Table 8. Two-year Rotating Schedule for Geosciences Faculty in New Curriculum.

	Odd			Even		
	Fall 1	**Fall 2**	**Fall 3**	**Spring 1**	**Spring 2**	**Spring 3**
TBB	GEO 484	GEO 100		GEO 482/582	portfolio	
AIV	GEO 468	portfolio		GEO 568	GEO 210	
JCB	GEO 450	GEO 515		GEO 477/577	Portfolio	
JAC	GEO 103	GEO 301	GEO 100 X 2	GEO 103	GEO 100	GEO 100
RKF	Retired			GEO 465	GEO 100	GEO 100
DEF	GEO 102	portfolio	0.5 GEO 350	0.5 GEO 150	CO Plat	
DPM	GEO 580.5	portfolio		GEO 370	0.5 GEOH3	0.5 GEO 150
ODH	GEO 320.5	GEO 103		Portfolio	0.5 GEOH3	

	Even			Odd		
	Fall 1	**Fall 2**	**Fall 3**	**Spring 1**	**Spring 2**	**Spring 3**
TBB	Env. Org. Chem.	GEO 100		GEO 103	portfolio	
AIV	GEO 483	GEO 103		GEO 583	portfolio	
JCB	GEO 450	GEO 515		GEO 210	portfolio	
JAC	GEO 103	GEO 100	GEO 100X2	GEO 103	GEO 100	GEO 100
RKF	Retired			GEO 485	GEO 100	GEO 100
DEF	Portfolio	GEO 102	0.5 GEO 350	0.5 GEO 150	CO Plat	
DPM	GEO 103	portfolio		GEO 370	0.5GEOH3	0.5 GEO 150
ODH	GEO 320.5	GEO 530.5		GEO 120	0.5GEOH3	

C. Graduate Curriculum

Three "Environmental Sciences" graduate degrees are available in the Department of Geosciences: the M.S. (thesis); the M.S. (non-thesis); and the Ph.D. The graduate degrees are strongly experiential, and emphasize training by direct contribution to research projects. Weaknesses in candidates' general geosciences backgrounds are identified in the requisite oral preliminary examination, and advanced classwork augments the experiential component of the degree. Table 3 provides an indication of population fluxes in our M.S. programs over the past 6 years.

Most of our M.S. graduates obtain jobs in the environmental sciences, generally in the New England region. Small environmental consulting firms, the Department of Environmental Management, and the Cape Cod Water Commission hire by far the preponderance of our M.S. graduates.

As noted above, our goal is to expand our graduate program both in size and scope. Assuming that we reach our goal of 10 full-time faculty, it would be desirable to more than double the current number of graduate students (a target of approximately 25 graduate students of all types). Ideally, around ten of that population should be doctoral candidates. This, we feel, would provide the best mix of B.S., M.S., and Ph.D. students, to maximize the opportunities for vertically integrated learning, to create an ideal learning climate within the Department.

D. Outreach

As our research expands, the outreach aspect of that research will concomitantly expand. We remain a key resource in the State of Rhode Island for bedrock data, sand & gravel distributions, groundwater (flow and geochemistry) data, coastal evolution and management, and all other things pertaining to Earth and Earth materials. These kinds of activities are highlighted by our recent partnership with RIDOT in the establishment of a subsurface geological and geotechnical database. This partnership has now been expanded into the development of a relational database encompassing geological and geotechnical subsurface data. We anticipate partnerships along these lines in the future.

RI Geological Survey. It is in the Survey where we expect the greatest expansion of our outreach role. The RI State Geologist – in flusher days – had a budget that was included as a modest (ca. $25,000/year) Memorandum of Agreement between the State Geologist and the RI Division of Planning. This ended, however, in 1996 when a new Head of Planning assumed his duties (which occurred shortly before Boothroyd's assumption of the role of State Geologist) and in the interim, the State Geologist has a) had to look for external funding to support the activities of the Survey, and b) has had no official position nor received official recognition within the University of Rhode Island or the State. This is an unfortunate oversight, given the quantity and quality of the Survey's contribution to the University and State.

