresponding record from the (assessor's) property database.
- 4. Each record joined, linked or imported** from the (assessor's) parcel database has a parcel identifier (*PIN*) and/or a *PUID*.
- 5. All PIN, PUID, and FeaType item listings are correctly coded.**

## **11. Maintaining and Updating Parcel Data**

Maintenance of digital parcels is a detailed and time-consuming process. It often requires the ability to deal with technical complexities over and above the knowledge base available within town hall or the computing capabilities available with desktop GIS software available within some towns. Municipalities should consider whether they have adequate in house resources in both the personnel and technical areas in determining whether they are going to proceed with parcel data maintenance within town government. Often a more logical alternative is to contract the parcel maintenance function to an outside consultant or company.

Early in the process of planning for the digitization of parcel maps, municipal officials should consider an implementation plan and budget for maintaining the digital parcel files in a state of currentness following delivery of the initial products. Any delay in the start of the update process could easily result in the first updates not being available

for more than a year after the cut off date for production of the original parcel data. It is therefore suggested that selection of the methods and outlining the procedures required for updates should be in place before delivery of the initial data sets.

Updating of the parcel data includes changes in both the spatial data (parcel boundary lines) and the related feature attribute data (assessor's, CAMA or property record database).

**a. Updating of Parcel Feature Attribute Data:** Parcel feature attribute data such as property ownership information are normally maintained on a daily basis in the local tax assessment database by the city or town tax assessor. It is therefore possible to include this type of information as updates to the digital parcel files on a regular basis. Depending on the town's desires and the existing computer network capabilities this may even be accomplished on a real time or near real time basis through linking the tax assessor's database to the GIS database. If on the other hand it is decided that a real time link is either impractical or undesirable a process of regular transfer of data from the assessor's database through a data "dump" and permanent join of the information at periodic intervals is suggested. This latter process might be preferred if only selected fields for records in the tax assessment are included in the GIS parcel data. The frequency of the interval of update should be set by the municipality, but a period of no greater than one year is recommended. In any case, updates of the feature attribute data should coincide with the period of update for the spatial parcel boundary level digital data. For the database linking or joining processes to occur, it is necessary for the assessor's database and the GIS parcel database to contain a common field such as the *PIN or PUID Fields* listed in these standards. In all cases it is important that the date and if applicable time of the most current information be noted in the metadata and/ or parcel data files (*SUpdate and AtUpdate Field(s)*) themselves.

**b. Updating of Parcel Polygon Features:** Changes in the spatial parcel data including parcel splits, merges or the creation of new subdivisions occur at irregular intervals throughout the year. If in-house resources within town hall are used to maintain parcel maps and to update corresponding digital feature attribute files, it may be advantageous to do so on a regular or even continuous basis. If, however, outside consultants are employed for this task it might be more cost efficient to accomplish this task on a set periodic basis. In doing so a defined time period with set ending date is recommended. For most cities and towns a minimum of one year between updates of digital parcel files should be required. Again, it is important that the date and if applicable time of the most current information be noted in the metadata and/ or parcel data files (*SUpdate and AtUpdate Field(s)*) themselves.

Changes in property parcel polygon lines are usually the result of changes in ownership, a resurvey, lot split or merger, or use of a parcel itself. These changes are usually accompanied by drawings or plans describing them in a graphic form. Most municipalities require these to be submitted as final plans approved by the municipal official or body responsible for subdivision regulation. The plans may be accompanied by documentation including measurements and references to adjacent features. Many private engineering companies and professional land surveyors now use computer aided techniques such as computer aided design and drafting (CAD or CADD) software in the preparation of final subdivision plans submitted and approved by the city or town. To take advantage of these sources of information, modifications in the city or town's

subdivision regulations to allow for the acceptance of digital data from consultants and firms should be considered. Use of these digital products will reduce data updating costs and may increase the accuracy of the parcel data set in some localities over time. Products developed with CAD software may not necessarily contain geographic referencing information in a real world coordinate system needed for georegistration in a GIS. If georegistration does exist in the Rhode Island state plane coordinate system (RISPC) it can be used to more easily and accurately to bring information from the plans directly into the digital parcel data set. If, however, digital files are registered to a local coordinate system, they can often be converted to the RISPC and then brought into the parcel data set. The latter case is common with the plans or drawings on smaller submissions or in more remote areas where direct ties to the RISPC may be impractical and overly expensive. A sample paragraph addressing the submission of digital data that may be used for parcel updates is included in **APPENDIX C**.

