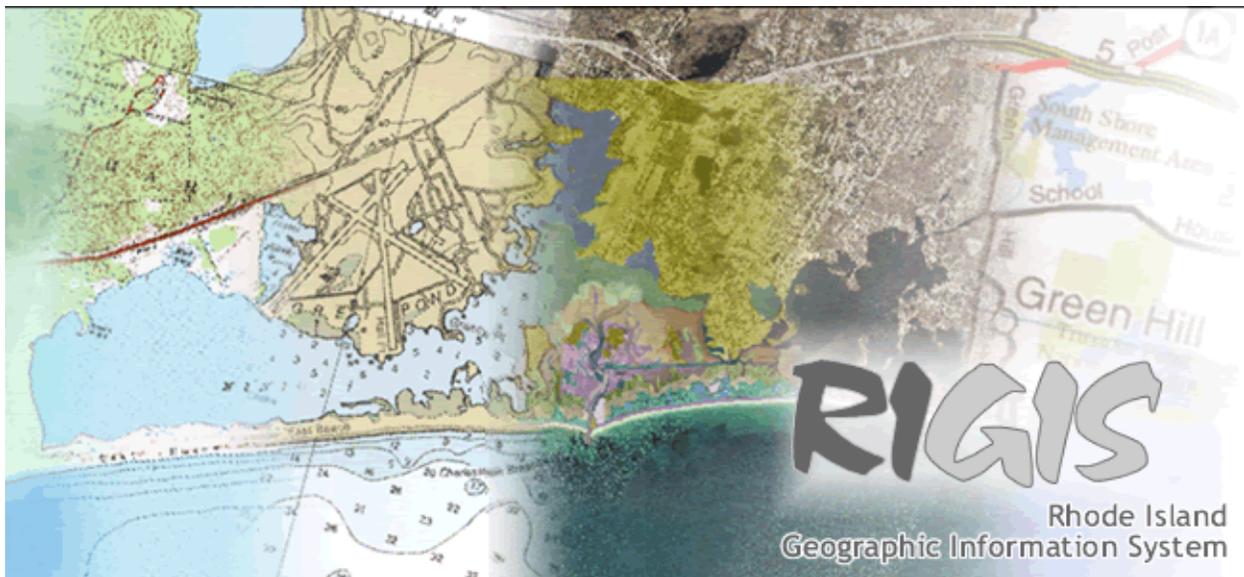


FY2022 - FY2026 STRATEGIC MANAGEMENT PLAN

FOR THE

RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM



**State of Rhode Island, Department of Administration,
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[As Reaffirmed by the RIGIS Executive Committee on 06/17/2021](#)
[As Approved by the State Planning Council on 09/09/2021](#)

EXECUTIVE SUMMARY

The purpose of this strategic planning document is to provide a direction for the future development and use of Geographic Information Systems ([GIS](#)) in Rhode Island for the period from July 1, 2021 through June 30, 2026.

The document traces the background of the Rhode Island Geographic Information System ([RIGIS](#)) from its inception by the Director of the Rhode Island Department of Environmental Management ([RIDEM](#)) and the University of Rhode Island ([URI](#)) in 1985 and the further evolution of the organization through increased participation by other public, private and academic organizations. The existence of a common GIS database and its management by the Department of Administration ([DOA](#)) and URI were recognized in state law in 1990. The same enabling legislation established the RIGIS Executive Committee ([RIGIS EC](#)) as an oversight management body for the system.

Procedures concerning the contribution of material into the [RIGIS database](#) as well as general policies regarding its maintenance and accessibility are recognized and have been detailed through the acceptance of standards and guidelines. Education and outreach activities within the state are continuing efforts by and for the GIS community, including participation in RIGIS sponsored events and educational workshops, and RIGIS membership in regional and national organizations.

An assessment of this document including a review and evaluation of its elements will be conducted as needed to confirm that goals and objectives, strategies, and actions remain appropriate. Currently this plan outlines six goals and objectives related to the development and use of geospatial information in Rhode Island. RIGIS Working Groups (RIGIS WG) organized by RIGIS Executive Committee (RIGIS EC) members were established to concentrate coordinated efforts to support Goals 2 through 6 below.

1. **RIGIS Administration:** Through the oversight of staff within the Rhode Island Division of Statewide Planning ([RIDSP](#)) and Rhode Island Department of Transportation ([RIDOT](#)), strengthen RIGIS by supporting the RIGIS EC, the RI State Enterprise GIS System (RISEGIS), coordinating with Federal and State governments, collaborating with municipal governments, private and non-profit GIS partners, and exploring and increasing geospatial funding options.
2. **Database Management:** Improve the RIGIS database by developing and implementing procedures and methods for examining database contents, locating non-RIGIS data available, and soliciting new and updated high-quality geospatial data contributions for the RIGIS database.
3. **Technical Standards:** Improve existing and adopt new standards and best practices, and develop templates for standard key components.
4. **Database Access and Distribution:** Provide GIS users with free, user friendly, efficient access to RIGIS data and relevant derived products. Review and improve how RIGIS distributes data to both outside organizations and internal state agencies.
5. **Education & Training:** Support and promote geospatial curriculum and the use of geospatial technologies to teach and learn in existing curriculum areas within Rhode Island

educational institutions. Encourage and facilitate geospatial training programs and learning opportunities throughout the state.

6. **Outreach:** Promote the use of geospatial technologies in Rhode Island by supporting RIGIS outreach activities, publicizing GIS and related geospatial technology, and promoting RIGIS through various media outlets.

FIVE YEAR STRATEGIC MANAGEMENT PLAN

STATEMENT OF PURPOSE

The purpose of this strategic plan is to present a management strategy for RIGIS from July 1, 2021 through June 30, 2026 to align with the State of RI fiscal years (FY2022 – FY2026). It is intended to outline a direction for the comprehensive development, use and availability of GIS technology and geospatial information in Rhode Island. This includes the interests of the present RIGIS participants as well as other organizations or special interest groups that are either currently involved with or might benefit from this technology in the future. A primary goal of RIGIS is to coordinate common efforts among existing and potential participants in the state. In addition, RIGIS participants provide technical counsel on the implementation of GIS technologies and use of geospatial information.

INTRODUCTION

GIS, as defined in this plan, is an organizational structure of computer hardware, specialized software and applications, a managed database of geospatial and related information, and a core of trained professionals versed in geospatial technology. RIGIS is a statewide consortium of public, private, and academic organizations jointly supporting a common Statewide GIS and database and furthering the knowledge and use of GIS in Rhode Island.

VISION

RIGIS will be the acknowledged coordinator of efforts to implement and employ GIS technology throughout the state and the accepted source for quality geospatial information in Rhode Island.

RIGIS MISSION

To monitor, coordinate, and provide leadership for activities related to the use of GIS in Rhode Island to obtain the maximum effectiveness in the management of public resources, to support initiatives that implement or use this technology, and to manage and provide access to a common and comprehensive database of geographically referenced information that conforms to RIGIS-accepted minimum standards for accuracy, completeness and documentation.

VALUES

The RIGIS and its participants will preserve and rely upon an open and honest exchange of knowledge related to the use of geospatial information in Rhode Island.

BACKGROUND

1985

The Director of the State of Rhode Island RIDEM started the precursor to RIGIS through an agreement with the University of Rhode Island (URI). That agreement established a GIS for the management and analysis of environmental data in Rhode Island. The Rhode Island Department of Transportation (RIDOT), the Rhode Island Department of Administration - Division of Planning (RIDOP), and the RI Solid Waste Management Corporation (RISWMC, now [RIRRC](#)) joined this effort shortly thereafter. Each supported the concept of a unified, centrally-managed database of geospatial information. An informal committee of top-level management from each of these five organizations met on an ad hoc basis to provide overall coordination. The University of Rhode Island provided technical management of the database.