Ultimately, the RI Geological Survey should be a stand-alone entity with Center status within the University, but linked closely to CELS. Funding would be from a variety of sources, perhaps Cooperative Extension, State agencies, and extramural sources. Close ties would remain with the Department of Geosciences from which expertise can be drawn as needed.

The RI Geological Survey should develop close ties with the U.S. Geological Survey (USGS) in the form of a RI Earth Science Information Office. The USGS, in cooperation with Federal and State agencies and universities, coordinates a national network of Earth Science Information Centers (ESICs) that provide earth and biological science information to the public. The National Mapping Division provides oversight and guidance for the national ESIC network. Regional implementation and coordination of this agreement will be through the Mapping Applications Center and its ESIC office. The Earth Science Information Office would become the primary source of geological and Earth Science information for the State of Rhode Island. The Earth Science Information Office is a USGS business partner. A Memorandum of Understanding (see Appendix 3) is currently being hammered out between the RI State Geological Survey and the USGS; this is an important first step to bringing a ESIC to Rhode Island.

The Survey would be housed in new facilities shared with the Department of Geosciences. These facilties would consist of office space for the State Geologist and staff, space for the RI Earth Science Information Office, a geologic library to house USGS and state maps and publications, and a computerized map production laboratory.

IV. SCHEDULE AND TIMETABLE

A. Research & Curriculum

Introduction. Construction of a meaningful timetable is complicated by the fact that 50% of the faculty members within the Department of Geosciences are over the age of 62. Notable retirements can be expected within the next 3 – 7 years, including J.A. Cain (retirement expected spring, 2005), O.D. Hermes (retirement expected within ≤ 5 years); R.K. Frohlich (now on half-time appointment; retirement at end of spring, 2004), and J.C. Boothroyd (retirement expected within ≤ 7 years). Finally, the Department secretary is expected to retire within 4 years. This means that we not only need to replace these individuals, but need also to build. The list of potential hires for our Department is predicated upon the expertise that these faculty members bring to the Department remaining available (e.g., the positions would be filled).

At the University of Rhode Island, growth is generally dependent upon the curriculum – particularly the undergraduate curriculum. Hence, the overall complexion of the Department – including the research specializations of the faculty that we hope to attract – depends upon our ability to attract an increased nucleus of majors for our B.S. programs. The implementation of the new curriculum should not only increase the number of undergraduate majors, but also increase the faculty time available for research. The resultant increases in productivity seen throughout the Department should then translate into legitimate opportunities for new tenure-track hiring. Our timetable thus begins with instituting the curricular modifications described above.

Year 1. The first year should see outgrowths of programs currently designed and (in some cases) in place:

- Development, submission, and implementation of the new undergraduate curricular package (including proposals for new major).
- Replacement of half-time RK Frohlich with full time environmental geophysicist
- Updating of departmental web site (to attract more undergraduates)
- Updating of departmental brochure and secondary school outreach

Year 2. The second year should see increased numbers of proposal submissions resulting from the teaching release in the new curriculum. It should also yield:

- Research association of hydrogeology group and environmental geophysicist.
- Establishment of new major (Board of Governors sign proposal) in curriculum

Five Years. By five years, some of the changes wrought in the first two years should begin to bear fruit. Teaching should be 2 and 1, and funding within the Department should be increased 50% over current levels. Moreover, undergraduate student enrollments should have increased as a result of active Department and CELS approaches to obtaining increasing numbers of undergraduates and our establishment of an attractive new major. During this interval, several retirements may take place, and replacements for them must be sought. Concomitantly,

increased space – presumably still within Woodward – will need to be freed for fuller classes, increased numbers of graduate students, and the new faculty.

Because it is likely that Cain, Hermes, and Frohlich will have retired by this point, the petrology part of the curriculum will require support, and thus the economic geologist would potentially be an appropriate hire. Moreover, J.C. Boothroyd will have begun to focus a greater and greater percentage of his effort on the burgeoning RI Geological Survey (see below) and on glacial geology (research interest), and this would be an appropriate time to bring in the shoreface physical sedimentologist.