Where new subdivision information of known survey level accuracy has been submitted to the town and is being incorporated into the GIS, the compilation procedure for updating the overall parcel data set should respect the accuracy of this information relative to the rest of the map. Subdivisions can be moved, rotated, or adjusted in their entirety, but if at all possible new subdivision parcel polygon outlines should not be adjusted relative to adjacent features unless the original parcel polygons are conclusively determined to be more acceptable for retention in the overall data set. It doesn't make much sense to make a potentially more accurate line match a less accurate one simply because the less accurate one already exists. It is often necessary to refer to other boundary records such as the property deeds themselves to resolve differences such as those that may be included in property subdivisions. It may be advisable to call upon the services of the professional surveyor that was involved in the determination of the actual property line(s) represented by the parcel polygon(s) in question. As usual, close cooperation among the members of the project team and consultants involved in the updating work is highly recommended.

**c. Metadata-** The documentation of the parcel data maintenance processes and GIS database updates are as important as they were in the original generation of the data itself. It is therefore imperative that metadata be written each time the spatial data are modified or the attribute database is edited. The items and format for metadata as delineated on pages 14 and 15 of this document should be adhered to. This should include careful attention to the maintenance of the *SpUpDate* and *AtUpDate* field(s) included in the database attributes.

**APPENDIX A. - Credits to Participants Creating and Reviewing This Document:**

**RIGIS Parcel Standards Sub Committee -**  
**John Stachelhaus - RIGIS Coordinator**  
**Carol Baker - Town of South Kingstown**  
**Greg Harris - Town of East Greenwich**  
**Mary Hutchinson - Mapping and Planning Services**

**The RIGIS Executive Committee - 2003**

**State Government Agencies**

**State Boards and Authorities**

RI Department of Administration - RIGIS Coordinator	RI Water Resources Board
RI Department of Environmental Management ( Vice Chairperson-2003)	RI Public Transit Authority
RI Department of Health	Office of the State Geologist
RI Department of Transportation	Board of Registration for Professional Land Surveyors

**Federal Government**

US Dept. of Agriculture  
Natural Resource Conservation Service

US Geological Survey  
Water Resources Division  
National Mapping Division

**Municipal Government**

City of Cranston  
  
Town of New Shoreham  
  
City of Providence  
  
Town of South Kingstown

**Educational Institutions**

The University of Rhode Island  
Environmental Data Center

Brown University

Applied Science Associates  
Narragansett RI

Ecotones Inc (Chair 2003)  
East Greenwich RI

Mapping and Planning Services  
Jamestown RI

**Public and Private Utilities**

The Narragansett Bay Commission

**Private Sector Enterprises**

The Beta Group  
Mansfield MA and Lincoln RI

The Providence Plan  
Providence RI

## **APPENDIX A. - Credits to Reviewers of this Document (continued)**

### **State Agency Reviewers**

RI Dept. of Administration-Office of Statewide Planning  
RI Dept. of Administration-Office of Municipal Affairs  
RI Dept. of Transportation – MIS/GIS and Real Estate Section  
RI Dept. of Environmental Management - GIS Section  
State Board of Registration for Professional Land Surveyors (RI)  
The Narragansett Bay Commission

### **The Providence Water Supply Board**

### **GIS Managers/Coordinators for the New England States – (CT,MA,ME,NH,VT)**

### **Private Sector Reviewers**

Fuss & O'Neill Inc. – Providence RI  
Alfred W. DiOrio, RLS Inc. - Westerly RI  
Applied Geographics Inc. - Boston MA