From the beginning, GIS in the State of Rhode Island involved four state government organizations plus the URI Environmental Data Center ([URI-EDC](#)) supporting their own internal GIS efforts through various forms of funding including contractual awards or grants. These efforts included the purchase of computer hardware and software, the assignment of operating personnel, and funding for the development of information applicable to their own agencies' or institution's needs. Realizing the benefits of an open, accurate, and accessible information resource, these partnering organizations contributed considerable data into a common RIGIS database. Early on, the Rhode Island office of the USDA-SCS (now [NRCS](#)) and the Narragansett Bay Commission ([NBC](#)) also significantly contributed to the database building effort. Initially this RIGIS database was housed at the URI-EDC. Until 1991 the URI-EDC used internal staff to perform all database management functions including assimilation of data, cataloging and distribution.

1989

RIGIS database copyright privileges under U.S. law were applied for and established in 1989.

1990

In 1990, legislation was enabled to amend the *General Laws of Rhode Island* to include language pertaining to a statewide geographic information system.

[Chapter 42-11-2](#)

- (20) The Department of Administration shall have the power and duty “To devise, formulate, promulgate, supervise, and control a comprehensive and coordinated statewide information system designed to improve the database used in the management of public resources, to consult and advise with other state departments and agencies and municipalities to assure appropriate and full participation in this system, and to encourage the participation of the various municipalities of this state in this system by providing technical or other appropriate assistance toward establishing, within those municipalities, compatible information systems in order to obtain the maximum effectiveness in the management of public resources;
 - (i) The comprehensive and coordinated statewide information system may

include a Rhode Island geographic information system of land-related economic, physical, cultural and natural resources.

- (ii) In order to ensure the continuity of the maintenance and functions of the geographic information system, the general assembly may annually appropriate such sum as it may deem necessary to the department of administration for its support.”

Chapter 42-11-10

- (f) (6) Pertaining to the Statewide Planning Program, the State Planning Council will "establish and appoint members to an executive committee consisting of major participants of a Rhode Island geographic information system with oversight responsibility for its activities."
- (g) (3) "The Division of Planning shall manage and administer the Rhode Island geographic information system of land related resources and shall coordinate these efforts with other state departments and agencies, including the University of Rhode Island, which shall provide technical support and assistance in the development and maintenance of the system and its associated database."

Chapter 16-32-30

Language was added for the University of Rhode Island whereby, it was “authorized and empowered to establish in connection with the University and within the Department of Natural Resource Sciences a geographic information system laboratory with suitable facilities for developing and maintaining a level of scientific and technical expertise in the use of computer technology in the management of land-related natural resources. This will include maintaining a statewide database of land related economic, physical, cultural, and natural resources and providing for controlled access of this database to the university community; other state, municipal and federal departments and agencies; and the general public.” ... “The University shall cooperate with and provide technical assistance to the Division of Planning of the Department of Administration in the management of the statewide geographic information system and shall advise other state, municipal and federal departments and agencies and the general public in its use.”

Chapter 16-32-31

This next section of the General Laws addressed the University of Rhode Island’s authorization to fund the GIS laboratory: "The general assembly may annually appropriate such sum as it may deem necessary for maintaining the geographic information system laboratory within the department of natural resource sciences, and the state controller is hereby authorized and directed to draw his or her orders upon the general treasurer for the payment of said sum, or so much thereof as may from time to time be required, upon receipt by the controller of properly authenticated vouchers."

1991

The RIDOP assumed responsibilities for database administration and external data distribution in 1991. RIGIS data was exchanged between participants and made available to the public on magnetic tape media.

1996

In 1996 a computer data server was established at the URI-EDC for electronic data download over the Internet for RIGIS users.

1997-2007 (The Next Decade)

Rapid development and use of GIS in Rhode Island and participation in the RIGIS occurred over the years. This was due not only to the realization of the benefits and advantages of using GIS tools, but also to the efforts of the GIS community at large in showcasing this technology. In this state, RIGIS has always been a proponent of this effort and has sponsored or participated in many technical assistance efforts and outreach activities. As a result, the use of GIS technology permeated into all levels of government and was heavily employed by many private sector companies and organizations. This was accompanied by rapid expansion and heavy use of the spatial information in the RIGIS database.

In its desire to foster the development and use of GIS, the RIGIS EC expanded its membership to include GIS users from many different disciplines and organizations including public and private educational institutions, health and public safety, and a rapidly expanding interest by municipal government.

2008

To back up enacted legislation set for the URI-EDC to support the RIDOP with the development, distribution and support of the RIGIS database, an annually-renewed contractual funding agreement was established. To-date, these funds have been sufficient to cover roughly 50% of the salary and expenses of one staff person at the URI-EDC for the purpose of maintaining the RIGIS website, database and map services.

2009

In response to a long-term desire of GIS users in Rhode Island to be able to view the RIGIS database information without first having to download its layers and load them into a GIS software viewer, the [Rhode Island Digital Atlas](#) was created. Using this online tool through the RIGIS website, along with map services developed to support it, GIS users can view the latest version of key RIGIS data sets before choosing to download them.

The RIGIS website was enhanced to include a blog, and an event calendar. As an augmentation to the [RIGIS-L listserv](#), these two other tools are utilized to inform the RIGIS community of changes to the database and of key dates of upcoming events.

Working groups were created for the RIGIS EC. These working groups were formed from the four major tenets of RIGIS: database maintenance, data distribution, standards creation and outreach. Each group was tasked with identifying goals and establishing priorities coordinated

with this document. It was decided that action items created from this process would be presented at RIGIS EC meetings for discussion, and when appropriate, subcommittees would be created to focus on their completion.

The RIGIS User Group ([RIGIS UG](#)) was re-established to give RIGIS users an opportunity to showcase projects to their peers, provide training opportunities in the latest GIS software applications, and to give the opportunity for vendors to highlight recent GIS advances and resources in RI. Both the RIGIS EC and RIGIS UG meetings occur quarterly so that both sets of meetings fall approximately 1.5 months apart. RIGIS EC meetings are held at a constant location, while RIGIS UG meetings rotate around the state to encourage local participation.

A [Memorandum of Understanding](#) between the RIGIS EC and the Rhode Island Board of Registration ([RI BOR](#)) for the Rhode Island Society of Professional Land Surveyors ([RISPLS](#)) was established to define the term “Authoritative”, identify the most common examples of authoritative RISPLS work products and GIS derived non-authoritative products, and describe actions necessary to minimize misuse of geospatial data.

2010

RIGIS WG supported by RIGIS EC members were established to concentrate coordinated efforts on the major goals of the RIGIS Strategic Plan. The initial working groups included focusing on Data Management, Data Distribution, Technical Standards, and Outreach goals.

Due to a lack of sustainable funding for the urgent ongoing maintenance needs of the RIGIS database, including its many data sets, a need was identified to focus on a sustainable funding mechanism for RIGIS. Current funding mechanisms are primarily used to create new snapshots for the most requested statewide datasets for the RIGIS database. This leaves many data sets in the RIGIS database without a regular, business-process driven (and therefore operating budget funded) update mechanism.

At National States Geographic Information Council ([NSGIC](#)) conferences, many state GIS coordinators identified the lack of sustainable funding as their biggest concern. Collectively NSGIC, representing all state GIS programs, has identified several “For the Nation” ([FTN](#)) initiatives that focus on the standardization and national collection of geospatial information related to Imagery, Transportation, Addresses, Cadastral (Parcel) and Elevation. RIGIS fully supports these initiatives.

A vision was developed through which information would be created and maintained closest to its source (primarily by municipalities or state agencies) using industry standards and then incorporated into the RIGIS database to be consumed by federal government agencies. All future RIGIS activities will support this vision.

2011

[Enterprise GIS System Architecture](#) report was created by Esri to provide a GIS system design appropriate for state agency GIS business needs. These “needs emphasized the importance of creating a centralized system of shared GIS resources and capabilities, complemented by departmental resources. Key objectives included reducing data duplication, improving the currency and accuracy of information used in decision-making, and increasing the reliability of

systems.”

RIGIS Municipal GIS User Group was established to organize events of interest related to municipal GIS topics and issues, either in coordination with RIGIS Outreach WG or independently.