Replacing three faculty with three faculty keeps things constant (rather than growing), and thus to grow, the fourth position (geoarchaeologist) needs to be filled. By the time that this position is filled, some of the instrumentation described above should be within the Department, and the technician(s) necessary to maintain these instruments should be on board.

Ten Years. The 2001 Department of Geosciences should hardly be recognizable in 10 years. Expansive new quarters in a new building should house a faculty numbering at least 10, with around 25 graduate students, drawn to the Department by its international reputation and secure funding. The faculty will largely be quite young and (one hopes) productive. Undergraduate enrollments should treble, as the Department's position in CELS and in environmental research at URI becomes better understood and its programs reckoned more central to the CELS Mission and URI focus.

B. Outreach – Rhode Island Geological Survey

Year 1. Combined office and lab space is needed to store and dispense the present and future maps and publications. A memorandum of understanding (attached) is waiting to be signed with the U.S. Geological Survey to establish the Rhode Island Earth Science Information Office. This will give the RI Survey access to proprietary USGS web and ftp sites that will facilitate transfer of geologic information to interested professionals and to the general public. Some space should become available when Chafee Hall is completely reopened. Additional release time is requested so that Boothroyd can more properly carry out the outreach duties of the State Geologist.

Five Years – The State Geologist and the RI Geological Survey must reestablish official standing within the state of Rhode Island. Traditionally, state surveys are a part of either the state university or a state agency. The RI Survey should not be a part of a regulatory agency because the mission of a survey is to provide information to all. That information can be perceived as biased if it comes from within the same agency using the information for regulatory purposes. The best case for a Geological Survey in Rhode Island is to part of the University. This should be accomplished within the CELS, Agricultural Experiment Station, Cooperative Extension framework. The State Geologist position would become a half-time position at first, then go to full time as funding allowed.

A working relationship with the RI Natural History Survey (RINHS) exists at present, and should become stronger with time. The mission of each Survey is, however, different; the Natural History Survey is, and will probably remain, primarily biological in nature whereas all geological surveys have a focused geologic mission.

One five-year goal is to complete the Quaternary Map of Rhode Island that would complement the already published Bedrock Map of Rhode Island. Present StateMap funding is being used to work toward this goal. Additional funding is needed to publish the map; StateMap allows digital compilation only. Computer facilities additional to those existing in Geosciences are needed for the digitizing, production of interim maps, and publish-on-demand capability for maps separate from the Quaternary Map. These facilities would not duplicate the Environmental Data Center (EDC); the EDC is not involved in map production. The RI Geological Survey is.

Computer and office staff should be added as the need arises. Some extramural funding would be available but must be focused on specific tasks.

Ten Years – Realization of status as independent Center in the University, housed CELS, and funded by a combination of State, Land and Sea grant, and external support.

APPENDIX A: EXTERNAL FUNDING DATA, DEPARTMENT OF GEOSCIENCES 1994 - 2001

12/15/01			Department of Geosciences			
Prin.inves	URI #	Title	Agency	Duration	Amount	**Duration**
9/1/94-8/30/95						
Boothroyd	5-39113	A sustainable beach/dune replenishement strategy for Rhode Island	RI Coastal Resources Management	7/1/1995-6/30/97	85,819.00	2 year
Boothroyd	5-32044	Sustainable beach/dune replenishment	Sea Grant	6/15/95-1/31/98	67,128.00	2.5 yrs
Veeger	5-35663	Geochemical control of groundwater Chemistry in Pawtuck	RI Water Resources	1991-1995	4,435.00	3 years
Frohlich	5-35331	Hydro geophysical characterization of a coastal industrial Navy education and training center		1993-95	24,750.00	2 years
Fastovsky	5-32529	Collaborative Research: morphology, geochemistry, and stable isotope	NSF	1993-95	46,914.00	2 years
Fastovsky	5-32570-72	Patterns of dinosaur abundance through time in facies of…	NSF	1993-95	27,700.00	2 years
Boothroyd	5-39094	Geological process of the Narrow River and salt pond	RI CRMC	1995	6,800.00	1 years
Boothroyd	5-35659	Paleoenvironments of the Nauset March Lagoon and adjacent…	National Park Service	1993-1995	28,270.00	2 years
Cain	5-39851	Sand & Gravel aggregate	NE Governor's conference	1992-95	15,000.00	3 years
Hermes		Relationship of rado to geology	USGS Cooperative program	1994-95	9,000.00	1 year
Cain	5-39008	Office of the State Geologst	RI Department of Administration, Division of Planning	1994-95	25,000.00	1 year
Boothroyd	5-39061	Side-scan project	RI CRMC	1994-95	2,960.00	1 year
Cain	5-36987	Non-energy resources in Connecticut and Rhode Island coastal areas	Mineral Management Services	1994-5	16,535.00	1 year

