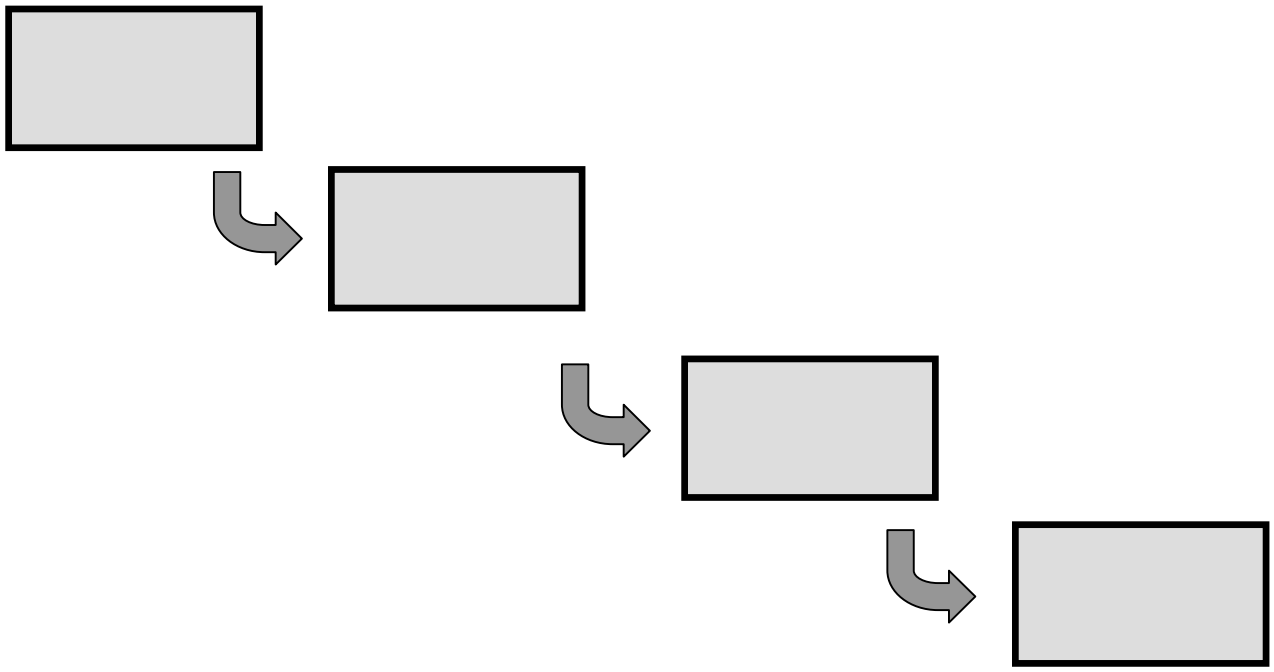
Step-by-Step Summary of Data Standards Adoption and Maintenance

This guidance provides help for selecting, modifying, adopting, or creating data standards for Bureau of Land Management (BLM) business activities. It also covers implementing and maintaining those standards. It can be used in a variety of ways, from selecting an existing industry standard to the opposite extreme of developing a brand-new standard to meet a need that is not served by existing standards. You should pick the steps that fit your situation, so long as the consultation and approval steps are completed.

These steps can work for all types of standards. It will work for content standards, display standards, data entry standards, quality standards, metadata standards, and all other standards. Geospatial standards fit just as well.

The chart below shows the four main steps in managing a BLM data standard, from the first identification of need for a standard, through maintenance and eventual retirement and replacement of the standard. The step-by-step procedure that follows is keyed to these main steps.



A. **Propose Data Standard.** These steps produce an approved proposal to adopt or change a data standard. A request for the new data standard from a BLM business program begins the process. As a practical matter, the requirement normally will be identified by the National Data Steward and other subject matter experts. The National Data Steward sets a priority based on business needs and resources.

1. The BLM business community requests the appropriate National Data Steward to provide a new data standard. (In general, the Data Steward serves as the conduit to the affected business community.)
2. The National Data Steward appoints a data standard adoption team leader and data standard adoption team, and they develop a proposal for the new standard. This proposal sets out all the information needed by management to decide whether this effort is worth the costs and other impacts.
3. The draft proposal is evaluated by the business community, State Data Administrators, and others, and eventually is finalized by the data standard adoption team. A request for approval is routed to management of the benefiting activities. When approval is received, the team advances to the next major step, "Adopt Data Standard."

B. **Adopt Data Standard.** Approval of this proposal triggers all the steps to research, coordinate, draft, obtain consensus, and complete a data standard, which is documented in a *"Data Standard Report."* The Data Standard Report publishes the new standard, and also provides background information on need, sources, participation, and implementation.

1. The data standard adoption team produces a draft report by going through the steps approved in their proposal.
2. A broader audience of reviewers, including the business community, evaluates the standard.
3. Evaluation results provide the basis for preparing a final standards report, which goes through a review cycle.
4. After comments have been addressed, the final data standards report is attached to a formal Instruction Memorandum and is then sent through the directive approval process.