2012

The Municipal Boundary Taskforce was formed shortly after the failed legislation to ratify and solemnize the Connecticut and Rhode Island State Boundary Line. Municipal Boundary Taskforce will crowd source field observations from the Rhode Island Society of Professional Land Surveyors (RISPLS), RIGIS and other reliable authors of data and compile from the authoritative records, a Digital Municipal Boundary Atlas.

2013

As of July, the RI Emergency Management Agency ([RIEMA](#)) had secured grant funding for the implementation of the RISEGIS with ESRI through MPA230. This included RIEMA GIS Servers both for the agency as well as for asynchronous replication of the RISEGIS. The ESRI Enterprise Advantage Program ([EEAP](#)) had been specified and designed to contain the co-management of the State’s Enterprise GIS for a one-year period, the staff identification and formal matrix for GIS Learning and Services Credit blocks to support it, and the installation of server hardware and ArcGIS software. This EEAP was broken into Activities 1-4 and was able to provide for review of technology strategy, systems design, prototyping and other general technical consulting services to support activities. Activity 1 – Senior Consultant Support at EEAP Annual Planning Session was fully attended and documented resulting in the establishment of the RISEGIS.

2014

The EEAP Activity 2, saw the establishment of the [RI State ArcGIS Online Organizational Account](#) or RI State GIS Data Portal through its’ WebGIS Jumpstart Launch Kit in January.

EEAP Activity 3, involved the initial prototype effort to leverage the new ArcGIS online portal to accommodate a mobile building inspections application. This need was based upon the [RI State Hurricane Sandy event](#) recovery efforts.

The last EEAP Activity 4, saw General Technical Consulting with GIS Staff interactively whiteboarding out data repository workflows. That process included proposing mechanisms and methodologies for performing desired RISEGIS workflows.

In support of both Rhode Island state government and federal government open data initiatives, the RIGIS Executive Committee decided to rescind the RIGIS license agreement, as of August 31, 2014.

[RIGIS Newsletter](#) was established and will be submitted on an as needed basis to promote events, opportunities, geospatial projects, technology uses as well as RIGIS WG progress.

2015

The Chief Information Officer position in DOIT is merged into a dual role within the Chief

Digital Officer (CDO). The RIEMA Enterprise GIS Servers are installed at the newly renovated State Emergency Operations Center ([SEOC](#)). Although mentioned as part of the 2013 EEAP, this installation was severely delayed due to staff turnover and re-assignments.

At the end of the year, the Director of Administration, the Chief Digital Officer (CDO), and the Director of Emergency Management came together under task by newly elected Governor Raimondo to further define the development of the RISEGIS.

2016

RIEMA shared an online draft with several agencies for the 2016 Business Plan/Strategic Management Plan for the RISEGIS.

RIGIS and the RIDOA Statewide Planning Program developed the [Geographic Information System Standard for Digital Parcel Data Sets](#) with the ultimate goal of providing a framework by which parcel data is published at a municipal level for inclusion in a Statewide Parcel Dataset or to the RIGIS Data Clearinghouse.

[RIGIS Minimum Metadata Requirements](#): A Guide to Creating FGDC-compliant Metadata for Data Submissions to RIGIS was created to guide data providers in creating and writing the minimum standard for FGDC-compliant metadata required for RIGIS data submissions.

The RIGIS website was updated with a more modern design and added features including a [RIGIS standalone Geodatabase](#) (GDB) data download, additional data categories, new Maps section, search function, individual dataset description pages and a new blog accessible via the Homepage.

2017

RIGIS Standards Working Group (WG) developed a Parcel Data Model that complies with the Parcel Standard Version 2.1 April 2016. This draft model allows municipal parcel and CAMA data to be imported and converted into a statewide parcel dataset that meets the 2016 Parcel Standard fields.

[RIGIS Data Clearinghouse](#) was migrated to the [Esri ArcGIS Hub platform](#), a new tagging schema was developed, and [Search Engine Optimized \(SEO\) URLs](#) were implemented throughout the Clearinghouse. A directory was created for links to [Rhode Island Statewide Map Resources](#).

2018

A new [RIGIS Information & Resources](#) website was created which contains content not supported by the Esri ArcGIS Hub platform, and a new [Esri ArcGIS Enterprise System](#) was designed and implemented to support RIGIS map, data, and image services.

2018-2020

RIDOT established a contract with [EagleView](#) to obtain high quality statewide aerial imagery, captured three times a year with a combination of leaf-on and leaf-off, which then was contributed to the RIGIS database for public consumption. The images, while not traditional orthorectified aerial photographs, are 3-band, true color, with a 3-inch spatial resolution and were

collected and processed using a new imaging technology at a significant cost savings.

2019

RISEGIS was presented and approved by the DOIT Project Review Committee ([PRC](#)). The design, data, active agencies, GIS and database software, all with the multiple-tiered security model was fully approved by the CIO and PRC with immediate implementation. The [RISEGIS Portal](#) is a collection of statewide spatial information and geospatial services, such as free E911 geocoding (address-matching) service and various map applications, which support more informed decisions.

The Utilities User Group (UG) was created in February with the goals of developing data standards and recommendations for commonly used utility data, creating state-wide datasets for commonly requested or essential data, and fostering greater communication and connectivity between Rhode Island Utilities.

The 3D Nation Study being undertaken by the US Geological Survey ([USGS](#)) is documenting topographic, coastal, & bathymetric 3D elevation data requirements and benefits across the US. Several Rhode Island stakeholders have participated in this study - identifying their current uses of these data, where there are gaps, and what their future needs will be.

A new RIGIS web server was designed and implemented to support traditional download of data distributed by RIGIS.

2020

RISEGIS was implemented and fully operational in early 2020 and was used to support the continuous efforts for the Governors COVID-19 Response.

Due to COVID-19 restrictions all RIGIS meetings were being held virtually.

A joint project between USGS, URI, and RIDSP will provide an update to available imagery for the state and will support a much needed Land Use Land Cover (LULC) dataset update. Flown on April 28th and May 2nd, ortho-imagery is being assembled and inspected. The images have 4-bands with a spatial resolution of 6 inches, matching the base imagery for the existing [2011 LULC dataset](#).

2021

EagleView statewide 2018 LIDAR was delivered and is now being prepared for RIGIS distribution.

RIDOT, under a Federal Highway Grant, will initiate Data Governance Training and Standards with invited key stakeholders of RIEMA, [E-911](#), RIDOA, a municipality, and several vendors.

Rhode Island updated its membership with NSGIC and completed the NSGIC Geospatial Maturity Assessment ([GMA](#)) which provides NSGIC members, sponsors, and other partners with a summary of geospatial initiatives, capabilities, and issues within and across state governments. The GMA survey produces report cards for each state on central data themes and coordination topics.

Internal RIGIS data review and publishing procedures were migrated from Esri ArcGIS Desktop to ArcGIS Pro.

RIGIS Website Statistics from July 1, 2016 – June 30, 2021

- Estimated 20 TB of data directly downloaded from RIGIS
- Estimated 25 million map, feature, and image service requests processed
- Estimated 125,000 unique visits made to the RIGIS Data Clearinghouse
- Responded to approximately 250 technical assistance requests

ORGANIZATION

RIGIS Executive Committee

Oversight policy and guidance of the collective efforts of RIGIS participants was formulated by an executive committee of representatives of organizations using GIS technology in Rhode Island. From its inception, the RIGIS EC was made up of representatives from federal, state and municipal government, academic institutions, non-profit, and the private sector. (See **Appendix A: RIGIS Executive Committee Membership – 2021**)

Members are appointed by the [State Planning Council](#), the legislatively authorized central planning organization for the state. There are no specified term limits for its members. A member of the RIGIS EC selected by majority vote chairs this body at quarterly meetings held throughout the year in public session. The RIDSP, provide staff support for this body and acts as the principal liaison among participants and with outside organizations within the state, the Northeastern US, and nationally. Additional staff support for the Executive Committee is provided on a voluntary basis by its individual members and their organizations. RIGIS EC members are encouraged to be involved with one or more RIGIS WG, UG, and/or Task Force which meet quarterly in-between the RIGIS EC meetings.