9/1/95-8/96					
Boothroyd	5-32004	A sand budget for the shoreface/inner shelf of the microtidal…	Sea Grant	1995-1997	135,042.00
Boothroyd	5-32415	Mexico	RI Coastal Resource Management	7/01/96 - 12/3/97	15,849.00
Veeger	5-37272	Jamestown	Jamestown	7/01/96-8/31/97	6,075.00
Boothroyd	5-32088	Sustainable beach/dune replenishment	Sea Grant	8/01/96-8/31/99	84,902.00
Fastovsky	5-34072	Radiometric age dates of an Early-to Middle Jurrassic dinosaur-bearing fauna, .. .	Dinosaur Society	8/21/96-8/20/97	3,528.00
Frohlich		Information Transfer: geophysics booklet	Water Resources Center	1995-96	14,850.00
Frohlich	5-35874	Water Resrources Research Institute Program: economics of geophysics in groundwater surveys		1995-1996	14,000.00

9/1/96-8/30/97					
Fastovsky	5-34082	Paleoenvironments and taponomy of the Tepexi Lagerstatte . . .	National Geographic Society	9/09/96-8/31/998	11,976.00
Boothroyd	5-39254	Geologic Habitat of Selected proposed dredging and . .	State & local/CRMC	4/01/97-6/30/97	51,735.00
Veeger	5-39271	Nonpoint source pollution impacts . . Coanicut	RI DEM	7/1/97-6/30/99	52,533.00
Veeger	5-37273	Nonpoint source pollution impacts . . Coanicut	Town of Jamestown/state & local government	7/01/97-8/31/98	3,000.00

9/1/97-8/30/98

Fastovsky	5-34111	Paleosols & landscape Evalution in Chinle Form.	Petrified Forest Museum Association	9/01/97-8/31/98	7,000.00
Boothroyd		Geologic survey of potential sites for dredged material disposal and aquaculture…	RI CRMC	1997-98	53,107.00

9/1/98-8/30/99					
Hermes	5-38767	Background Concentrations of Metals in Soils From RI	Agricultural Experiment station	10/01/98-9/30/99	5,800.00
Hermes, Murray, & Veeger	5-36102	Geologic Transportation Maps for the 21st Century	URI Transportation Center	10/01/98-10/31/01	69,148.00

Fastovsky	5-36861	Proposal to RIGS for Partial Support of Geological Field Trips Colorado Plateau	RI Space Grant (NASA)	11/5/98-2/28/01	7,500.00
Boothroyd	5-358218	Flood-tidal delta evolution and derived Sedimentaiton	Department of the Army, NE District	4/28/99-open	20,124.00
Fastovsky	5-34162	Paleoenvironments evolution and temporal framework . .	Petrified Forest National park	6/1/1999-8/31/00	6,700.00

