GIS MANAGEMENT INSTITUTE®

GIS CAPABILITY MATURITY MODEL

Introduction

The URISA GIS Capability Maturity Model is a key component of the GIS Management Institute®. Its primary purpose is to provide a theoretical model of a capable and mature enterprise GIS operation within a designated organization.

Many entities – primarily government agencies, but increasingly also private business and industry – utilize an enterprise geographic information system (GIS) to enhance the effectiveness of their operations and to provide a financial return on investment. URISA – the Urban and Regional Information Systems Association – has been at the forefront of the development of government and business applications of GIS for almost 50 years. Many new government and business services are only possible because of the use of geospatial technology. Recently, studies have shown that GIS use can also deliver significant return on investment (ROI) for agencies that deploy geospatial technology. Annual ROI rates of 10:1 or more have been documented.

But within the field of GIS management key questions remain. What are the characteristics of a capable enterprise GIS? What are the characteristics of a well-managed enterprise GIS? The URISA GIS Capability Maturity Model is designed to provide a framework for addressing these questions.

Intended uses:

The URISA GIS Capability Maturity Model will serve the GIS community as a stand-alone document to define the framework for an effective enterprise GIS. The Model was developed initially with a focus on local government agencies (cities, counties, regional agencies, and other similar entities) but it is intended for future use by any enterprise GIS. The initial local agency design is because of URISA's primary focus on this community amongst its active membership. As a stand-alone document, the Model will facilitate discussion amongst GIS managers and the decision makers who deploy and fund GIS about the appropriate components of a capable enterprise GIS and the characteristics of a well-managed GIS that maximizes effectiveness and ROI from a given level of investment.

The URISA GIS Capability Maturity Model will be used within the GIS Management Institute (GMI) to provide unifying cohesion to other products and services (refer to attached Diagram A). These will include:

- The GMI will identify individual components of the GIS Capability Maturity Model that require further research or clarification to provide effective guidance to GIS managers. It is anticipated that these individual Model components will be assigned to the GMI Professional Practices Division, URISA Labs program, to develop individual GIS management professional practices standards or GIS management best practices.

- The cumulative body of standards and best practices will form the GMI GIS Management Body of Knowledge (GMBOK). Each individual best practice or standard will clarify the characteristics of a capable or mature GIS, as outlined within the model. It is anticipated that the GMBOK will be comprised of 25-40 individual best practices documents.

- The URISA GIS Capability Maturity Model will also provide the framework for assessing and accrediting local agency enterprise GIS operations. This will be a key service provided to the global GIS community by the GMI Accreditation Division. Enterprise GIS assessments will be facilitated by the detailed descriptions of best practices within the GMBOK.

- Each best practice within the GMBOK (and through them the URISA GIS Capability Maturity Model framework) will also identify the learning objectives for an advanced educational program focused on enterprise GIS management. The GMI Accreditation Division will use this framework and detail for a program to accredit technical, college, and university GIS management educational programs.

- The URISA GIS Capability Maturity Model was developed and will be maintained in coordination with the URISA Geospatial Management Competency Model (GMCM). The URISA GIS Capability Maturity Model, the GMCM, and the GMBOK provide a framework for the GMI Certification Division to develop the components of a program to certify the competence of professional GIS managers. It is anticipated that these components will be used by the GIS Certification Institute to administer a future GIS Manager certification program.

- The URISA GIS Capability Maturity Model and the GMBOK will also identify learning objectives, educational requirements, and curriculum needs for effective professional GIS managers. The GMI Professional Practices Division will develop a comprehensive framework of GIS management educational requirements, along with recommendations for sources of such content, or where lacking, for development of URISA workshops, seminars, webinars, and other educational content. The Model and the GMBOK will allow the Professional Practices Division to develop a comprehensive URISA educational approach that focuses on meeting the educational needs of GIS managers. These requirements will be handed off to the URISA International Education Division for development of final content and its delivery via workshops, the URISA University, and the URISA GIS Leadership Academy.

Development Process

The original GIS Capability Maturity Model was developed in 2009 by Greg Babinski. It was administered that year on a self-assessment basis to city and county GIS operations within Washington State. The model and the results of the self-assessments were presented at a number of GIS Conferences in Washington, Oregon, and at the URISA Annual Conference in 2010. In 2010 the Model was adopted as a URISA initiative. The first major review of the Model occurred in May 2011, during the 2011 Washington GIS Conference in Lynnwood, Washington. At that event a task force of Washington and Oregon State GIS managers conducted a comprehensive day long review of the Model, along with development of the 'Strawman Draft' of the URISA Geospatial Management Competency Model (GMCM). Development of the GMCM was deemed critical to complete a revision to the Model, because of the connection between professional GIS management practices and the management of an enterprise GIS operation.

In July 2012 URISA announced development of the GIS Management Institute®, with both the GIS Capability Maturity Model and the Geospatial Management Competency Model as key components of this new program. In November 2012 the URISA GMI Committee began a comprehensive review and revision of the GIS Capability Maturity Model which culminated in February 2013. The GMI Committee then approved the following public peer review process:
- Final internal GMI Committee review and comment period of this draft. Publication of the GISCMM for public review and comments was approved during the March 26, 2013 meeting of the GMI Committee.
- External public review period on the URISA website between April and June 2013, with extensive outreach to the GIS management community.
- Revised draft based on public review comments circulated for consensus agreement by the GMI Committee during July and August 2013.
- Publication of this final approved version.