These general steps break out into the following more detailed steps:

a. Establish team administration rules and agreements to govern membership, resolution of disagreements, and meeting schedules.
b. Find, and coordinate with, related standards development or maintenance efforts in the BLM, other agencies, or industry standards-setting groups. Review existing standards and formats, as well as common practices in the field, to confirm whether this effort can build on existing standards and experience.
c. Maintain continuing informal review by a broad spectrum of professionals in the affected field, in order to migrate successive drafts toward a consensus that serves most needs.
d. Perform formal project management. This is especially important in this particular step, because the constant reviews may very well yield recommendations to expand or redirect the scope of the standard. Changes in scope may be perfectly appropriate. Evaluate any proposed change in scope for impacts on the work breakdown structure, schedule, budget, and risks.

e. Create thorough documentation of team meetings, decisions, and products. Manage and maintain this documentation according to the Records Act, during and after the project.
f. Perform formal testing of the draft standard, against a challenging variety of data sets.
g. Conform to Office of Management and Budget (OMB) Circular A-119, Executive Order 12906, and any other relevant directives. Conform to Federal Geographic Data Committee (FGDC) requirements where they apply (http://www.fgdc.gov/standards/directives/directives.html).
h. Ensure that the effort complies with the Department of the Interior (DOI), and Government-wide directives concerning implementation of the Extensible Markup Language (XML), including creation of XML vocabularies.
i. Develop implementation cost estimates, i.e., the direct cost of changing a standard and obtaining new consensus; the costs to the BLM in lost productivity during the conversion; and the costs associated with modifying data bases, data content, metadata, and automated applications that employ affected data.

C. **Implement Data Standard.** This step begins with developing an *implementation plan*, which prioritizes and schedules the transition of existing data and new data collection to the new standard. Implementation may require years, and the implementation plan may dictate that the new standard will never be applied to older data sets that are not re-used in current decisions.

The detailed steps to accomplish these tasks are as follows:

1. After the final data standard has been approved, the data standard adoption team will devise a practical implementation *approach*, in close cooperation with the National Data Steward and all stakeholders. Extensive coordination is required because only the BLM business interests can specify priorities and long-term schedules, and make credible estimates of the costs and labor required.
2. Having outlined the general approach, the team can proceed to develop a formal implementation plan. The implementation plan should include all the elements of a project plan, to include scope and objectives, success criteria, methods, responsibilities, work breakdown, schedules, budgets, and risk assessment.
3. This plan should receive widespread review by the established list of stakeholders, and any concerns then addressed.
4. The final implementation plan will be submitted for the BLM management approval and funding. The plan will be implemented by an Instruction Memorandum.

The approved implementation plan will be executed under leadership of the National Data Steward. The National Data Steward and data standard adoption team leader will decide whether the data standard adoption team should be retained over the entire implementation period, and in what capacity.

D. **Maintain Data Standard.** Once approved and implemented, a standard will be assessed periodically for adequacy and usefulness, and the need for any changes will be evaluated regularly. In this step, changes are made and implemented whenever business needs justify the effort. This process includes archiving data standards as dictated by the Records Act.

Maintenance steps will typically include the following:

1. Evaluate Data Standard Usefulness. Solicit and analyze feedback on how well each standard is working ("*Experience Report*" – see Attachment 2). Also, evaluate the actual adherence of data content to each data standard, as an indicator of problems or inadequacies in the standard. Ensure that the experience and interests of external agencies and customers are considered fully—a revision will have impacts beyond the bounds of the BLM. Implementation of any data standard, as well as programmatic experience in using the standard, may generate requirements for changes to the data standard. These would normally begin the maintenance process for a data standard.

2. Evaluate Change Requests. Evaluate requests for changes to determine whether they are valid and whether they represent a need to modify the data standard, or whether this is simply a minor maintenance need. This evaluation requires a balancing act by the data standard adoption team. Balance the value of changing a standard against the problems and costs associated with updating and modifying the standard, the actual data governed by the standard, and the metadata.

3. Modify the Data Standard. A "modification" requires changes to the structure or definitions of the data standard. These are the type of changes that would cause existing data to be re-collected, edited or converted to meet this new structure or definition. Some examples would be as follows: the addition of new data elements, the splitting of an existing data element into multiple data elements, or redefining a data element so that the meaning is different than originally established. A modification request goes back through the steps involved in proposing a data standard, to ensure that all stakeholders are aware of this proposed change and agreement has been reached.

4. Maintain the Data Standard. "Maintenance" is limited to minor changes that would not cause the re-collection or edits to data. Maintenance work does not significantly change the structure or definitions contained in the data standard. Examples might be correction of spelling or the addition of a domain value that is within the original meaning of the data element.

5. Revise Data Standard. Make maintenance changes to the data standard. The revised data standard is sent to the System Coordination Office (SCO) Data Group for posting to the central standards database in the Corporate Metadata Repository (CMR).

6. Evaluate Usefulness of the Revised Data Standard. Schedule and perform periodic evaluations will provide information to the National Data Steward about when it is necessary to repeat the whole revision cycle above.

7. Retire and Archive the Data Standard. Standards that are no longer needed, or suitable for the revision process, will be formally retired, by Instruction Memorandum, and archived along with all records associated with their development and revision history.