9/1/99-8/30/00

Veeger	5-37202	Hydrogeologic investigation of the Tiverton Landfill	Municipal - Town of Tiverton	9/01/99-5/31/00	3,000.00
Hermes	99-13	Trace Element Composition of RI Soils	Forensic Science Partnership	1/1/00-12/04/00	2,910.00
Veeger	5-35684	State Water Resources Resarch Institute	U.S. Geological Survey	2/29/00-9/01/00	21,662.00
Fastovsky	5-32503	Magnetostratigraphic correlation of Late Cretaceous and Early . . .	NSF	3/1/2000-2/28/02	4,476.00
Fastovsky	5-32504	Magnetostratigraphic correlation of Late Cretaceous and Early . . .	NSF	3/1/2000-2/28/02	70,901.00
Boothroyd	5-35604	Rhode Island Statemap 2000	U.S. Geological Survey	5/15/2000-6/30/01	16,659.00

9/1/00-8/30/01					
Fastovsky		Dry suits for Beach Monitoring Program	URI Foundation	9/2000	1,965.00
Boving	5-36132	Chemical Retention Capacity of Newly Contrcutred Roadway Runoff	URI Transportation Center	9/1/00-3/31/01	37,855.00
Hermes, Boothroyd, Murray, & Veeger	5-36137	A web-based core library for Rhode Island	URI Transportation Cenyter	10/01/00-9/30/01	93,021.00
Murray	5-36809	Aeolian Detritus Project	RI Space Grant (NASA)	10/12/00-2/28/01	10,000.00
Murray	5-39507	Program for Excellence in Mathematics and Science	RI Office of Higher Education	10/01/000-11/30/01	50,344.00
Veeger	5-39473	Water use and availability on Block Island	RI Water Resources Board	11/01/00-10/31/01	36,126.00
Boving	5-35231	Department of Defense	DOD	2/28/2001-2/28/04	185,970.00
Hermes, Boothroyd, Murray, & Veeger	5-39503	A Digital-GIS Catalog of Borehole Data for the Providence, .. .	RI Dept. of Transportation	2/01/01-12/31/02	100,094.00
Boothroyd	5-35601	Rhode Island Statemap 2001	U.S. Geological Survey	5/15/01-5/14/02	31,720.00

Boothroyd	5-35223	Allin's Cove - Assessment of Geologic Change and Habitat Restoration	Army Corps Engineers	5/07/01-12/31/01	10,000.00
Boothroyd	5-37228	Shoreline Change Maps - 1939-1999, RI	Town of Charlestown	7/01/01-1/31/02	6,788.00

9/1/01-8/31/02

Fastovsky		A new curriculum for Geosciences	CELS:Expeiential Learning Initiative	9/1/01	5,000.00
Veeger	5-39547	Water use and avilablity: Jamestown, RI	RI Water Resources Board	9/15/01-9/14/02	37,131.00
Frohlich/Boving	5-30807	The effect of organic contaminants on direct current resist.	EPA	9/20/01-9/20/03	55,000.00
BovingBoothroyd	5-38325	Fingerprinting Sources of Bacterial input into . .Narrow River	Agr. Exp. Station	10/01/01-9/31/02	16,255.00
Boving		Stormwater Rem/treatment with vortex structures	RI Aqua Fund	9/01/01-8/31/02	21,036.00
Fastovsky		Space-related undergraduate education	RI Space Grant (NASA)	2002	3,000.00
Murray	5-39566	Program for Excellence in Mathematics and Science	Eisenhower Professional Development Program	10/01/01 – 11/30/02	56,856
Murray	Unnumbered yet	Expanding a Successful Model of Active Student Learning…	Fund for the Improvement of Post-Secondary Education	09/01/01 – 08/31/04	56236
Hermes		Inquiry-oriented Virtual Field=Trips	RI Foundation	06/30/01-07/30/02	3000
Hermes		Inquiry-oriented Virtual Field=Trips	CELS Experiential Learning Initiative	06/30/01-07/30/02	3000

APPENDIX B: TABULATED SURVEY RESULTS AND SURVEY QUESTIONAIRE

RESULTS
OF
DEPARTMENT ALUMNI SURVEY
(n = 21)

