

QA/QC for GIS Data: Creating a Quality Assurance Plan

Transcript

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Welcome to our ESRI Instructional Series podcast: Creating a Quality Assurance Plan for GIS Data.

I'm Keith Mann from Educational Services at ESRI in Redlands, California. Today, I will be talking about an often overlooked but important component of QA/QC, the quality assurance plan. This discussion is tailored to GIS managers and coordinators and GIS data producers.

What does a quality assurance plan have to do with your quality assurance program? If a quality assurance program is designed to protect and sustain your GIS, a quality assurance plan is the document used to define every aspect of the program. It identifies data criteria and quality standards, and it outlines methods and procedures for measuring data against those criteria and standards. The quality assurance plan provides a guideline for applying quality control to your GIS project. A quality assurance plan should be tailored for each project. For example, if you have two projects—one for migrating data into your GIS, and another for making a series of maps—you should create a quality assurance plan for each project.

What does a quality assurance plan look like? Well, the content of a quality assurance plan may differ from project to project. You can break down the document into four basic sections. Each section is used to explain different aspects of the quality assurance program. You should have a project management section, a project design section, a project data assessment section, and a project reporting and oversight section. I'll talk more about each of these sections in just a moment. Keep in mind that this structure I'm presenting is only an example of how you might go about designing a quality assurance plan. You can use it or modify it to design your own quality assurance plan.

Your quality assurance plan should begin with a project *management* section. This is where you establish the scope of the QA/QC project. This section contains the title page, the table of contents, an introduction, and perhaps some background on the project itself. Here is also where you define the purpose and objectives of the plan, which of course is to ensure data quality. You can also use this section to identify roles and responsibilities of everyone involved in QA/QC and the project.

The next section of a quality assurance plan is the project *design* section. Here is where you take care of the logistics of implementing QA/QC with the project. You can use this section to explain

the processes of how the plan was accepted. Since most GIS projects involve a lot of communication and source materials, you can establish data and document management procedures in this section also. This is sometimes known as materials control. If you're working with other departments or contractors, this section is where you define the deliverables you expect, as well as the schedule of delivery and review. Most importantly, you use this section to specify acceptance criteria for each dataset. This is usually a number or percentage describing the amount of error you are willing to accept for each dataset.

The next section of a quality assurance plan is the project *data assessment* section. In this section you list the quality control checks you intend to perform. You describe the types, or methods, of quality control checks. You name specific tools in environment settings. You describe visual inspection techniques, and you identify the name and location of specific source and reference materials, like aerial photographs. You can use this section to illustrate quality control procedures using work-flow diagrams. This is also the place to provide the name and location of relevant documents for assessing data. This is where you can point to database design documents or data models. You can also refer to product definition documents, which describe how features are created (for example, how to digitize a street center-line). You can also refer to data and metadata standards for your organization.

The final section of a quality assurance plan is the project *reporting and oversight* section. In this section you define how you report the results of quality control during the course of the project. Since unexpected problems are sure to come up from time to time, here's where you describe the process of how those problems will be handled and resolved. You can also use this section to describe the process for making changes to the quality assurance plan. This is sometimes referred to as change control.

Once a quality assurance plan is agreed upon by the project participants, you should test it with a pilot project. In this case, a pilot project is a trial run of the full production quality assurance program. The pilot project is typically a representative database that may be a subset of the entire project database. In the pilot project, you test the quality assurance plan and quality control procedures against the pilot database. If you're successful using the quality assurance plan to perform quality control on the pilot database, you're ready to go into full production. If you find that during pilot testing the quality assurance plan is inadequate, you should make the necessary

changes to the plan and run the pilot again. If the plan is changed, make sure to reissue the new plan with a new version number—the version number is typically placed on the title page.

Let me review the topics covered in this broadcast. A quality assurance plan defines all aspects of a quality assurance program. A quality assurance plan is just a document; in it, you identify the quality standards you want your data to adhere to, and outline the methods and procedures you use to measure the data against those standards. You can break down the quality assurance plan into four sections: a project management section (where you describe the project), a project design section (where you define your acceptance criteria for data quality), a data assessment section (where you list the types of quality control checks you plan to perform on the data), and a project reporting and oversight section (where you explain how the assessment will be reported and how unanticipated problems will be dealt with). Once you design a quality assurance plan, you should test it against a pilot database.

For more resources, please check out our instructor-led training courses at www.esri.com/training. This discussion touched on topics that are covered in our two-day instructor-led course *QA/QC for GIS Data*. Thank you for tuning into this session of our ESRI Instructional Series podcast. Stay tuned for future broadcasts.