Members of the 2011 Washington GIS Managers Taskforce and of the 2012-2013 GMI Review Committee are listed below.

Background

GIS development life cycle:

GIS development typically starts as an idea and progresses towards full maturity. However, the reality of enterprise GIS operations is that development is limited by available funds. Often GIS starts as a capital project with the system designed to create the 'best GIS possible' with the funds at hand. This development scenario leads to frequent compromise and deferral of many aspects of ideal GIS development in order to 'go operational' quickly and start delivering value for the agency's investment. Even if a GIS implementation project is completed successfully, it does not mean that an agency has a mature GIS, or even a cost-effective GIS operation.

GIS professional staff often know that their operation could benefit from enhancement and refinement but funds, staff, or time for further development are very difficult to come by. Enhancements are often developed as part of GIS operations, but rarely on a systematic basis with a desired end state in mind.

What is a 'Capability Maturity Model?

A 'Capability Maturity Model' is defined as a tool to assess an organization's ability to accomplish a defined task or set of tasks. Typically a numeric rating system is used for a high-level comparison and analysis purposes. The concept of a capability maturity model originated with the Software Engineering Institute (SEI) as a means of assessing the capability of software contractors to complete large software design and development projects successfully. SEI published 'Managing the Software Process' in 1989 and

continues to refine the software capability maturity model. The Software CMM is 'process focused' in that it is based on how an organization performs the individual processes that are involved in software design and development.

Since the development of the SEI CMM, the capability maturity model concept has been applied in other areas, including:
- System engineering
- Project management
- Risk management
- Information technology services

The typical capability maturity model is based on an assessment of the subject organization's maturity level based on the characteristics of the organization's approach to individual defined processes. These processes are usually defined as:
- Level 1 – Ad hoc (chaotic) processes - typically in reaction to a need to get something done.
- Level 2 – Repeatable processes – typically based on recalling and repeating how the process was done the last time.
- Level 3 – Defined process – the process is written down (documented) and serves to guide consistent performance within the organization.
- Level 4 – Managed process – the documented process is measured when performed and the measurements are compiled for analysis. Changing system conditions are managed by adapting the defined process to meet the conditions.
- Level 5 – Optimized processes – The defined and managed process is improved on an on-going basis by institutionalized process improvement planning and implementation. Optimization may be tied to quantified performance goals.

The GIS Management Institute® chose to adopt the SEI maturity model assessment rating system for the Execution Ability portion of the GIS Capability Maturity Model.

GIS Maturity Assessments

In 2001 Gaudet, Annulis, and Carr published the 'Workforce Development Model for Geospatial Technology.' Although not an organizational maturity or capability assessment, it does provide a systematic approach to defining the core job functions (defined as roles) of a GIS organization and the competencies associated with each of the functions.

In 2007 the States of Georgia and Texas began collaborative development of a State GIS Maturity Assessment. This assessment focuses on a number of typical state GIS program and project related components. These components fall into seven broad categories:
- Geospatial Coordination and Collaboration
- Geospatial Data Development
- GIS Resource Discovery and Access
- Statewide Partnership Programs
- Participation in Pertinent National Partnership Programs and Initiatives
- Geospatial Polices, Standards, Guidelines, and Best Practices
- Training, Education, and Professional Networking Activities

Within these seven categories, state GIS organizations assess their development in 56 specific detailed characteristics based on their current implementation of each characteristic:
   1.00 pt – Fully Implemented
   0.75 pt. – In progress with full resources available to complete implementation
   0.50 pt. – In progress with partial resources available for implementation
   0.25 pt. – Planned – with resources assigned
   0.00 pt. – Not planned with no resources assigned

Because the State GIS Maturity Assessment seems focused on the typical coordination function of many state's GIS, it seem unsuitable for municipal, county, and other agency types of GIS with an enterprise operations focus and business end-user responsibilities.

The GIS Management Institute® chose to adopt a modified form of GIS Maturity Assessment rating system for the Enabling Capability portion of the GIS Capability Maturity Model:

[ ] 1.00 Fully implemented

[ ] 0.80 In progress with full resources available to achieve the capability

[ ] 0.60 In progress but with only partial resources available to achieve the capability

[ ] 0.40 Planned and with resources available to achieve the capability

[ ] 0.20 Planned but with no resources available to achieve the capability

[ ] 0.00 This desired, but is not planned

[ ] Not Applicable (This is a non-numeric response that requires an explanation of why this component should not be considered in assessing the operation.)

Why develop an Enterprise GIS Capability Maturity Model?

GIS in an enterprise environment is a highly complex system. Indeed, many of the processes that have had the CMM approach applied to them in the past are themselves interdependent components of an enterprise GIS. Because of this complexity, it seems useful to think about the ideal capability of an enterprise GIS operation in theoretical terms and then analyze and measure individual GIS operations against this theoretical ideal state.

The purpose of this proposed model is to provide a means for any enterprise GIS operation to gauge its maturity against a variety of standards and/or measures, including:
- A theoretical ideal end state of GIS organizational development
- The maturity level of other peer GIS organizations, either individually or in aggregate
- The maturity level of the subject organization over time
- The maturity level of the organization against an agreed target state (perhaps set by organizational policy, budget limitations, etc.)

What is meant by 'maturity' in relation to enterprise GIS operations?

Maturity for the proposed model indicates progression of an organization towards GIS capability that maximizes the potential for the use of state of the art GIS technology, commonly recognized quality data, and organizational best practices appropriate for agency business use. The URISA GIS Capability Maturity Model assumes two broad areas of GIS operational development: enabling capability and execution ability.