I. General	**Responses**
a) Department make-up/focus (faculty specialties)	
1. Conventional broad-based	16
2. Sed, Hydro, Min/Pet, Structure, Economic, Geochemist	1
3. Quaternary Geology in NE (sed/strat, min/pet; glacial)	1
4. Environmental Geology (GIS, soil sci; geochem; stats; tech. Writing)	1
5. Oceanography	1
b) What kinds of hires should we make in the future (given predictable retirements)?	
1. GIS/Computer programmer	7
2. Coastal Geologist	5
3. Quaternary Geologist (general)	5
4. Geophysicist[1]	5
5. Mineralogist/petrologist	3
6. Climatologist	3
7. Soil Scientist	2
8. Igneous petrologist	2
9. Economic geologist	1
10. Physical sedimentologist/stratigrapher	1
11. Marine geologist	1
12. Carbonate geochemist	1
13. Geomorphologist	1
II. Environmental Geosciences Curriculum	
a) What is missing from core curriculum necessary for 21st century?	
1. Core curriculum provides good base	12
2. Keep biology	3
3. Drop biology	2
4. More hydrogeology	3
5. Less hydrogeology	
6. Add glacial	2
7. More fluvial sedimentology	2
8. Add geomorphology	1

[1] Given the answers to II© my guess is that it is assumed in these answers that we will have already hired a geophysicist

9. Add Quaternary geology 1
10. Add New England geology 1
11. More coastal processes 1

b) Should structural geology be required?
1. Yes 15
2. No opinion 2

c) Should geophysics be requires
1. Yes 11
2. No 4
3. No opinion 2

d) Other relevant courses and training?
1. Toxicology
2. Environmental epidemiology
3. Environmental law
4. Civil engineering (variety of courses)
5. Management & Business
6. Statistics
7. More chemistry as opposed to math
8. Informatics/IT
9. Internships of various stripes

Department of Geosciences
ALUMNI SURVEY

Under some considerable pressure from the new Dean of our college, the Department of Geosciences (and in fact, all departments in the College) must embark upon a Strategic Plan for the next 10 or so years. The mandate is to map our course in a way that best prepares our students for the future, and at the same time allows us to maintain excellence in one or two areas of focus. The stick is to cut existing programs in which we might even have some investment; the carrot offered by the administration is that future hires and resources will go to those departments who can successfully focus themselves in a way that maximizes their productivity and educational programs.

Our sense is that traditional departments and curricula were developed in the early 20th century to solve early 20th century problems. If the problems and the way that such problems are solved have changed, we would like to be able to tune the expertise of the faculty and the curriculum to reflect that. We have historically been a broad-based department that does a lot of things. This has to change, and doing a few things well is the order of the day.

While we as faculty have ideas about where the Department might or might not go (and how best to get there), we need to get crucial input from the alumni who are on the front lines of the applied (non-academic) end of the geosciences. Nobody can give us a better idea about what ought to be changed better than folks who have been through our curriculum, and are now out there working. Thus, we will use this questionnaire to help develop a Strategic Plan.

Two areas are key in terms of alumni: these are the focus of the Department and the nature of the curriculum. In the case of the former, we think that a Quaternary Geology focus will suit the Department well (given its location). As regards the curriculum, we are toying with two majors:

- B.S. Environmental Geosciences
- B.S. Geology & Geological Oceanography

The Geology & Geological Oceanography major is currently our most popular major, and we tend not to want to change much in it. The other proposed major, Environmental Geosciences, was established as a response to focus areas in the College and the University. Moreover, almost all of our faculty is involved in what it would term "environmental geosciences." The question is, can we develop an Environmental Geosciences major and still claim to be training competent geoscientists? We return to this question below.

So: please take a moment and answer this survey as carefully as you are able. I hope that you can see that we are very serious about this revision, and need your thoughtful input.