## **APPENDIX B. List of Referenced Sources Used in Preparing This Document**

- 1. MassGIS Standard for Digital Parcel Files and Related Data Sets**, The Massachusetts Office of Geographic and Environmental Information, Executive Office of Environmental Affairs, Version 1.0 July 2001.
- 2. Town of East Greenwich Rhode Island, - Digital Parcel File Standards**, - August 2002.
- 3. VGIS Handbook, Part3-Guidelines-Section A, Municipal Property Mapping**, Vermont Center for Geographic Information, Vermont Property Mapping Program, Department of Taxation, Version 2.0 December 2000
- 4. Assessor's Guide to Tax Mapping**, New York State Board of Equalization and Assessment, August 1989 Edition.
- 5. Implementation of Land Information Systems in Local Government-Steps Toward Land Records Modernization in Wisconsin**, Stephen J. Ventura, University of Wisconsin-Madison, Wisconsin State Cartographers Office, April 1991.
- 6. GIS Guidelines for Assessors - Second Edition**, Urban and Regional Information Systems Association (URISA) and the International Association of Assessing Officers (IAAO), 1999.
- 7. General Laws of Rhode Island, Title 5, Chapter 8.1**, Land Surveyors
- 8. Content Standard for Digital Geospatial Metadata ( version 2)**, Federal Geographic Data Committee (FGDC), 1998
- 9. Report of the Joint Task Force on the NCEES Model Law for Surveying**, NCASPRS Annual Conference, May 10, 2002

## **APPENDIX C. - Examples of Data/Map Caveats and Proposed Statements**

**Suggested Caveat for Use of Digital Parcel Data Statement** for inclusion in metadata, with digital data sets, and on printed maps, posters, and paper copy tabular listings:

*"This map (or data product) is for assessment and planning purposes only. It is not intended to be used for description, conveyance, authoritative definition of any legal boundary, or property title. This is not a survey product. Users are encouraged to examine the documentation or metadata associated with the data on which this map is based for information related to its accuracy, currentness and limitations."*

**Suggested Statement for the Acceptance of Digital Parcel Update Data:**

*As information supplemental to the submission of approved subdivision plans or drawings, if such plans or drawings were computer generated with Computer Aided Drafting (CAD), automated mapping, or GIS software, copies of digital files on magnetic or optical media are requested. If submitted in an AutoCad format, dxf files are preferred. Georeferencing coordinates for the plans or drawings within each dxf layer in the NAD83-RISPC in feet are preferred, but local coordinates are acceptable. If not already shown on the plan or drawing, supplemental accompanying metadata should include the name and version number of the computer software used to generate the digital files and the name, company address and registration number of the land surveyor performing the work.*



## APPENDIX D. - RIGIS and RIPUC ATTRIBUTE CODING

### RIGIS Towns Data Set. - Attribute Coding

#### Rhode Island Cities and Towns

<b>Town Name</b>	<b>County</b>	<b>OSP</b>	<b>TownCode</b>
Barrington	Bristol	01	BA
Bristol	Bristol	02	BR
Burrillville	Providence	03	BU
Central Falls	Providence	04	CF
Charlestown	Washington	05	CH
Coventry	Kent	06	CO
Cranston	Providence	07	CR
Cumberland	Providence	08	CU
East Greenwich	Kent	09	EG
East Providence	Providence	10	EP
Exeter	Washington	11	EX
Foster	Providence	12	FO
Glocester	Providence	13	GL
Hopkinton	Washington	14	HO
Jamestown	Newport	15	JA
Johnston	Providence	16	JO
Lincoln	Providence	17	LI
Little Compton	Newport	18	LC
Middletown	Newport	19	MI
Narragansett	Washington	20	NA
Newport	Newport	21	NE
New Shoreham	Washington	22	BI
North Kingstown	Washington	23	NK
North Providence	Providence	24	NP
North Smithfield	Providence	25	NS
Pawtucket	Providence	26	PA
Portsmouth	Newport	27	PO
Providence	Providence	28	PR
Richmond	Washington	29	RM
Scituate	Providence	30	SC
Smithfield	Providence	31	SM
South Kingstown	Washington	32	SK
Tiverton	Newport	33	TI
Warren	Bristol	34	WN
Warwick	Kent	35	WK
Westerly	Washington	36	WY
West Greenwich	Kent	37	WG
West Warwick	Kent	38	WW
Woonsocket	Providence	39	WT