To clarify, maturity does not indicate old age. Maturity also does not necessarily mean that an organization excels at every aspect of GIS operations. Just like a mature person may have well developed athletic and math abilities, but intermediate cooking ability, and poor mechanical abilities, a mature GIS operation may excel at some of the characteristics inherent in GIS operations, but be less developed in others. However, this model assumes that there is a developmental ideal for GIS operations that any agency strives to achieve. This is similar to the classic Greek ideal of striving to excel at all of the intellectual, mechanical, and physical aspects of life.

It is recognized that agencies vary by size, business focus, goals, strategy, financial resources, and many other characteristics. While the Model assumes progression towards a theoretical state of capability and maturity, it is recognized that other valid comparisons include against 'best' actual capability and practices and 'average' actual capability and practices.

What are the characteristics of enterprise GIS operations that are used to assess an agency's maturity level?

As indicated above, the GIS Capability Maturity Model is based on an assessment of both enabling capability and execution ability. Briefly, enabling capability can be thought of as the technology, data, resources, and related infrastructure that can be bought, developed, or otherwise acquired to support typical enterprise GIS operations. Enabling capability includes GIS management and professional staff. However the ability (execution capability) of the staff to utilize the enabling technology at its disposal is subject to a separate assessment as part of the model.

The components of the GIS CMM and the assessment categories

The GIS Capability Maturity Model assumes that mature agencies have more well developed enabling technology and resources, and that their processes and practices maximize the effectiveness of their GIS infrastructure. Enabling capability includes technology components, data, professional GIS staff, an appropriate organizational structure, and other resources and infrastructure. Execution ability is the ability of the staff to maximize the use of the available capability, relative to a normative ideal.

In the following GIS CMM questionnaire, the questions are categorized by enabling capability and execution ability. For each question, the respondent is asked to self-assess their organization, provide comments, and describe documents and other evidence to support the initial self-assessment. Once the GMI accreditation program is fully operational, assessments will be subject to peer-review.

The enabling capability assessment scale is modeled after the State GIS Maturity Assessment. Because GIS enabling capability to some degree is dependent on resource availability, the modified State GIS Maturity Assessment Scale (with its resource-commitment focus) is well suited to indicating capability.

The execution ability assessment scale is modeled after the typical CMM process-based five-level scale. Because the execution ability of a mature GIS organization depends on how well it performs in key process areas, the typical CMM assessment scale (with its focus on process execution sophistication) is well suited to indicating ability.

The GIS CMM Questionnaire and the assessment process

Once agencies complete the questionnaire, they will have a benchmark resource for future self-assessments. Agencies are encouraged to be as objective as possible in their self-assessment. Small GIS operations should recognize that progression toward optimal capability and maturity may be difficult. But in any case an accurate assessment will identify weaknesses and development priority areas.
Agencies that complete a self-assessment are encouraged to submit it to the URISA GIS Management Institute®. Once the questionnaires are compiled and analyzed, the analysis will provide information for each agency to compare itself with. The GIS Management Institute® will publish an annual report on GIS capability and maturity based on the surveys submitted.

Review and Development Committee Membership

2011 Washington GIS Managers Task Force:

- Greg Babinski, GISP, King County (WA) GIS Center, Finance & Marketing Manager
- Steve Beimburn, City of Seattle (WA) GIS Manager
- Don Burdick, GISP, City of Bellingham (WA) GIS Manager
- Amy Esnard, GISP, Multnomah County (OR) GIS Manager
- George Horning, King County (WA) GIS Center Manager
- Tami Griffin, Thurston County (WA) GIS Manager
- Ian Von Essen, Spokane County (WA) GIS Manager

2012-2013 GMI Committee Members:

- Greg Babinski (Chair)
- Jochen Albrecht, Professor, Hunter College
- Mohammed Al Zifin, City of Dubai (UAE) IT Director
- Carl Anderson, Spatial Focus, Senior GIS Consultant
- Penny Baldock, Department for Families & Communities (South Australia) GIS Manager
- Eric Bohard, Clackamas County (OR) Technology Manager
- Keri Brennan, URISA Education Manager
- Clare Brown, New Orleans Regional Planning Commission
- Al Butler, City of Ocoee (FL) CIP Manager
- David DiBiase, Esri Education Director
- Peirce Eichelberger, gDBMS, GIS Manager
- Dianne Haley, DMH GIS Consulting CEO
- Valrie Grant, GeoTechVision Enterprises, GIS Consultant
- Kevin Mickey, Indiana University, Geospatial Technologies Education Director
- Nancy Obermeyer, Professor, Indiana University
- Hilary Perkins, City of Maryland Heights (MO), Planner
- Martin Roche, Geo Planning Services, CEO
- Cy Smith, State of Oregon GIO
- Rebecca Somers, GIS Management Consultant
- Dr. Chi Hong Sun, Taiwan GIS Center CEO
- Reed Tomlinson, Map Art Systems, CTO
- Wendy Nelson, URISA Executive Director

References

Babinski, Greg, 'URISA Proposes a Local Government GIS Capability Maturity Model' ArcNews, Winter 2010/2011.

Babinski, Greg, 'Geospatial Society, the GIS Profession, and URISA's GIS Management Institute' ArcNews, Fall 2012...

Capability Maturity Model, Wikipedia Article: http://en.wikipedia.org/wiki/Capability_Maturity_Model Accessed 8/3/2009).