I. Department (General)

a) *What do you think should be the make-up of the 21st century Geosciences Department*? Please keep in mind that we can't be all things to all people; we can justify about 6-8 faculty (given the number of students that we have), that we are located in New England (with the opportunities and limitations that this brings), and that our students generally go on with B.S.'s and M.S.'s directly into the workforce.

b) *Within the realm of Quaternary Geology what kinds of hires should we make in the foreseeable future*? To answer this question, please remember that within 7 years, half of our faculty will be retired. This effectively leaves us with a) an organic geochemist/hydrogeologist; b) an inorganic geochemist/hydrogeologist; c) a paleontologist/sedimentologist; and d) a structural geologist/metamorphic petrologist. What should we add to this mix to produce a department with a forward-looking focus?

II. Evironmental Geosciences Curriculum. *What do you think are the key components of an Environmental Geosciences undergraduate education*? As it stands, our undergraduate curriculum consists of a core curriculum (that all must take) plus a variety of electives (that are needed for the credits, but are chosen from a list of options). As our proposal currently stands we have a core curriculum that includes:

1. Introductory Geology (1 semester)
2. A historical/stratigraphy/time course w/ a strong field component (1 semester)
3. mineralogy/petrology (1 semester)
4. Sedimentology
5. Hydrogeology
6. a capstone field trip – 10+ days to some part of the world (at first, the Colorado Plateau)

Students would, as always, be required to have 1 year of chemistry, math, and physics, each. The old year-of-biology requirement might be flexible, and students could pursue more math or chemistry instead of the biology.

a) *Given these core requirements, what do you think is missing that undergraduates*

absolutely should have for a 21st century geosciences education?

b) *As it currently stands, structure is optional in the Environmental Geosciences major. Do you feel that this should be required? Do you use these techniques in your own work*?

c) *How do you feel about geophysics? Should there be some kind of environmental geophysics requirement embedded into the core curriculum, as well*?

d) *Anything else*?

So that we might push the process forward (the Dean has given us a very fixed deadline of December 1 for our final Strategic Plan), please help us by responding by November 1. Feel free to type your answers directly on to this form (or not; whatever is easiest for you), and send them to defastov@uri.edu. Many, many thanks for helping us out with these changes.

APPENDIX C: EARTH SCIENCE INFORMATION OFFICE DRAFT MEMORANDUM

MEMORANDUM OF UNDERSTANDING
BETWEEN
UNIVERSITY OF RHODE ISLAND
EARTH SCIENCE INFORMATION OFFICE
AND
THE DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY
MAPPING APPLICATIONS CENTER

I. PURPOSE

This Memorandum of Understanding sets forth the general terms and conditions under which the Earth Science Information Office and the U.S. Geological Survey (USGS) agree to operate an Earth Science Information Office in Kingston, RI.

II. BACKGROUND

The USGS, in cooperation with Federal and State agencies and universities, coordinates a national network of Earth Science Information Centers (ESICs) that provide earth and biological science information to the public. The National Mapping Division (NMD) provides oversight and guidance for the national ESIC network. Regional implementation and coordination of this agreement will be through the Mapping Applications Center and its ESIC office.

The Earth Science Information Office is the primary source of geological and earth science information for the State of Rhode Island. The Earth Science Information Office is a USGS business partner.

III. SCOPE

The Mapping Applications Center (MAC) and the Earth Science Information Office agree to the following policies and procedures regarding their efforts to preserve and provide access to geospatial data through archiving, physical database maintenance, clearinghouse activities, and data and information delivery.

IV. AUTHORITY

The mission of the USGS is to effectively perform the responsibilities described in the Office of Management and Budget Circular No. A-16, October 19, 1990. As cited in the Circular: "The Department of the Interior operates a network of Earth Science Information Centers, with responsibility to collect, maintain, and disseminate earth science information in support of national requirements. This responsibility includes establishing programs to identify such data available from other State and Federal agencies that are of general use, and the sources from which users may obtain those data."

Under the Office of Management and Budget Circular No. A-130, May 22, 1995, Federal agencies are tasked with strengthening partnership efforts with the States to create, organize, maintain, and disseminate information. All agencies must provide for dissemination of information in a manner that promotes the utility of the information to the public and "takes advantage of all dissemination channels".