The RIGIS EC deliberates on issues pertaining to statewide GIS, the RIGIS database, and furthering the knowledge and use of GIS in Rhode Island. There is no binding authority for its individual members to conform to committee decisions or actions. Neither the RIGIS organization, nor its participants are currently funded as a separate state entity or governmental unit to carry out the functions of this committee.

RIGIS Database

The RIGIS database consists of *several hundred* individual spatial databases, or data sets, in vector (point, line, polygon) and raster image format including aerial photos from 1939-2021 and LiDAR products. Although originally conceived and built as an information system for the state's coastal and terrestrial natural resource data, it presently includes extensive data in many disciplines.

These include:

- [Base Maps](#)
- [Biology and Ecology](#)
- [Boundaries](#)
- [Cultural and Historical](#)
- [Elevation and Bathymetry](#)
- [Environment and Conservation](#)
- [Geology](#)
- [Hydrography](#)
- [Imagery](#)
- [Planning and Cadastral](#)
- [Society and Demography](#)
- [Soil](#)
- [Structures and Facilities](#)
- [Transportation](#)
- [Utilities and Communications](#)

Contributors and users have and continue to add information to the RIGIS database through data exchange transactions, and in-house enhancements of existing data sets.

Overall database management is performed by staff at URI-EDC. New dataset contributions submitted by individuals or groups are integrated, after a preliminary check of their data integrity and completeness is performed. Preliminary check includes inspection of data documentation and verification that metadata meets the [FGDC \(CSDGM\)](#) metadata standard. Other checks include reviewing attributes for anomalies, ensuring data is loaded properly, and converting to RI state plane feet [NAD83](#) (1986) if needed. Once data is reviewed and found acceptable, the dataset is added to the RIGIS database. The contributing organization is relied upon to provide metadata and quality assurance procedures prior to submission of data to the RIGIS database. Maintenance of data in the form of updates and corrections is left to the organization that originally developed it. Custodial responsibility or stewardship of individual data sets resides with the organization developing those data and with a primary interest and expertise in its thematic content. For instance, RIDOT maintains highway infrastructure information and the RIDEM maps wetland resources, etc.

All contributors to the RIGIS database are encouraged to follow industry standards such as [FGDC Metadata standards](#), and when available, [RIGIS documents & standards](#) for developing data, such as RIGIS Parcel Standard. Once contributed data is accepted, it can be added to the RIGIS database for public use.

Data development proposals from commercial vendors should follow [project specification standards](#) and/or [National Map Accuracy Standards](#). In the absence of formally accepted specifications, manufacturer's guidelines for hardware and software products are commonly followed. As resources are made available, RIGIS members will continue to develop or adopt standards and specifications for use with GIS tools and related technology. (See **Appendix B: [RIGIS Documents, Standards and Guidelines](#)**, and **Appendix C: [Other Technical Standards](#)**)

The RIGIS website, online database and map services, is hosted and maintained by the URI-EDC

and is provided 'as is.' The host, contributors to this database, the RIGIS members and participants, and the State of Rhode Island do not make any warranties of any kind for this database and are not liable for any loss or damage caused by use of the RIGIS website, database, or map services. The downloading of RIGIS individual data sets, standalone Geodatabase (GDB), metadata, and links to map services is available at no cost to the RIGIS user.

RIGIS Outreach Through Education

RIGIS believes that institutions of higher education should offer introductory or advanced courses in geospatial technology and its application as part of regular departmental curricula.

URI offers several courses in the use of geospatial technologies for students. In addition to traditional undergraduate and graduate courses of study, URI offers a [Graduate Certificate in GIS and Remote Sensing](#).

The URI-EDC also offers short courses and seminars to the general public in the use of a variety of GIS tools. These courses and events generally concentrate on the usage of desktop and online mapping products and resources, and their applications to various disciplines. In addition, the URI-EDC assists its [URI Cooperative Extension](#) partners with geospatial technology support for several outreach and education activities such as the [Watershed Watch](#), and [Non-point Education for Municipal Officials programs](#).

As it is a common requirement for GIS related employment these days, RIGIS participants at the state and municipal agency levels consistently support internship programs offered for students. RIGIS participating agencies at the state government level offer internship opportunities for undergraduate and graduate students from [Brown University](#), [Bryant University](#), [Johnson and Wales University](#), [Rhode Island College](#), the [University of Rhode Island](#), as well as [Clark University](#) in Worcester, MA.

Short conferences and seminars are offered in the state by RIGIS User Groups on a special interest basis from time to time. Brown University has offered workshops for organizations not affiliated with that university.

RIGIS members regularly participate and actively support regional conferences such as the Northeast Arc ([NEARC](#)) Users Group, the NorthEast chapter of the Urban and Regional Information Systems Association ([NEURISA](#)), the Geospatial Information & Technology Association ([GITA](#)). RIGIS members participate in national organizations concerned with geospatial issues such as the [AAG](#), [ACSM](#), [ASPRS](#), [Esri Users Conference](#), [GITA](#), [NSGIC](#), and [URISA](#). RIGIS participants often contribute to these events by giving presentations, providing graphic displays, or otherwise assisting these organizations.

FIVE YEAR STRATEGIC MANAGEMENT PLAN

GOALS AND OBJECTIVES (GO-) (What we want to do)

STRATEGIES (S-) (How we're going to get there)

ACTIONS (A-) (What are we going to do)

GO-1: RIGIS Administration: Through the oversight of staff within the RIDSP and RIDOT, strengthen RIGIS by supporting the RIGIS EC, the RISEGIS, coordinating with Federal and State governments, collaborating with Municipal governments, private and non-profit GIS partners, and exploring and increasing geospatial funding options.

S-1: Support the RIGIS EC administrative responsibilities by maintaining and encouraging membership, scheduling, developing and posting quarterly agendas, recording and produce quarterly meeting minutes, posting quarterly meeting minutes, maintaining a digital document inventory, establish RIGIS EC by-laws, update the RIGIS Strategic Management Plan, and create a RIGIS Community Directory.

A-1: *Maintain membership* representation by soliciting, documenting, and proposing a membership list to the current RIGIS EC for vote and obtaining final approval through the State Planning Council.

A-2: *Encourage membership* participation by sending meeting reminders, encouraging membership and involvement in working groups of interest, and requiring attendance to at least one RIGIS EC meeting per year.

A-3: *Schedule* and secure regular quarterly meetings and space.

A-4: *Develop quarterly agendas* based on RIGIS geospatial needs, advancements, and trends relating to RIGIS coordination, and working group directives.

A-5: *Post quarterly agendas* on the [Rhode Island Secretary of State's website](#) following open government guidelines.

A-6: *Record quarterly meetings* to document discussion, votes, action items, and future agenda items.

A-7: *Produce quarterly meeting minutes* to be reviewed by RIGIS EC members and approved at the following scheduled meeting.

A-8: *Post quarterly meeting minutes* on the Rhode Island Secretary of State's website following open government guidelines.

A-9: *Maintain digital inventory* of all documents viewed and distributed at RIGIS EC meetings.

A-10: *Establish RIGIS EC by-laws* consistent with [Roberts Rules of Order](#) and [state guidance](#) on virtual and in-person meetings.

A-11: *Update the RIGIS Strategic Management Plan* on a five-year basis or as needed by reconfirming and/or revising the overall Strategic Plan.

A-12: *Create a RIGIS Community Directory* by collecting GIS contacts and uses from State and Local governments, user groups, outreach surveys, and GIS educators.

S-2: Support the Rhode Island State Enterprise GIS System (RISEGIS), by continuing to inventory, model geospatial inventory, prioritize needs and resources, enhance and further develop the RISEGIS within the State's IT infrastructure, and explore cost-sharing opportunities.

A-1: *Inventory* current, needed, and planned geospatial hardware, software, applications, networking, and databases within State government departments, agencies, and institutions including but not limited to the following information.