Curtis, B., Hefley, W. E., and Miller, S. A.; People Capability Maturity Model (P-CMM), Software Engineering Institute, 2001.

Ford-Bey, M., PA Consulting Group, Proving the Business Benefits of GeoWeb Initiatives: An ROI-Driven Approach, GeoWeb Conference, 2008.

Gaudet, C., Annulis, H., and Carr, J., Workforce Development Models for Geospatial Technology, University of Southern Mississippi, 2001.

Jerry Simonoff, Director, IT Investment & Enterprise Solutions, Improving IT investment Management in the Commonwealth, Virginia Information Technology Agency, 2008.

Niessink, F. and van Vliet, H., Towards Mature IT Services, Faculty of Mathematics and Computer Science, Vrije Universiteit Amsterdam, ND.

Niessinka, F., Clerca, V., Tijdinka, T., and van Vlietb, H., The IT Service Capability Maturity Model, CIBIT Consultants | Educators, 2005

Selena Rezvani, M.S.W., An Introduction to Organizational Maturity Assessment: Measuring Organizational Capabilities, International Public Management Association Assessment Council, ND.

Urban and Regional Information Systems Association and U.S. Department of Labor (2012). Geospatial Management Competency Model. http://www.urisa.org/resources/geospatial-management-competency-model/.

Zachman Institute, About the Zachman Framework: http://zachman.com/about-the-zachman-framework Accessed September 2013.

Enabling Capability Components

For each question in the 'Enabling Capability' section, read the brief description. Check the implementation category

    [ ] 1.00 Fully implemented

    [ ] 0.80 In progress with full resources available to achieve the capability

    [ ] 0.60 In progress but with only partial resources available to achieve the capability

    [ ] 0.40 Planned and with resources available to achieve the capability

    [ ] 0.20 Planned but with no resources available to achieve the capability

    [ ] 0.00 This desired, but is not planned

    [ ] Not Applicable (This is a non-numeric response that requires an explanation of why this component should not be considered in assessing the operation.)

    Comments:

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation

EC1. Framework GIS Data
 	
Complete assessment for each data layer:
a. Geodetic Control
b. Cadastral
c. Orthoimagery
d. Elevation
e. Hydrography
f. Administrative Units
g. Transportation
	Does the agency have access to adequate framework GIS data to meet its business needs? For the GISCMM, framework data corresponds to jurisdiction-wide common base layers as defined by the agency to meet its business needs.
	For reference, refer to the NSDI framework data layers (see http://www.fgdc.gov/framework/).
	
	See also EC2, below)
		44. Apply QA/QC best practices
		73. Recognize geospatial data as a capital asset
		74. Manage the asset lifecycle:
		    a. Establish and maintain an up-to-date asset inventory
		    b. Procure and upgrade assets
		    c. Implement and periodically audit security procedures for assets such as work spaces, equipment, computer networks, data, and software
		    d. Implement computer system back-ups and periodically test reliability of backup procedures
		    e. Implement sound data management procedures
			Assessment
			[ ] 1.00 Fully implemented
			[ ] 0.80 In progress with full resources available to achieve the capability
			[ ] 0.60 In progress but with only partial resources available to achieve the capability
			[ ] 0.40 Planned and with resources available to achieve the capability
			[ ] 0.20 Planned but with no resources available to achieve the capability
			[ ] 0.00 This desired, but is not planned
			[ ] Not applicable (explanation required)
			Comments:
			
			Does your agency use recognized professional standards for this component?'
			Does your agency use a formal internal standard for this component?
			Describe Documentation

EC2. Framework GIS Data Maintenance
 	
Complete assessment for each data layer:
a. Geodetic Control
b. Cadastral
c. Orthoimagery
d. Elevation
e. Hydrography
f. Administrative Units
g. Transportation
	Are data stewards defined for each framework GIS data layer and the data is maintained (kept up to date) to meet business needs?
	• *Refer to EC6 for description of the ideal data environment.*
	• *There could very likely be multiple stewards*
	• *The Enterprise GIS responsibility is that there are no gaps in coverage*
	• *In performing the assessment, every framework component should be covered*
		44. Apply QA/QC best practices
		73. Recognize geospatial data as a capital asset
		74. Manage the asset lifecycle:
		    a. Establish and maintain an up-to-date asset inventory
		    b. Procure and upgrade assets
		    c. Implement and periodically audit security procedures for assets such as work spaces, equipment, computer networks, data, and software
		    d. Implement computer system back-ups and periodically test reliability of backup procedures
		    e. Implement sound data management procedures
			Assessment
			[ ] 1.00 Fully implemented
			[ ] 0.80 In progress with full resources available to achieve the capability
			[ ] 0.60 In progress but with only partial resources available to achieve the capability
			[ ] 0.40 Planned and with resources available to achieve the capability
			[ ] 0.20 Planned but with no resources available to achieve the capability
			[ ] 0.00 This desired, but is not planned
			[ ] Not applicable (explanation required)
			Comments:
			
			Does your agency use recognized professional standards for this component?'
			Does your agency use a formal internal standard for this component?
			Describe Documentation