V. DEFINITIONS

- Earth and biological science data includes cartographic, hydrologic, geologic, biologic and related data. USGS reference collections, information systems, and databases include extensive information concerning earth and biological sources of other Federal, State, and commercial organizations.
- Spatial data are geographically referenced features that are described by geographic position and attributes in an analog and/or computer-readable (digital) form. Earth and biological science data provide the foundation for development of national digital spatial information resources.
- Business Partner Agreement is an agreement with a private sector organization or State or local government for the non-exclusive distribution of products from one or more USGS product lines.
- Information Partnerships are cooperative agreements between organizations which define mutual objectives and activities. This cooperation facilitates information sharing for improved access to all earth science information and increased awareness of the respective missions.
- The National Spatial Data Infrastructure (NSDI) Clearinghouse is a distributed, electronically connected network of geospatial data producers, managers, and users.
- The national ESIC Network consists of Federal and State offices which cooperate to make earth science information accessible to the public (See Attachment A).

VI. RESPONSIBILITIES

The National Mapping Division will:

A. Provide mission and policy guidance for the national ESIC Network through the Office of Data and Information Delivery in Reston, Virginia.

B. Inform the Earth Science Information Office about the relevant programs and activities of other earth science-related organizations; and work to determine opportunities for coordination actions and projects that can be mutually beneficial to achieving the missions of both organizations.

C. Provide the Earth Science Information Office with access to appropriate USGS information sources, reference materials, and computerized databases for the purpose of processing earth science inquiries and customer orders. Access to reference sources (e.g. electronic catalogs, databases, and selected USGS intranet information) will be granted through MAC. Details for cooperative training and support activities between the two offices shall be determined annually.

D. Provide the Earth Science Information Office with current USGS indexes and catalogs for Rhode Island and adjacent States.

E. Provide the Earth Science Information Office with access to selected USGS databases for purposes of accessing and encoding information and data. The MAC-ESIC will provide training for entering this data into the appropriate databases.

F. Provide the Earth Science Information Office with appropriate customer-support and outreach publications, ESIC Bulletins, fact sheets, order forms, and computer-based demonstrations.

G. The Mapping Applications Center will provide the USGS State Representative an annual status report on this MOU describing the activities and related accomplishments.

The Earth Science Information Office will:

A. Provide space, personnel, and equipment to manage and operate an effective State ESIC. The office may be co-located with other information activities of a similar nature, and must be accessible by the public during normal working hours.

B. Maintain computer equipment and telecommunication links to selected USGS computers, web servers, and computerized databases for support of State ESIC activities.

C. Be knowledgeable about sources and availability of earth science data and metadata generated by the USGS. Assist in identifying, collecting, and organizing information for USGS information systems.

D. Provide earth science information and ordering assistance to government, commercial and private users.

E. Provide periodic reports to the MAC on the activities and accomplishments of the State ESIC.

F. Serve as a liaison for sharing relevant USGS information and expertise with State agencies and commercial interests.

G. Identify opportunities for joint activities of USGS personnel interacting with State agencies or commercial firms on programmatic activities or activities of mutual benefit.

H. Identify opportunities to cooperate with MAC in outreach efforts, exhibits, and meetings at the State level. Cooperate with MAC in expanding the USGS partnership and cooperator base through increasing outreach contacts with State, county, municipal, and commercial customers.

VII. PERIOD OF AGREEMENT

A. Effective Period

This agreement shall be in effect from the date of the last signature through October 1, 2002.

B. Review Cycle

This agreement will be reviewed yearly, or at the request of either party, for possible modification, as appropriate.

C. Modifying or Terminating Clause

This agreement may be modified at any time upon joint approval, or may be terminated by either agency upon 90 days written notice or at any time by mutual consent.

VIII. POINTS OF CONTACT

The MAC and the Earth Science Information Office designate the following persons as contacts for the resolution of technical and production-related questions:

Chief, Mapping Applications Center
U.S. Geological Survey
National Mapping Division
567 National Center
Reston, VA 20192
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Fax: (703) 648-4165

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State Geologist, Earth Science Information Office
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IX. APPROVALS