## Rhode Island Property Tax Use Code (2003) - RIPUC

<i>CODE</i>	<i>Description</i>	<i>Category</i>
01	<b><u>One Family Residence.</u></b> Also includes mobile home with foundation on deeded lot.	<b>Improved Real Property</b>
02	<b><u>Two to Five Family Residence.</u></b>	<b>Imp.Real Prop.</b>
03	<b><u>Apartments.</u></b> Residential structure containing six dwelling units or more.	<b>Imp.Real Prop</b>
04	<b><u>Combination.</u></b> A building with stores or shops on ground floor and dwellings on upper floor(s).	<b>Imp.Real Prop</b>
05	<b><u>Commercial I.</u></b> A business property of small or medium Size having a MAXIMUM assessment value of \$100,000.	<b>Imp.Real Prop</b>
06	<b><u>Commercial II.</u></b> A business property having a MINIMUM Assessment of \$100,00.	<b>Imp.Real Prop</b>
07	<b><u>Industrial.</u></b> Any industrial of manufacturing establishment	<b>Imp.Real Prop.</b>
08	<b><u>Estate.</u></b> A large luxurious residence with ample acreage.	<b>Imp.Real Prop.</b>
09	<b><u>Farm.</u></b> Any rural parcel of land of FIVE ACRES OR MORE with or without outbuildings or which at least ten percent is used for agricultural purposes.	<b>Imp.Real Prop</b>
10	<b><u>Utility and Railroad.</u></b> Any public utility or railroad property. Real Estate and/or Personal	<b>Imp.Real Prop</b>
11	<b><u>Seasonal and Beach Property.</u></b> Residential property, such as a summer home, subject to seasonal occupancy.	<b>Imp.Real Prop</b>
12	<b><u>Other Improved Land.</u></b> Any improved land not included in other classifications.	<b>Imp.Real Prop.</b>
13	<b><u>Residential</u></b> Vacant lot in a residential zone.	<b>Vacant Land.</b>
14	<b><u>Commercial and Industrial</u></b> Vacant lot in a commercial or industrial zone.	<b>Vacant Land</b>
15	<b><u>Other</u></b> Any other vacant lot not otherwise classified	<b>Vacant Land</b>
21	<b>Residential Buildings on Leased Land</b>	

22	<b>Industrial Buildings on Leased Land</b>	
23	<b>Residential Condominium.</b>	<b>Imp Real Prop</b>
24	<b>Commercial Condominium.</b>	
25	<b>Industrial Condominium.</b>	
26.	<b>Time Shared Condominium - Deeded.</b> (Interval ownership).	
13	<b><u>Residential.</u></b> A vacant lot in a residential area.	<b>Vacant Land</b>
14	<b>Commercial and Industrial.</b> Vacant lot located in an area zoned for commercial or industrial use.	<b>Vacant Land</b>
15	<b>Other.</b> Any vacant land not included in other classifications, generally large tracts.	<b>Vacant Land</b>
33	<b>Farm Forest and Open Space Act</b> <i>Land that is so classified under the provisions of . . . .</i>	<b>Vacant Land</b>
70	<b>Cemeteries</b>	<b>Statutory (Exempt)</b>
71	<b>Charitable</b>	<b>Statutory (Exempt)</b>
72	<b>Church</b>	<b>Statutory (Exempt)</b>
73	<b>Ex-Charter</b>	<b>Statutory (Exempt)</b>
74	<b>Federal</b>	<b>Statutory (Exempt)</b>
75	<b>Hospital</b>	<b>Statutory (Exempt)</b>
76	<b>Libraries</b>	<b>Statutory (Exempt)</b>
77	<b>Military</b>	<b>Statutory (Exempt)</b>
78	<b>Municipal</b>	<b>Statutory (Exempt)</b>
79	<b>School</b>	<b>Statutory (Exempt)</b>
80	<b>State</b>	<b>Statutory (Exempt)</b>
82	<b>Vote of City</b>	<b>Statutory (Exempt)</b>
83	<b>Stabilized (Homestead Exemption 44-3-9)</b>	<b>Statutory (Exempt)</b>
97	<b>Mobile Homes</b>	
98	<b>Commercial Building on Leased Land</b>	

**APPENDIX F. METADATA and DATA DICTIONARY (Attribute Overview)**  
*(Example shown may not be fully compliant with FGDC content standards and are for illustrative purposes only)*

**METADATA-DOCUMENTATION**

**Metadata: GLparc1103**

**Identification Information:**

**Citation:**

**Citation\_Information:**

Originator: Town of Gloucester GIS

Publication\_Date: 20021130

Title: parc113003a

Edition: 2002

Geospatial\_Data\_Presentation\_Form: vector digital data

Other\_Citation\_Details:

RIGIS 1:5000 scale roads, ponds and streams used for base registration

Online\_Linkage: G:\Gloucester\Parcels

**Description:**

**Abstract:**

Property parcel database for Gloucester Rhode Island as delineated from the Gloucester Tax Assessors plat and recorded plat maps with attributes from the Gloucester Tax Assessors database as updated in November of 2002.