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EC3. Business GIS Data Complete assessment for each data layer: a. Example: situs address b. Name: c. Name: d. Name: **e.** Name:	Does the agency have access to adequate business data (non-framework GIS data) to meet its business needs? • *Need for data based on agency business needs, therefore this data will vary from agency to agency; specific business data layers will not be comparable from agency to agency* • *Agency completing the assessment should name at least 5 but no more than 10 business data types. These business data layers should also be assessed under EC4, below.*	44. Apply QA/QC best practices 73. Recognize geospatial data as a capital asset 74. Manage the asset lifecycle: a. Establish and maintain an up-to-date asset inventory b. Procure and upgrade assets c. Implement and periodically audit security procedures for assets such as work spaces, equipment, computer networks, data, and software d. Implement computer system back-ups and periodically test reliability of backup procedures e. Implement sound data management procedures	<u>Assessment</u> [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) <u>Comments:</u> Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? <u>Describe Documentation</u>
EC4. Business GIS Data Maintenance Complete assessment for each data layer: a. Example: situs address b. Name: c. Name: d. Name: e. Name:	Does the agency have data stewards defined for each business GIS data layer and is the data is maintained (kept up to date) to meet business needs? • *Also refer to EC3 above for business* • *Refer to EC7 below, for ideal data environment*	44. Apply QA/QC best practices 73. Recognize geospatial data as a capital asset 74. Manage the asset lifecycle: a. Establish and maintain an up-to-date asset inventory b. Procure and upgrade assets c. Implement and periodically audit security procedures for assets such as work spaces, equipment, computer networks, data, and software d. Implement computer system back-ups and periodically test reliability of backup procedures e. Implement sound data management procedures	<u>Assessment</u> [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) <u>Comments:</u> Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? <u>Describe Documentation</u>

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EC5. GIS Data Coordination	Is there an enterprise GIS data coordination function and/or committee to rationalize framework and business GIS data development, access, and maintenance? • *This could be a function of a GIO (chief geographic information officer), a governance function, or an enterprise GIS office function, depending on desired level of formality or institutionalization.*	44. Apply QA/QC best practices 73. Recognize geospatial data as a capital asset 74. Manage the asset lifecycle: a. Establish and maintain an up-to-date asset inventory b. Procure and upgrade assets c. Implement and periodically audit security procedures for assets such as work spaces, equipment, computer networks, data, and software d. Implement computer system back-ups and periodically test reliability of backup procedures e. Implement sound data management procedures	<u>Assessment</u> [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) <u>Comments:</u> Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? <u>Describe Documentation</u>
EC6. Metadata	Is metadata available and maintained for all framework and business data layers? • *Is there a rationale for accepting any data without metadata?*	44. Apply QA/QC best practices 73. Recognize geospatial data as a capital asset 74. Manage the asset lifecycle: a. Establish and maintain an up-to-date asset inventory b. Procure and upgrade assets c. Implement and periodically audit security procedures for assets such as work spaces, equipment, computer networks, data, and software d. Implement computer system back-ups and periodically test reliability of backup procedures e. Implement sound data management procedures	<u>Assessment</u> [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) <u>Comments:</u> Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? <u>Describe Documentation</u>

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EC7. Spatial Data Warehouse	Is an enterprise spatial data infrastructure in place that includes a centralized production database environment available for GIS data stewards to compile the official version of framework and business spatial data? • *Is a separate spatial data warehouse available for GIS users to access and download the official published version of the data for GIS applications?* • *Is there a consistent data structure and are there consistent practices for effective data maintenance, posting and processing?* • *Is the enterprise GIS the authoritative source of spatial data for the organization?*	45. Ensure continuity of geospatial operations 73. Recognize geospatial data as a capital asset	<u>Assessment</u> [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) <u>Comments:</u> Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? <u>Describe Documentation</u>
EC8. Architectural Design	Does an architectural design exist that defines the current state and planned future development of the technical infrastructure? Does the architectural design guide the investment in GIS technical infrastructure? • *Does the GIS Architectural design support the business architecture and all business activities, per the Zachman Framework (or similar)?* • *Does it align with agency IT standards and architecture?* • *Does the agency analyze architectural gaps and drive IT standards and architectural design criteria?* • *Note that architectural design(8) and Technical infrastructure (9) are interrelated*	1. Keep up with technology trends and standards 45. Ensure continuity of geospatial operations 71. Understand enterprise geospatial architecture 72. Ensure that geospatial technology infrastructure meets organization needs	<u>Assessment</u> [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) <u>Comments:</u> Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? <u>Describe Documentation</u>