Hardware: Virtual/Physical server name, function, capacity, installed software, type of security, operating system used, etc.

Software: Type of software and vendor, number and utilization of licenses, and maintenance cost and schedule, etc.

Applications: Platform (web, desktop, mobile, etc.), database technology, and development environment, etc.

Networking: Internet connection and availability, data transfer rate, and type of security, etc.

Databases: Theme, contents, size, source organization, database software, completeness, sensitivity and restrictions, intended use, etc.

A-2: *Model geospatial inventory* to identify necessary acquisitions or improvements to hardware, software, applications, networking, and databases, and determine where resources can be pooled, reallocated, and purchased.

A-3: *Prioritize needs and resources* by consulting with appropriate geospatial vendors and working with state stakeholders to enhance the capabilities of storing, sharing, and accessing geospatial data and resources within Rhode Island State government.

A-4: *Enhance and further develop the RISEGIS* based on systematic reviews by RIEMA and RIDOT for the prioritizing of agency needs and resources, in establishing a common data repository and recovery system, supporting server systems for core RIGIS and State agency geospatial applications and services, and strengthening the common geospatial enterprise architecture within the State's IT Infrastructure.

A-5: *Explore cost-sharing opportunities* with State and Municipal government entities with RISEGIS needs.

S-3: Coordinate with Federal government liaisons and agencies through engaging, researching and documenting, bidirectionally sharing, collaborating, and assisting with common needs and goals.

A-1: *Engage in liaison activities* (NSGIC, DHS, FGDC, etc.) through attendance and participation in national conferences, seminars, and workshops.

A-2: *Research and document available* federal standards, models, and best practices of geospatial uses into a compiled standards list.

A-3: *Bidirectionally share* existing data and associated metadata between appropriate Federal and State agencies such as U.S. General Services Administration

[Data.gov](#) and National Spatial Data Infrastructure ([NSDI](#)) [GeoPlatform](#).

- A-4: Collaborate on joint ventures** with Federal agencies and geospatial experts to acquire common interest data utilizing federal funding when available.
 - A-5: Assist Federal agencies** with GIS related needs in emergency planning, response and recovery efforts for drills and events impacting Rhode Island.
- S-4: Coordinate State government and regional GIS activities** by collaborating, researching and documenting, engaging, inventorying, supporting, coordinating resources, providing a Master Price Agreement for geospatial technology and services, and develop a proposal to amend the 1990 RI General Laws related to GIS.
- A-1: Collaborate with other states** through joint project ventures relating to common data themes, applications, standards and best practices.
 - A-2: Research and document available** state standards, models, and best practices of geospatial uses into a compiled standards list.
 - A-3: Engage in liaison activities** through attendance and participation in regional ([NEARC](#), [NEURISA](#), [GITA](#), etc.) and state ([RISPLS](#), RIGIS UG, etc.) conferences, seminars, and workshops.
 - A-4: Inventory Rhode Island State government agencies, commissions and boards** actively using or seeking to take advantage of GIS technology by collecting and adding appropriate information (GIS and/or technical contacts, department, geospatial focus, etc.) to a RIGIS Community Directory.
 - A-5: Support Rhode Island State government** with establishing and implementing GIS capabilities through policy guidance, technical support, standards and best practices, involvement with the RIGIS, updating their inventory, and other GIS resources.
 - A-6: Coordinate State government GIS resources and activities** to maximize cooperative ventures, minimize redundancy of effort, and increase efficiency with respect to the development, contribution, and updating of geospatial information and applications utilizing the RIGIS database.
 - A-7: Provide and encourage the use of Master Price Agreements** such as MPA 183 and MPA 569 for geospatial technology and service offerings through the Rhode Island Department of Administration, Division of Purchasing.
 - A-8: Develop proposal to amend the 1990 Rhode Island General Laws** related to GIS to formally recognize and support RIGIS and RISEGIS, with updated language to reflect current state needs including management, and allocation of resources.
- S-5: Collaborate with Municipal government** by engaging, inventorying, providing, informing, supporting, and assisting with GIS activities, efforts, and resources.
- A-1: Engage in liaison activities** ([RILOCAT](#), [RIAAO](#), etc.) through attendance and participation in local conferences, seminars, workshops, and meetings.
 - A-2: Inventory Municipal government departments** actively using or seeking to take advantage of GIS technology. Including but not limited to the following information: primary geospatial and subject area contacts (parcels, zoning,

addressing, land use, etc.), software and database technology, stage of GIS development, number of GIS users, and resources available (desktop, mobile, web applications, etc.)

- A-3: Provide an online GIS resource* so municipalities can make their geospatial data and capabilities known, including GIS contact information which supports a RIGIS Community Directory and the [Municipal GIS Resources Map](#).
 - A-4: Inform municipalities* of available GIS resources including statewide initiatives, regional data acquisition efforts, online mapping tools and training, applications, standards and best practices, etc.
 - A-5: Support GIS activities* in Rhode Island municipalities by providing technical guidance, implementation ideas, letters of support, and best practices.
 - A-6: Support the RIGIS Municipal GIS User Group* by helping coordinate on issues of concern, encouraging data sharing, promoting training opportunities, collaborating opportunities, and providing information on current events.
 - A-7: Assist Municipalities with comprehensive plan mapping needs* by providing mapping guidelines and best practices, map templates and layerfiles, technical support, and web mapping applications that utilize RIGIS data.
- S-6: Collaborate with private and non-profit GIS partners** by engaging, providing, exploring, and facilitating GIS ventures, activities and efforts.
- A-1: Engage in liaison activities* ([ESRI](#), [EagleView](#), etc.) through attendance and participation in private and non-profit conferences, seminars, workshops, and meetings.
 - A-2: Provide an online GIS resource* for private and non-profit companies, organizations, and individuals to make their geospatial data and capabilities known in a fair and unbiased manner.
 - A-3: Explore and engage in the assimilation or incorporation of data* developed by private and non-profit partners, to maximize the use of existing efforts and products and include results as an online GIS resource.
 - A-4: Facilitate cost sharing ventures and partnering opportunities* between public, private, and non-profit organizations with mutual interests in performing GIS related projects such as data and application development, implementation planning, etc.
- S-7: Exploring and increasing geospatial funding** options by maintaining, exploring, facilitating, and identifying and publicizing availability of cost-sharing and funding opportunities.
- A-1: Maintain long term funding* for RIGIS at RIDSP with continued support from the URI-EDC.
 - A-2: Explore cost-sharing opportunities* with Federal, State, and Municipal government entities, and private and non-profit partners with mutual interests in developing GIS related capabilities, data, or products.
 - A-3: Facilitate partnering opportunities* with Federal, State, Municipal government entities, and private and non-profit partners to support collaborating ventures.

A-4: Identify and publicize the availability of grants and other funding sources (Grants.gov, EPA Exchange Network Grant Program, etc.) open to RIGIS participants to encourage the adoption of standards, GIS needs assessment, implementation planning, data development, and to improve the GIS curriculum within educational institutions.

GO-2: Database Management: Improve the RIGIS database by developing and implementing procedures and methods for examining database contents, locating non-RIGIS data available, and soliciting new and updated high-quality geospatial data contributions for the RIGIS database.

S-1: Develop and implement procedures and methods for cataloging, identifying, and reviewing RIGIS database contents.

A-1: Catalog the RIGIS database based on date last modified, sources, custodial responsibility, and usage; to determine which datasets need updates and who to contact for more recent information.

A-2: Identify missing data by comparing the RIGIS database to national open data sites such as Data.gov and NSDI GeoPlatform and industry accepted data standards to determine what additional data could be added to the RIGIS database.

A-3: Review RIGIS datasets, with feedback from users, to determine its quality based upon its respective metadata, particularly attribute completeness, currentness, positional accuracy, and accepted data standards.

S-2: Locate non-RIGIS data sources and datasets available by identifying, reviewing, cataloging, publishing links, and displaying maps or graphics.

A-1: Identify federal, state, local, and private sector datasets.

A-2: Review data for minimum quality and accuracy standards.