Purpose:

For use within town government for tax assessment, parcel inventory, property records management and general town planning.

**Time\_Period\_of\_Content:**

Time\_Period\_Information:

Multiple Dates/Times:

Single\_Date/Time:

Calendar\_Date: 20021130

Single\_Date/Time:

Calendar\_Date: 20020917

Currentness\_Reference: publication date

**Status:**

Progress: In work

Maintenance\_and\_Update\_Frequency: Annually

**Spatial\_Domain:**

Bounding\_Coordinates:

West\_Bounding\_Coordinate: -71.797765

East\_Bounding\_Coordinate: -71.574645

North\_Bounding\_Coordinate: 41.934159

South\_Bounding\_Coordinate: 41.854245

**Keywords:**

Theme\_Keyword\_Thesaurus: RIGIS Guidelines for Parcel Data Sets

Theme\_Keyword: Property Parcels

Theme\_Keyword: Land Records

Theme\_Keyword: Plat and Lot

Theme\_Keyword: Tax Assessor's Database Place:

Place\_Keyword: US

Place\_Keyword: New England

Place\_Keyword: Rhode Island

Place\_Keyword: Gloucester

**Access\_Constraints: As determined by the Town of Gloucester**

**Use\_Constraints:**

The standards for spatial accuracy and detail of property boundaries and related attribute information used in the creation and updating of data depicted and contained within this data set were intended to be used at the planning, property assessment, and graphic map display level. There is no intent to provide definition or specify limits for legal boundary determination or property conveyance purposes. Matters related to those more definitive interests remain the purview of the professional title attorney and/or registered land surveyor.

**Point\_of\_Contact:**

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Raymond Goff

Contact\_Organization: Town of Gloucester

Contact\_Position: Town Planner

Contact\_Address:

Address\_Type: mailing

Address: Town of Gloucester Planner PO Drawer B

City: Gloucester

State\_or\_Province: RI

Postal\_Code: 02814

Country: US

Contact\_Voice\_Telephone: 401-568-9578

Contact\_Electronic\_Mail\_Address: rayg@glocesterri.org

Hours\_of\_Service: m-f 8:30-4:30

**Browse\_Graphic:**

Browse\_Graphic\_File\_Name: parcels113002

Browse\_Graphic\_File\_Description: Gloucester Parcel Map for 2002

Browse\_Graphic\_File\_Type: GIF

**Data\_Set\_Credit: Town of Gloucester Rhode Island**

**Native\_Data\_Set\_Environment:**

Microsoft Windows NT Version 4.0 (Build 1381) Service Pack 6; ESRI

ArcCatalog 8.3.0.800

**Cross\_Reference:**

Citation\_Information:

Originator: RIGIS RIDOT/RI E911

Publication\_Date: 20010630

Title: RIGIS E911 Roads

Geospatial\_Data\_Presentation\_Form: Vector Line Shapefile

**Data\_Quality\_Information:**

Attribute\_Accuracy:

Attribute\_Accuracy\_Report: 99 percent

Logical\_Consistency\_Report:

Derived from Topologically complete ESRI ArcInfo polygon coverage file data

Completeness\_Report:

Parcel delineation complete to 20021130, database attribute features updated from Gloucester Tax Assessor's database of 20020917 to 20021130

Positional\_Accuracy:

Horizontal\_Positional\_Accuracy:

Horizontal\_Positional\_Accuracy\_Report: Accuracy defined by source tax assessment maps

Quantitative\_Horizontal\_Positional\_Accuracy\_Assessment:

Horizontal\_Positional\_Accuracy\_Value:

Estimated Plus or minus 100 feet with respect to 1:5000 scale orthophoto base

Horizontal\_Positional\_Accuracy\_Explanation: Estimated based on scale and derivation of the sources

Vertical\_Positional\_Accuracy:

Vertical\_Positional\_Accuracy\_Report: none

**Lineage:**

Source\_Information:

Source\_Scale\_Denominator: 5000

Type\_of\_Source\_Media: mylar base maps

Source\_Citation\_Abbreviation: Gloucester Tax Assessment Plat and Recorded Plat Maps