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EC9. Technical Infrastructure	Is there technical infrastructure in place to maintain and operate the GIS *and to meet the agency business needs*? • *Meeting agency business needs should be defined against agreed performance criteria. Technical infrastructure includes hardware (servers, storage, desktops, input and output peripherals), network components, operating system, and GIS software.* • *Note that architectural design(8) and Technical infrastructure (9) are interrelated*	71. Understand enterprise geospatial architecture 74. Manage the asset lifecycle: a. Establish and maintain an up-to-date asset inventory b. Procure and upgrade assets c. Implement and periodically audit security procedures for assets such as work spaces, equipment, computer networks, data, and software	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation
EC10. Replacement Plan	Is there a plan in place and implemented to replace technical infrastructure components (hardware, network components, current imagery, and other procured data) that have a defined 'end of useful life?	72. Ensure that geospatial technology infrastructure meets organization needs 74. Manage the asset lifecycle: a. Establish and maintain an up-to-date asset inventory b. Procure and upgrade assets	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EC11. GIS Software Maintenance	Is GIS software available and adequate to meet agency business needs and is it under maintenance to ensure long term support and development? • If open-source' GIS software is used, is alternate support and development capability available and are the real costs of operation and maintenance accounted for?	72. Ensure that geospatial technology infrastructure meets organization needs 74. Manage the asset lifecycle: a. Establish and maintain an up-to-date asset inventory b. Procure and upgrade assets c. Implement and periodically audit security procedures for assets such as work spaces, equipment, computer networks, data, and software	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation
EC12. Data back-up and security	Is a computer back-up system in place to ensure the security of GIS data and applications? • Is the backup system is tested periodically by tests to restore sample data? • Is system security in place to control internal and external access to GIS data and applications as appropriate? • Is a GIS data archiving and preservation program in place?	72. Ensure that geospatial technology infrastructure meets organization needs 74. Manage the asset lifecycle: a. Establish and maintain an up-to-date asset inventory c. Implement and periodically audit security procedures for assets such as work spaces, equipment, computer networks, data, and software d. Implement computer system back-ups and periodically test reliability of backup procedures e. Implement sound data management procedures	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation
EC13. GIS Application Portfolio	If required to meet the needs of agency GIS users/clients, is a portfolio of custom or off-the-shelf GIS or GIS enabled applications available?	44. Apply QA/QC best practices 48. Adopt a customer service orientation 52. Manage a portfolio of projects effectively	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EC14. GIS Application Portfolio Management	Is the agency's GIS application portfolio managed to a common design and development framework?	44. Apply QA/QC best practices 52. Manage a portfolio of projects effectively	<u>Assessment</u> [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) <u>Comments:</u> Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? <u>Describe Documentation</u>
EC15. GIS Application Portfolio O&M	Is the agency's GIS application portfolio kept viable via ongoing support and application maintenance?	44. Apply QA/QC best practices 52. Manage a portfolio of projects effectively	<u>Assessment</u> [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) <u>Comments:</u> Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? <u>Describe Documentation</u>

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EC16. Professional GIS Management	Is the agency GIS managed by a qualified manager with appropriate education, experience, and credentials?	46. Monitor stakeholder satisfaction 48. Adopt a customer service orientation 49. Apply project management knowledge and best practices 50. Understand and apply the geospatial technology components of projects (as outlined in the Department of Labor's Geospatial Technology Competency Model) to accurately establish scope, resources, schedule and quality requirements for project success 51. Identify collaborative opportunities to achieve project 59. Prepare Statements of Work (SOW) defining project objectives and requirements	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation
EC17. Professional GIS Operations Staff	Is the agency GIS operated and maintained by an adequate staff with appropriate professional qualifications? • For purposes of the GISCMM, adequate operational staffing is defined as meeting the 'roles' defined by the Geospatial Technology Competency Model – see: http://www.careeronestop.org/CompetencyModel/pyramid.aspx?GEO=Y.	5. Develop a geospatial staffing plan to meet business needs 6. Recruit and hire competent geospatial and support staff 7. Define geospatial work functions and assign appropriate staff 48. Adopt a customer service orientation 50. Understand and apply the geospatial technology components of projects (as outlined in the Department of Labor's Geospatial Technology Competency Model) to accurately establish scope, resources, schedule and quality requirements for project success	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation •
EC18. GIS Staff Training and Professional Development	Do the agency GIS manager and other professional staff have access to on-going training to maintain and develop their technical and operational knowledge, skills, and abilities?	48. Adopt a customer service orientation	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EC19. GIS Governance Structure	Does the agency have a formal GIS governance structure that links the GIS operation both to users and to key decision makers? • For some agencies (very small or with well-oiled enterprise GIS) a formal committee structure may not be required. A formal committee is a traditional practice, but in everyday practice, many agencies proceed without such a formal committee structure. Does the agency's governance address: • Long-range planning • Stakeholder satisfaction • Ability for business stakeholders to leverage initiatives	46. Monitor stakeholder satisfaction 54. Pursue goals tactfully in context of particular organizational cultures and governance structures	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation •
EC20. GIS is Linked to Agency Strategic Goals	Does the GIS as it exists have a defined responsibility and a clearly defined role in supporting the strategic goals of the agency?	17. Communicate the value of geospatial technology to decision makers and stakeholders 46. Monitor stakeholder satisfaction 48. Adopt a customer service orientation	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EC21. GIS Budget	Does the GIS operation develop a comprehensive budget that includes (at a minimum) labor, hardware, software, data, consulting, and training costs? • This mean either a separate GIS budget or embedded budget components that the GIS manager has input on and can base planning and programs upon as the budget is expended.	Legal Affairs and Policy Management: 64. Prepare and document budgets	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation
EC22. GIS Funding	Does the GIS organization have adequate funding for (at a minimum) labor, hardware, software, data, consulting, and training costs?	66. Identify funding sources and obtain funding, including collaborative opportunities	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation

Enabling Capability (EC) Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EC23. GIS Financial Plan	Does the GIS-organization have a financial plan that includes a funding model (where the money is coming from) and that also projects future episodic costs for equipment, imagery, and other data replacement?	67. Develop and manage a long term financial plan	Assessment [ ] 1.00 Fully implemented [ ] 0.80 In progress with full resources available to achieve the capability [ ] 0.60 In progress but with only partial resources available to achieve the capability [ ] 0.40 Planned and with resources available to achieve the capability [ ] 0.20 Planned but with no resources available to achieve the capability [ ] 0.00 This desired, but is not planned [ ] Not applicable (explanation required) Comments: Does your agency use recognized professional standards for this component?' Does your agency use a formal internal standard for this component? Describe Documentation

Execution Ability Components

For each question in the 'Execution Ability' section, read the brief question and description. Check the implementation category that best describes your agency's current status.
Feel free to include any clarifying comments or questions.