A-3: Catalog federal, state, local, and private sector datasets with a brief description, date last modified, fees, and contact information.

A-4: Publish links on the RIGIS website for user reference to other data sources available outside of the RIGIS data catalog.

A-5: Display maps or graphics showing what types of data are available, such as the Municipal GIS Resource Map.

S-3: Solicit new high-quality geospatial data contributions and updates to the RIGIS database by collaborating, acquiring, encouraging, and establishing procedures and methods for database maintenance.

A-1: Collaborate on identifying funding sources, developing specifications, or development of missing or outdated RIGIS datasets with interested stakeholders.

A-2: Acquire existing data updates and encourage development of new data from federal, state, local, and private sources into the RIGIS database.

A-3: Establish procedures and methods for database maintenance usable by RIGIS contributors, including the ability to directly transfer data updates to RIGIS.

GO-3: Technical Standards: Improve existing and adopt new standards and best practices, and develop templates for standard key components.

S-1: Improve existing and adopt new standards and best practices by reviewing compiled standards list, identifying and prioritizing, exploring, comparing, and developing standards related to GIS data and metadata development, data distribution, web applications, cartography, and other related technologies (GPS, CAD, etc.).

A-1: Review compiled list of existing standards and best practices.

A-2: Identify and prioritize which new standards and best practices are needed in RI by polling the RI GIS community.

A-3: Explore applicable and advantageous national ([NPG](#), [FGDC](#), etc.), local ([MassGIS](#), [NSGIC](#), etc.), and industry ([OGC](#), [ISO](#), etc.) open standards and best practices for geospatial data to determine the best source.

A-4: Compare local standards and best practices to the national level.

A-5: Develop and adopt new standards and best practices as appropriate in the order of priority by amending existing national standards as necessary to meet RI's needs.

S-2: Develop templates for the following key components of every database standard identified above: coordinate system, positional measurement, database models, spatial topology, metadata, and RI map content.

A-1: Coordinate System: Determine what the RIGIS standard coordinate system should be based on emerging coordinate systems and state agency mapping requirements.

A-2: Positional Measurement Categories: Research, then develop, a list of positional measurement accuracy levels based on unique combinations of data source, map scale, device, measurement accuracy, survey level, and license certification.

A-3: Database Models: Research, then develop, database models for the most highly utilized geospatial data layers (hydrography, transportation, parcels, etc.). Include file and field naming, and coding standards.

A-4: Spatial Topology: Determine appropriate data layer topology rules (no gaps or overlaps, must be covered by endpoint, must not intersect, etc.) for each type of geospatial database model.

A-5: Metadata: Periodically research the most current geospatial metadata standards. Endorse a geospatial metadata standard. Create and publish a template that may be used as the basis for new metadata records. Make sure to include process steps lineage, and feature level metadata.

A-6: Map Content: Determine required and recommended map contents such as north arrow, scale, date, appropriate legend, standard symbology, creator, file name, and RIGIS/source logos.

GO-4: Database Access and Distribution: Provide GIS users with free, user friendly, efficient access to RIGIS data and relevant derived products. Review and improve how RIGIS distributes data to both outside organizations and internal state agencies.

S-1: Data Access: Maintain and improve access to current RIGIS data, online services, and other derived cartographic products by reviewing, researching, incorporating, adopting, amending, and streamlining how the RIGIS online data clearinghouse operates.

A-1: Review current web access methods and determine what works, what is missing, or needs improvement.

A-2: Research hardware and software solutions and security methods currently used by other organizations for accessing and displaying map products, and archiving historical data and information.

A-3: Incorporate, adopt, and/or amend hardware and software solutions and security methods that will provide the best end user experience given the resources available.

A-4: Streamline tasks essential to the RIGIS data distribution process by taking advantage of appropriate hardware and software solutions, and collaborating with RISEGIS as needed.

S-2: Data Distribution: Improve how RIGIS distributes data and derived products by reviewing, researching, investigating, improving, and contributing to the accessibility of data and online services available from RIGIS, RIGIS partners, and other websites.

A-1: Review current mechanisms and policies for how RIGIS distributes data and shares online services.

A-2: Research emerging software tools and technologies for data distribution and providing online services.

A-3: Investigate software tools and technologies for publicizing RIGIS data and online services through other clearinghouses such as [Data.gov](https://data.gov) and Esri [ArcGIS Online](https://www.esri.com/en-us/arcgis).

A-4: Improve the RIGIS data distribution website by incorporating appropriate software tools and technologies, and referencing other data clearinghouses such as those maintained by other state governments, municipal governments, non-profits, and Data.gov.

A-5: Contribute data and services to [Data.gov](https://data.gov) and [NSDI GeoPlatform](https://www.nsd.gov/geoplatform) by providing new and ongoing data updates from the RIGIS database.

GO-5: Education & Training: Support and promote geospatial curriculum and the use of geospatial technologies to teach and learn in existing curriculum areas within Rhode Island educational institutions. Encourage and facilitate geospatial training programs and learning opportunities throughout the state.

S-1: Support and promote geospatial curriculum and the use of geospatial technologies to teach and learn in existing curriculum areas within Rhode Island public and private educational institutions by encouraging the creation and expansion of geospatial curriculum, involvement of educators, researchers, geospatial practitioners, and GIS professionals ([GISP](#)), and geospatial technology internship/mentor opportunities.

A-1: Encourage the creation and expansion of geospatial curriculums at institutions of higher education and K-12 schools by presenting RIGIS talks in classrooms on real world project examples, and offering projects to school classrooms for more involvement and added interest.

A-2: Encourage the involvement of educators, educational institution researchers, geospatial practitioners, and GIS Professionals (GISP) in geospatial projects of public or private sector entities, guest speakers, workshops, and programs such as the [ESRI Story Map competition](#), [RI Geography Education Alliance](#), [Annual Geography Bee](#), K-12 Career Day, [GeoMentors](#), the [ConnectEd initiative](#), and [GIS Day](#).

A-3: Encourage geospatial technology internship and mentor opportunities to supplement knowledge acquired through formal course work with that gained through project work experiences.

S-2: Encourage and facilitate geospatial training programs and learning opportunities throughout the state by presenting an introduction of GIS concepts and the use of geospatial information, facilitating the collaborative design of workshops and presentations, and supporting the RIGIS Community Directory GIS educator contact list.

A-1: Encourage the introduction of GIS concepts and the use of geospatial information throughout the state by presenting an Introduction to GIS, to state/local governments, and educational facilities interested in learning more about the uses of geospatial technologies and how it can be incorporated into work processes.

A-2: Facilitate the collaborative design of workshops and presentations to encourage and promote the use of RIGIS data, web services, pilot projects, technical standards and best practices established by RIGIS.

A-3: Support the RIGIS Community Directory by annually updating Educational GIS contacts, their GIS use/curriculum, and other activities that support GIS education in RI.

GO-6: Outreach Activities: Promote the use of geospatial technologies in Rhode Island by supporting RIGIS outreach activities, publicizing GIS and related geospatial technology, and promoting RIGIS through various media outlets.

S-1: Support RIGIS outreach activities by maintaining, creating, and promoting online surveys, utilizing survey results, and supporting the RIGIS Community Directory with contact info, survey results, and other resources.

A-1: *Maintain, create, and promote online surveys as needed* in order to inventory contact information for the Rhode Island geospatial community, understand their needs, technology use, expertise and activities, geospatial resources and data, possible contributions to the RIGIS data repository, and to determine how best to inform them about future activities.

A-2: *Utilize Survey Results* to develop future presentation topics and assist with the goals and needs of other RIGIS working groups.

A-3: *Support a RIGIS Community Directory* by sharing new contacts and changes with RIGIS Administration from survey results and geospatial contact lists including those from User Group meetings.

S-2: Publicize GIS and related geospatial technology by organizing, promoting, and holding periodic RIGIS meetings, promoting, assisting, and participating in non-RIGIS geospatial events, and publicizing RIGIS and non-RIGIS training opportunities and workshop announcements.