Source\_Contribution:

Source maps were used as base for digitizing parcel polygon lines

Source\_Information:

Source\_Scale\_Denominator: 5000

Type\_of\_Source\_Media: ESRI Shapefiles

Source\_Citation\_Abbreviation: RIGIS e911 roads

Source\_Contribution:

RIGIS E911 roads buffered to approximate road widths as defined by Gloucester Department of Public Works were used for georeferencing framework for parcel data

**Process\_Step:**

Process\_Description:

Source maps were scanned and manually digitized using RIGIS e911 roads as the georeferencing framework. 2002 updates were best fitted to originally digitized products from December of 2000.

Process\_Date: December 2002 to May 2003

Process\_Contact:

Contact\_Information:

Contact\_Person\_Primary:

Contact\_Person: Heidi Paskov

Contact\_Organization: Fuss and O'Neil Inc

Contact\_Position: GIS Manager

Contact\_Address:

Address\_Type: physical address

Address: FandO Providence Office, Promenade Street

City: Providence

State\_or\_Province: RI

**Spatial\_Data\_Organization\_Information:**

Direct\_Spatial\_Reference\_Method: Vector

Point\_and\_Vector\_Object\_Information:

SDTS\_Terms\_Description:

SDTS\_Point\_and\_Vector\_Object\_Type: G-polygon

Point\_and\_Vector\_Object\_Count: 5110

**Spatial\_Reference\_Information:**

Horizontal\_Coordinate\_System\_Definition:

Planar:

Grid\_Coordinate\_System:

Grid\_Coordinate\_System\_Name: State Plane Coordinate System 1983

State\_Plane\_Coordinate\_System:

SPCS\_Zone\_Identifier: 3800

Transverse\_Mercator:

Scale\_Factor\_at\_Central\_Meridian: 0.999994

Longitude\_of\_Central\_Meridian: -71.500000

Latitude\_of\_Projection\_Origin: 41.083333

False\_Easting: 328083.333333

False\_Northing: 0.000000

Planar\_Coordinate\_Information:

Planar\_Coordinate\_Encoding\_Method: coordinate pair

Coordinate\_Representation:

Abscissa\_Resolution: 0.000128

Ordinate\_Resolution: 0.000128

Planar\_Distance\_Units: survey feet

Geodetic\_Model:

Horizontal\_Datum\_Name: North American Datum of 1983

Ellipsoid\_Name: Geodetic Reference System 80

Semi-major\_Axis: 6378137.000000

Denominator\_of\_Flattening\_Ratio: 298.257222

**Entity\_and\_Attribute\_Information:**

**Detailed\_Description:**

Entity\_Type:

Entity\_Type\_Label: parc113003a

Attribute\_Label: PUID

Attribute\_Definition: Equivalent to the sequential record Polygon record number

Attribute\_Definition\_Source: Software Generated

Attribute\_Label: PIN

Attribute\_Definition: Parcel Plat-Lot-Sublot Identification number

Attribute\_Definition\_Source: Gloucester Tax Assessor

Attribute\_Label: STATECODE

Attribute\_Definition: RI State Property Use Code

Attribute\_Definition\_Source: RI DOA Office of Municipal Affairs

Attribute\_Label: STREETNUM

Attribute\_Definition: Street Number of Property

Attribute\_Definition\_Source: Gloucester Tax Assessor

Attribute\_Label: STREETNAME

Attribute\_Definition: Street Name on which property is located

Attribute\_Label: LOTSIZE

Attribute\_Definition: Tax Assessor's listed Lot size in Acres

Attribute\_Label: ADDRESS1

Attribute\_Definition: Name of Owner for Tax Purposes

Attribute\_Definition\_Source: Gloucester Taxation Database

Attribute\_Label: DESC

Attribute\_Definition: Property taxable use description

Attribute\_Definition\_Source: Gloucester Tax Database

Attribute\_Label: PLAT\_NUMBER

Attribute\_Definition: Major Plat or recorded SubDivision Number

Attribute\_Label: LOT\_NUMBER

Attribute\_Definition: Property Lot Number

Attribute\_Definition\_Source: Gloucester Tax Data Base

Attribute\_Label: SUBLLOT\_NUM

Attribute\_Definition: Property SubLot Number

Attribute\_Definition\_Source: Gloucester Tax Database

Attribute\_Label: SPUPDATE

Attribute\_Definition: Date of Last Update of Spatial Data (Parcel Polygon Lines)