[ ] Level Five: Optimized processes
[ ] Level Four: Managed and measured processes
[ ] Level Three: Defined processes
[ ] Level Two: Repeatable processes
[ ] Level One: Ad-hoc processes
Comments:

Execution Ability Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EA1. New Client Services Evaluation and Development	How does the GIS operation evaluate new agency business needs for GIS services and develop plans to respond to new client service requests? • This component should include a timeline/turn-around response focus. • Are new services evaluated against the agency strategic plan? • Are new services evaluated against ROI criteria…does it make financial sense? • Level 5 – optimized process – requires looking at existing services also and evaluating them to provide optimized services.	46. Monitor stakeholder satisfaction 48. Adopt a customer service orientation 50. Understand and apply the geospatial technology components of projects (as outlined in the Department of Labor's Geospatial Technology Competency Model) to accurately establish scope, resources, schedule and quality requirements for project success 54. Pursue goals tactfully in context of particular organizational cultures and governance structures 59. Prepare Statements of Work (SOW) defining project objectives and requirements 63. Develop service level agreements	<u>Assessment</u> [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes <u>Comments:</u> Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? <u>Describe Documentation</u>
EA2. User Support, Help Desk, and End-User Training	How does the GIS operation support end users, including user guides, help documentation, training, and ad-hoc help-desk and/or on-site support? • This component should include a timeline/turn-around response focus • *This should include a 'train-the-trainer program.*	44. Apply QA/QC best practices 48. Adopt a customer service orientation	<u>Assessment</u> [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes <u>Comments:</u> Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? <u>Describe Documentation</u>

Execution Ability Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EA3. Service Delivery Tracking and Oversight	How does the GIS unit monitor and evaluate client service delivery?	44. Apply QA/QC best practices	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA4. Service Quality Assurance	How does the GIS operation ensure the quality of services provided to clients? • *This should also recognize the quality that can be provided may be dependent upon the time available to meet the client's needs*	44. Apply QA/QC best practices 48. Adopt a customer service orientation	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA5. Application Development or Procurement Methodology	How does the GIS operation develop custom GIS applications? • *Do GIS applications align with and support business needs?* • *How does the GIS Operation preform requirements development and development execution strategy, including build vs. buy decision?* • *How does the GIS Operation manage GIS application development when in-house programming is not included within the GIS operation?* • *This should also recognize the quality that can be provided may be dependent upon the time available to meet the client's needs*	44. Apply QA/QC best practices 50. Understand and apply the geospatial technology components of projects (as outlined in the Department of Labor's Geospatial Technology Competency Model) to accurately establish scope, resources, schedule and quality requirements for project success 59. Prepare Statements of Work (SOW) defining project objectives and requirements	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation

Execution Ability Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EA6. Project Management Methodology	How does the GIS operation manage projects for which it is responsible? • Projects could be either executed in-house or by an outside contractor.	8. Establish clear performance expectations · · 9. Maintain individual and organizational accountability 49. Apply project management knowledge and best practices 50. Understand and apply the geospatial technology components of projects (as outlined in the Department of Labor's Geospatial Technology Competency Model) to accurately establish scope, resources, schedule and quality requirements for project success 59. Prepare Statements of Work (SOW) defining project objectives and requirements	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA7. Quality Assurance and Quality Control	How does the GIS operation assure a reasonable and appropriate level of quality for projects and for ongoing GIS system operation, to meet defined business needs? • System operations include database maintenance and spatial data warehouse processes. • Data is a key enterprise GIS component for effective QA/QC. • Perhaps there are several processes against which this maturity component should be applied.	44. Apply QA/QC best practices	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA8. GIS System Management	How does the GIS operation manage the core GIS systems that it is responsible for? • GIS system management includes system administration, database administration, network administration, system security, data backup, security, and restore processes, etc. • If these functions are managed within the GIS Operation, there should be defined procedures/best practices. But if the functions are provided outside the GIS operation, these procedures and best practices should form the basis for well-defined service level agreements.	45. Ensure continuity of geospatial operations 71. Understand enterprise geospatial architecture 72. Ensure that geospatial technology infrastructure meets organization needs 73. Recognize geospatial data as a capital asset 74. Manage the asset lifecycle: a. Establish and maintain an up-to-date asset inventory b. Procure and upgrade assets c. Implement and periodically audit security procedures for assets such as work spaces, equipment, computer networks, data, and software d. Implement computer system back-ups and periodically test reliability of backup procedures e. Implement sound data management procedures	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
Execution	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation

Ability Component			
EA9. Process Event Management	How does the GIS operation manage GIS system process events? • Typical process events include planned hardware and software upgrades, unplanned hardware failure and data loss and restore events. • This should include well defined change management best practices, for both routine/batch processes, and for significant system upgrades/modifications.	49. Apply project management knowledge and best practices	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA10. Contract and Supplier Management	How does the GIS operation manage its purchasing and contracting processes to ensure the best value for the supplies and services that it acquires?	58. Prepare, negotiate, monitor, administer, and remediate contracts 59. Prepare Statements of Work (SOW) defining project objectives and requirements 60. Prepare competitive solicitations including project rationale and objectives, existing geospatial technology assets, desired services, and final deliverables 61. Prepare proposals including understanding of need, technical approach and proposed technology, final deliverables, schedule, budget, and relevant qualifications 62. Prepare objective selection criteria and scoring mechanism to fairly evaluate proposals 63. Develop service level agreements	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA11. Regional Collaboration	How does the GIS operation manage regional collaboration to ensure that opportunities to share in the development and operation of data, infrastructure, and applications are pursued, and that the agency's GIS is leveraged to benefit other potential local partners?	46. Monitor stakeholder satisfaction 51. Identify collaborative opportunities to achieve project goals 23. Develop and maintain relationships with other organizations to promote mutually advantageous partnerships and best practices	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation

Execution Ability Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EA12. Staff Development	How does the GIS operation manage the process of hiring and developing its staff to ensure that individual staff member skills are developed appropriate to current and emerging technical and business needs? • How does the GIS operation ensure that its staff resources meet its operational requirements for individual GIS competencies, including back-up and succession planning? • A best practice would include a well-defined and effective performance management and appraisal system. • A key objective would be minimizing risk to the organization, while enhancing staff effectiveness and productivity.	Human Resources Management: 37. Prepare and implement a geospatial staff competency plan 38. Provide opportunities for continuing professional development 39. Encourage contributions to the profession 45. Ensure continuity of geospatial operations 48. Adopt a customer service orientation 50. Understand and apply the geospatial technology components of projects (as outlined in the Department of Labor's Geospatial Technology Competency Model) to accurately establish scope, resources, schedule and quality requirements for project success	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA13. Operation Performance Management	How does the GIS operation manage performance of its operations as a whole? • This is the single key indicator of organizational process maturity and execution ability? Perhaps an organization's rating in this area would serve as a ceiling for its overall rating.	Performance Management: 8. Establish clear performance expectations 9. Maintain individual and organizational accountability 10. Acknowledge and encourage exceptional achievement 11. Remediate performance shortfalls effectively 18. Foster an environment conducive to teamwork 19. Assemble, charge, and enable effective work teams 49. Apply project management knowledge and best practices	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation

Execution Ability Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EA14. Individual GIS Staff Performance Management	How does the GIS operation manage individual employee staff performance?	Performance Management: 8. Establish clear performance expectations 9. Maintain individual and organizational accountability 10. Acknowledge and encourage exceptional achievement 11. Remediate performance shortfalls effectively 18. Foster an environment conducive to teamwork 19. Assemble, charge, and enable effective work teams 49. Apply project management knowledge and best practices	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA15. Client Satisfaction Monitoring and Assurance	How does the GIS operation monitor, assess, and assure the satisfaction of its clients? • Ideally, clients should be surveyed to indicate their satisfaction with individual projects and with the enterprise GIS operation as a whole.	21. Develop and maintain long-term client relationships 46. Monitor stakeholder satisfaction 48. Adopt a customer service orientation 63. Develop service level agreements	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA16. Resource Allocation Management	How does the GIS optimize use of its operational staff and of other resources at its disposal, both to minimize costs and to achieve maximum overall effectiveness for the enterprise? • This should include a global correlation between an organization's resources and the services that it provides, both internal and external.	19. Assemble, charge, and enable effective work teams 37. Prepare and implement a geospatial staff competency plan 38. Provide opportunities for continuing professional development 45. Ensure continuity of geospatial operations 49. Apply project management knowledge and best practices 59. Prepare Statements of Work (SOW) defining project objectives and requirements	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation

Execution Ability Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EA17. GIS data sharing	Is GIS data sharable and is it shared? How does the GIS operation leverage shared and sharable GIS data to maintain effectiveness and minimize cost and redundant functions?	22. Develop and maintain collaborative relationships within the organization 23. Develop and maintain relationships with other organizations to promote mutually advantageous partnerships and best practices	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA18. GIS Software License Sharing	Are GIS software licenses sharable and are they shared? • How does the GIS operation leverage shared and sharable GIS software to maintain effectiveness and minimize cost and redundant services?	22. Develop and maintain collaborative relationships within the organization 23. Develop and maintain relationships with other organizations to promote mutually advantageous partnerships and best practices	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA19. GIS data inter-operability	Are agency framework and business geospatial data sources capable of being integrated and accessed in a technically appropriate and efficient manner?		Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation

Execution Ability Component	Characteristics	URISA GMCM Competency Category	Assessment, Comments, and Documentation
EA20. Legal and policy affairs management	Are the GIS organization's activities conducted to comply with appropriate legal and policy guidelines and requirements? • Does the GIS organization promote appropriate changes to the legal and policy framework to support effective enterprise GIS operations?		Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA21. Balancing minimal privacy with maximum data usage	Does the GIS operation adhere to open data sharing principles to the maximum potential while minimizing administrative hurdles and roadblocks? • Does the GIS operation apply the maximum care to ensure the security of the minimum domain of restricted confidential data?	13. Comply with all relevant laws and regulations 14. Follow relevant professional codes of ethics	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation
EA22. Service to the community and to the profession	Does the GIS operation support the GIS Certification Institute's and the URISA GIS Code of Ethics 'Contributions to the Profession' guidelines? • Does the GIS operation support and encourage efforts by its staff members for appropriate professional outreach, educational, and community service activities related to GIS?	39. Encourage contributions to the profession.	Assessment [ ] Level Five: Optimized processes [ ] Level Four: Managed and measured processes [ ] Level Three: Defined processes [ ] Level Two: Repeatable processes [ ] Level One: Ad-hoc processes Comments: Does your agency use recognized professional best practices for this component?' Does your agency use a formal internal practice or procedure for this component? Describe Documentation