A-1: *Organize, promote, and hold periodic RIGIS meetings* about geospatial information and applications for users and special interest groups, such as RIGIS UG and municipal GIS UG meetings. Where appropriate, provide proof of participation for professional credit.

A-2: *Promote, assist in the organization of, and participate in non-RIGIS* special interest group meetings, events, conferences and seminars, such as [NEARC](#), [NEURISA](#), etc., with geospatial themes/content using resources such as the Listserv, web pages, and newsletters, whenever possible.

A-3: *Publicize RIGIS and non-RIGIS training opportunities and workshop announcements* using resources such as the Listserv, web pages, and newsletters.

S-3: Promote RIGIS (geospatial technologies, events, opportunities, etc.) by maintaining RIGIS social media outlets and brochure, creating and delivering a RIGIS newsletter, announcing opportunities, and assisting with outreach management and maintenance of the RIGIS Web Site.

A-1: *Maintain RIGIS social media outlets (Blog, Listserv, etc.)* with announcements, events, and website updates such as new features, posted presentations, and new and updated data releases.

A-2: *Maintain and make available a digital and printable (PDF) RIGIS brochure* which can be distributed at various agency common areas, events, meetings, etc.

A-3: *Create and deliver a digital RIGIS newsletter* related to items such as events, opportunities, geospatial projects, WG status reports, and technology uses.

- A-4: Announce the availability of job opportunities, internships, and grants available* throughout southern New England, utilizing various media.
- A-5: Assist with the outreach management and maintenance of the RIGIS Web Site and [RIGIS Calendar](#)*, in cooperation with the RI Geospatial Extension Specialist, to announce education, training, posting [user group agendas and presentations](#), registration forms, event updates, tips & tricks, and related documents and resources links.

APPENDIX A: RIGIS Executive Committee Membership – 2021

Educational Institutions

Educational Mapping Services – K-12	Peter Stetson, GSTEdC
Brown University – Environmental & Remote Technologies Lab	Lynn Carlson, GISP
The University of Rhode Island – Environmental Data Center	Gregory Bonyng, GISP

Federal Government Agencies

US Department of Agriculture – USDA - Natural Resource Conservation Service	James Turenne
US Department of the Interior – USDOI - US Geologic Survey	Peter Steeves

Municipal Government

City of Cranston – Information Technology	Maria Giarrusso
City of Providence – Planning Department	David dosReis
City of Newport – Department of Information & Technology	Jared Mitchell
Town of East Greenwich – Tax Assessor	Anthony Davey
Town of South Kingstown – GIS Department	Carol Baker

Non-Profit Organizations

The Nature Conservancy – Providence, RI	Kevin Ruddock
NEURISA – New England	Fran Hutton Lee
RI Land Trust – RI	Carol Lynn Trocki

Private Enterprises and Organizations

Applied Geographics, Inc. – Boston, MA	Michele Giorgianni
RPS Group, Inc (Formally ASA) – Narragansett, RI	Jenna Ducharme
BETA Group, Inc – Lincoln, RI	Joe McGuire
Hilltop Northeast Enterprises, LLC – Charlton, MA	Heidi Blank
Mapping and Planning Services – Jamestown, RI	Mary Hutchinson, GISP
RI Society of Professional Land Surveyors – East Greenwich, RI	Edward J. O’Brien, PLS

Public & Private Utility Service Providers

Kent County Water Authority	Shelby Southworth
Providence Water Supply Board – Providence, RI	Kristin Meseck

Quasi-Public State Agency

Quonset Development Corporation, North Kingstown, RI	Antonio Ambrosio
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State Government

RI Department of Administration – Statewide Planning Program	Vinny Flood
RI Department of Environmental Management – Division of Planning and Development	Paul Jordan, GISP
RI Department of Health – Center for Health Data and Analysis	Jay Metzger
RI Department of Transportation – Asset Information Systems	Steve Sawyer
RI Emergency Management Agency	Thomas Guthlein
RI Enhanced 911 Uniform Emergency Telephone System	Nancy Duffy

APPENDIX B: RIGIS Documents, Standards and Guidelines

(<https://info.rigis.org/resource-library/documents-and-standards/>)

1. **RIGIS Newsletters**, RIGIS Outreach Working Group, **2020-2014**
<https://info.rigis.org/resource-library/>
2. **RIGIS Brochure**, RIGIS Outreach Working Group, **2018**
http://info.rigis.org/wp-content/uploads/2018/03/brochure_2018.pdf
3. **Geographic Information System Standard for Digital Parcel Data Sets, Version 2.1**, Rhode Island Geographic Information System, RI Department of Administration, Statewide Planning Program, **2016**
http://data.rigis.org/assets/docs/2016/RI_Standards_for_Digital_Parcel_Data_Sets_v2.pdf
4. **RIGIS Minimum Metadata Requirements – A Guide to Creating FGDC Compliant Metadata for Data Submissions to RIGIS**, Rhode Island Geographic Information System, The University of Rhode Island Environmental Data Center, Erica Tefft, **2016**
http://data.rigis.org/assets/docs/Metadata_Resources/RIGIS_Minimum_Metadata_Standard.pdf
5. **Rhode Island Comprehensive Planning Standards – Guidance Handbook #15: Mapping for Comprehensive Plans**, RI Department of Administration, Statewide Planning Program, **2016**
http://data.rigis.org/assets/docs/2016/RI_Comp_Plan_Standards.pdf
6. **RIGIS License Agreement Retirement Proclamation**, Rhode Island Geographic Information System, **2014**
<http://data.rigis.org/assets/docs/2014/20140619-RIGISLicenseAgreementRetired-signed.pdf>
7. **RIGIS Initiative to Promote and Foster GIS Internships in RI**, RIGIS Outreach and Education Working Group, **2013**
http://data.rigis.org/assets/docs/2013/GIS_Internships_V2.doc.pdf
8. **Five Year Extension - Memorandum of Understanding between the RIGIS Executive Committee and the Rhode Island Board of Registration for Professional Land Surveyors**, RIGIS Executive Committee, RI Board of Registration for Professional Land Surveyors, **2013**
http://data.rigis.org/assets/docs/2013/20130509-RIGIS_RIBOR_MOU-FiveYearExtension.pdf
9. **State of Rhode Island Enterprise GIS System Architecture**, Esri, Danny Krouk, **2011**
http://data.rigis.org/assets/docs/2011/RI_Ent_GIS_Architecture_20110926.pdf
10. **State of Rhode Island Enterprise GIS Business Plan**, Applied Geographics, INC, **2007**
<http://data.rigis.org/assets/docs/2007/20070830-AppGeo-RIGISBusinessPlan.pdf>

APPENDIX C: Other Technical Standards

<https://www.geoplatform.gov/about/share-geospatial-resources/>

1. **ASPRS Positional Accuracy Standards for Digital Geospatial Data**, ASPRS, 2014,
http://www.asprs.org/a/society/committees/standards/ASPRS_Positional_Accuracy_Standards_Edition1_Version100_November2014.pdf
2. **Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM)**, 1998
https://www.fgdc.gov/standards/projects/FGDC-standards-projects/metadata/base-metadata/v2_0698.pdf
3. **United States National Map Accuracy Standards**, U.S. Bureau of the Budget, 1941,
<http://www.edc.uri.edu/nrs/classes/NRS409509/Lectures/4MapBasics/mapaccuracy.htm>
 - [US Topo Product Standard](#)
 - [Digital Orthoimagery Base Specification V1.0](#)
 - [Lidar Base Specification](#)

APPENDIX D: List of Acronyms

AAG – The Association of American Geographers is a nonprofit scientific and educational society which conducts educational and research projects that advance geographic understanding, geographic literacy, and geographic learning.

ACSM – The American Congress on Surveying and Mapping is a non-profit association dedicated to advancing the national interests of the surveying and mapping community.

ASPRS – The American Society for Photogrammetry and Remote Sensing is a non-profit national association dedicated to the interests of the photogrammetry and remote sensing community.