Attribute\_Definition\_Source: Gloucester GIS

Attribute\_Label: ATUPDATE

Attribute\_Definition: Date of last update of parcel attribute information

Attribute\_Label: TOWN

Attribute\_Definition: RI Town Code for Gloucester



**Overview\_Description: Entity\_and\_Attribute\_Overview: (Data Dictionary)**

CODE Description Category - Rhode Island Property Tax Use Code (2003) RIPUC

01 One Family Residence. Also includes mobile home Improved Real Property with foundation on deeded lot.

02 Two to Five Family Residence. Imp.Real Prop.

03 Apartments. Residential structure containing six Imp.Real Prop dwelling units or more.

04 Combination. A building with stores or shops on Imp.Real Prop ground floor and dwellings on upper floor(s).

05 Commercial I. A business property of small or medium Imp.Real Prop Size having a MAXIMUM assessment value of \$100,000.

06 Commercial II. A business property having a MINIMUM Imp.Real Prop Assessment of \$100,00.

07 Industrial. Any industrial of manufacturing establishment Imp.Real Prop.

08 Estate. A large luxurious residence with ample acreage. Imp.Real Prop.

09 Farm. Any rural parcel of land of FIVE ACRES OR Imp.Real Prop MORE with or without outbuildings or which at least ten percent is used for agricultural purposes.

10 Utility and Railroad. Any public utility or railroad property. Imp.Real Prop Real Estate and/or Personal

11 Seasonal and Beach Property. Residential property, such Imp.Real Prop a summer home, subject to seasonal occupancy.

12 Other Improved Land. Any improved land not included Imp.Real Prop. in other classifications.

23 Residential Condominium. Imp Real Prop

24 Commercial Condominium.

25 Industrial Condominium.

26. Time Shared Condominium - Deeded. (Interval ownership).

13 Residential. A vacant lot in a residential area. Vacant Land

14 Commercial and Industrial. Vacant lot located in an area Vacant Land

zoned for commercial or industrial use. 15 Other. Any vacant land not included in other classifications, Vacant Land generally large tracts.

33 Farm Forest and Open Space Act Vacant Land Land that is so classified under the provisions of . . . . 70 Cemeteries Statutory (Exempt)

71 Charitable Statutory (Exempt)

72 Church Statutory (Exempt)

73 Ex-Charter Statutory (Exempt)

74 Federal Statutory (Exempt)

75 Hospital Statutory (Exempt)

76 Libraries Statutory (Exempt)

77 Military Statutory (Exempt)

78 Municipal Statutory (Exempt)

79 School Statutory (Exempt)

80 State Statutory (Exempt)

82 Vote of City Statutory (Exempt)

83 Stabilized (Homestead Exemption 44-3-9) Statutory (Exempt)

97 Mobile Homes

**Entity\_and\_Attribute\_Detail\_**

Citation:

RI Dept. of Administration Office of Municipal Affairs Tax Equalization Section

**Distribution\_Information:**

Resource\_Description: Distribution Methods and Criteria to be determined

Distribution\_Liability:

The Town of Glocester makes no claim to the accuracy, completeness or suitability of this data for purposes other than stated in this (metadata) document.

Standard\_Order\_Process:

Digital\_Form:

Digital\_Transfer\_Information:

Transfer\_Size: 4.343

**Technical\_Prerequisites:** ESRI compatible or conversion capable GIS software

**Metadata\_Reference\_Information:**

Metadata\_Date: 20031017

Metadata\_Review\_Date: 20030630

Metadata\_Future\_Review\_Date: On annual update of data set

Metadata\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization: Town of Glocester

Contact\_Person: John Stachelhaus

Contact\_Position: Glocester GIS Technical Advisor

Contact\_Address:

Address\_Type: mailing and/or physical address

Street: 1145 Putnam Pike PO Drawer B

City: Chepachet.

State\_or\_Province: RI.

Postal\_Code: REQUIRED: 02814.

Contact\_Voice\_Telephone: 401-568-9578

Metadata\_Standard\_Name: FGDC Content Standards for Digital Geospatial Metadata