Blog – A journal or diary written for public viewing on a website and consisting typically of personal reflections, commentary on current events, etc. arranged chronologically

CAD – Computer-aided design, also known as computer-aided design and drafting (CADD) is the use of computer technology for the purpose of streamlining design processes; drafting, documentation, and manufacturing processes.

CDO – Chief Digital Officer, leads the Office of Digital Excellence to expand and improve the quality of services available to citizens online.

DHS – The Department of Homeland Security secures the nation from the many threats with jobs ranging from aviation and border security to emergency response, from cybersecurity analyst to chemical facility inspector.

EEAP - Esri Enterprise Advantage Program is a flexible framework to help organizations reach their vision for broadly adopting ArcGIS to meet business objectives.

EPA – The US Environmental Protection Agency offers an Exchange Network Grant Program which provides funding to support the development of the Environmental Information Exchange Network (EIEN) which improves access to and the exchange of, high-quality environmental data from public and private sector sources.

ESRI – The Environmental Systems Research Institute is a private company with headquarters in Redlands, CA developing and supplying GIS applications software.

FGDC – The Federal Geographic Data Committee (FGDC) is an organized structure of Federal geospatial professionals and constituents that provide executive, managerial, and advisory direction and oversight for geospatial decisions and initiatives across the Federal government.

GDB – A Geodatabase is a spatial database that is optimized to store and query data that represents objects defined in a geometric space. It is a collection of geographic datasets of various types held in a common file system folder

GIS – A Geographic Information System(s) is an organizational structure of computer hardware, specialized software and applications, a managed database of geospatial and related information, and a core of trained professionals versed in geospatial technology.

GISP – GIS Professional certified through the GIS Certification Institute (GISCI)

GITA – The Geospatial Information and Technology Association is a global nonprofit

educational association serving the global geospatial community.

GITA-NE – The New England States chapter of GITA.

GPS – The Global Positioning System (GPS) is a space-based global navigation satellite system (GNSS) that provides location and time information in all weather, anywhere on or near the Earth, where there is an unobstructed line of sight to four or more GPS satellites. It is maintained by the United States government and is freely accessible by anyone with a GPS receiver.

ISO – International Organization for Standardization is a non-governmental organization (federation of approximately 165 countries) that develops high quality voluntary International Standards which facilitate international exchange of goods and services, support sustainable and equitable economic growth, promote innovation and protect health, safety and the environment

LiDAR – Light Detection and Ranging remote sensing method used to examine the surface of the earth.

Listserv – List server, is a small program that automatically sends messages to multiple e-mail addresses on a mailing list.

MassGIS – MassGIS is the Commonwealth's Office of Geographic Information, within the Information Technology Division (ITD) of the Administration and Finance Secretariat. Through MassGIS, the Commonwealth has created a comprehensive, statewide database of geospatial information.

Member – Member of the RIGIS Executive Committee.

NarrBay – NarrBay.org is the one stop portal for researchers interested in Narragansett Bay, Rhode Island. NarrBay is home to specialized coastal and marine datasets which can be downloaded in a variety of formats.

NBC – The Narragansett Bay Commission (RI State) is a quasi-state government organization serving as a regional wastewater utility provider.

NEARC – The Northeast Arc (users group) is a regional organization of users of ESRI GIS software from New York, New Jersey, and the six New England states with some participation from Pennsylvania and Delaware. The organization is self-funded and is independent of ESRI for its support and operations.

NEURISA – The New England Chapter of the Urban & Regional Information Systems Association (NEURISA) is a not-for-profit professional organization that represents the interests of Geographic Information System (GIS) practitioners and Information Technology professionals across the New England region.

NRCS – The National Resources Conservation Service of the US Dept. of Agriculture (Formerly SCS) is an agency of the federal government that provides leadership in efforts to conserve, maintain and improve natural resources and the environment.

NSDI – The National Spatial Data Infrastructure is an initiative developed by the Federal Geographic Data Committee that encompasses policies, standards, and procedures for organizations to cooperatively produce and share geographic data.

NSGIC – The National States Geographic Information Council is a private nonprofit

organization consisting of representatives from the fifty states committed to efficient and effective government through the prudent adoption of geospatial information technologies.

OGC – The Open Geospatial Consortium (OGC) is an international industry consortium of over 500 companies, government agencies and universities participating in a consensus process to develop publicly available interface standards.

Orthorectified – Image that has been geometrically corrected so that distances shown are uniform and can be measured like a map.

Participant – Active user who participates in or contributes to RIGIS.

RIAAO – The Rhode Island Association of Assessing Officers (RIAAO) is an organization of, for and by the Tax Assessors of each city and town in Rhode Island. It is a chapter of the IAAO.

RI BOR – Rhode Island Board of Registration for Professional Land Surveyors

RIDEM – The RI Department of Environmental Management is a department of the executive branch of Rhode Island state government.

RIDOA – The RI Department of Administration is a department of the executive branch of Rhode Island state government.

RIDOH – The RI Department of Health is a department of the executive branch of Rhode Island state government.

RIDOT – The RI Department of Transportation is a department of the executive branch of Rhode Island state government.

RIDOP – The Rhode Island Division of Planning now the RI Division of Statewide Planning.

RIDSP – The Rhode Island Division of Statewide Planning within the State of Rhode Island, Department of Administration, Division of Planning.

RIEMA – The RI Emergency Management Agency is a department of the executive branch of Rhode Island state government.

RIGIS – The Rhode Island Geographic Information System is a statewide consortium of public, private, and academic organizations jointly supporting a common Statewide GIS and database and furthering the knowledge and use of GIS in Rhode Island.

RIGIS EC – The Rhode Island Geographic Information System Executive Committee, which reports to the State Planning Council administered by the RIDSP.

RIGIS Municipal GIS User Group – Aims to organize events of interest related to municipal GIS topics and issues, either in coordination with RIGIS Outreach WG or independently. Periodically will interact with Municipal Contacts to solicit information related to their organization, data, needs and topics of interest.

RIGIS UG – RIGIS User Group gives RIGIS users an opportunity for users to showcase projects to their peers, provide training opportunities in the latest GIS software applications, and to give the opportunity for vendors to highlight recent GIS advances and resources in RI.

RIGIS WG – RIGIS Working Groups supported by RIGIS Executive Committee (RIGIS EC) members were established to concentrate coordinated efforts on the major goals of the RIGIS

Strategic Plan

RILOCAT – The Rhode Island League of Cities and Towns. As a private, non-partisan membership association of local governments in Rhode Island, our mission is to represent the interests of municipal officials and to provide them services which enhance the effectiveness and efficiency of city and town services.

RIRRC – The RI Resource Recovery Corporation (formerly RISWMC) is a quasi-state organization responsible for management of solid waste in the state.

RISPLS – The Rhode Island Society of Professional Land Surveyors exists to promote the profession of surveying, mapping, land information systems and related fields to support the advancement of technologies, and to help ensure that these professional activities provide for the safety and welfare of the general public.

RISEGIS – Rhode Island State Enterprise GIS System

RISWMC (see RIRRC) – Formerly known as the RI Solid Waste Management Corporation.

SEOC – State Emergency Operations Center provides a central location from which all state government can provide interagency coordination in support of any regional incident or local response.

URI-EDC – The University of Rhode Island, Environmental Data Center (EDC) is a geographic information system (GIS) laboratory in the URI Department of Natural Resources Science, College of Environmental and Life Sciences (CELS).

URISA – The Urban and Regional Information System Association is a non-profit international association furthering the use of GIS and other information systems technology for the improvement of decision-making in national, state, regional and municipal government. URISA is the founding member of the GIS Certification Institute and the GISCorps volunteer program.

USDA-NRCS – The US Department of Agriculture, Natural Resources Conservation Service (NRCS) works with landowners through conservation planning and assistance to benefit the soil, water, air, plants, and animals for productive lands and healthy ecosystems.

USDA-SCS (see USDA-NRCS) – Formerly known as the Soil Conservation Service of the US Dept. of Agriculture.

User – Consumers of RIGIS data, documents, and services.

USGS – The US Geological Survey is a component of the US Department of the Interior, an agency of the federal government.