



# Framework Stewardship

for

# navigatOR

in the

# State of Oregon

**Version 0.3**  
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Under the auspices of the  
**Oregon Geographic Information Council**

## Revision History

v0.1 modified based on DOR and stewardship workgroup input.  
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## **1.0 Overview**

### **1.1 Background**

Geographic information is essential for decision making at all levels of government and for all economic sectors. Many Oregon agencies are using Geographic Information Systems (GIS) as the principal analytic and spatial data management tool for a wide range of programs and issues that include emergency management, infrastructure planning and management, natural resource management, social services allocation and management, and revenue management. The lifeblood of these systems is spatially referenced data, which are expensive to collect and form into spatial datasets of documented quality, accuracy, currency and completeness. Too often, spatial data are created and stored without providing on-going resources for their maintenance, distribution, long-term management and retirement (as appropriate). All too often the result is periodic re-collection and re-development of the same data at additional expense to taxpayers. Moreover, frequently these data are developed piecemeal for specific projects or programs, which can make integration nearly impossible. All levels of government are experiencing increased expectations for service delivery. In addition, there is a rising need for supporting business purposes that cut across agencies and levels of government. We are formalizing stewardship to help meet these expectations and needs. Appendix A contains a glossary of terms used in this document. Appendix B contains references and links for further information.

### **1.2 Introduction**

Executive Order 00-02 authorizes the Oregon Geographic Information Council (OGIC) to coordinate the development, maintenance, access and use of geographic information in Oregon. The Geospatial Enterprise Office (GEO) assists OGIC in its mission by acting as staff. OGIC's Policy Advisory Committee (PAC) provides strategic planning, budgetary, and policy development, and the GIS Program Leaders (GPL) group provides technical guidance related to the dissemination of GIS technologies across the state enterprise. The Framework Implementation Team (FIT) is responsible for coordinating the development, integration and long-term management of base geospatial data (Framework). Each FIT is responsible for establishing standards and writing implementation plans for its theme. A single Framework dataset, consisting of features and attributes, is called an element. In Oregon, Framework consists of over 300 elements organized into 14 thematic groups, plus a reference category similar to a library's reference section. For example, the Transportation theme includes roads, railroads, and airports. GEO coordinates the 14 thematic teams through the Framework Coordinator, who acts as FIT Chair. Framework, in turn, feeds into the National Spatial Data Infrastructure program led by the Federal Geographic Data Committee (FGDC).

The current focus of FIT is data development and distribution; however, as development efforts mature, other aspects of the data lifecycle will predominate, such as maintenance and access. In anticipation of this evolution, we have crafted the stewardship approach to manage the entire lifecycle of Framework elements—with quality checks built in to every phase. See Figure 1, below.

Larry English, a well-known consultant in knowledge management, defines data stewardship as “the willingness to be accountable for a set of business information for the well-being of the larger organization, by operating in service, rather than in control, of those around us.”

*Information Stewardship—Giving IQ and Happiness* (Business Intelligence Network, 2006). The larger organization here is the enterprise of government in Oregon. By extension, it also includes the public, our neighboring state and local governments, and the entire nation.

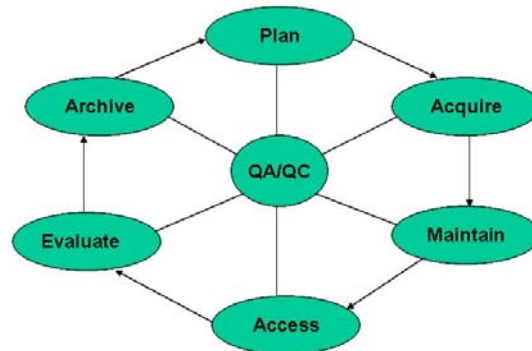


Diagram taken from *Data Management for Data Stewards*, BLM Course Manual, Course No. 0688.

Figure 1. Data Life Cycle (BLM, 2007)

### 1.3 Purpose and Scope

The purpose of this document is to describe Framework stewardship for navigatOR, Oregon's geographic information utility. Principal roles are Custodial Steward, Horizontal Steward and Vertical Steward, guided by the FIT and facilitated by the Framework Coordinator. These roles are described later in this document.

Aspects of Framework stewardship include:

- identification of a steward group lead (usually the horizontal steward) for each data element;
- accountability through a stewardship charter for each steward group; and
- planning for each aspect of the data lifecycle and for horizontal and vertical integration.

## 2.0 Framework Stewardship

To preserve and enhance the substantial investment made in collecting geospatial data and to facilitate its use, Framework stewardship provides the procedures and architecture through which multi-jurisdictional data development, maintenance, and distribution activities can occur consistently and appropriately and in a way that continuously supports single and multiple agency activities. In 2006, OGIC completed a GIS utility business case that provides the overall goals and objectives guiding navigatOR and its components. Framework Stewardship is based on the principles and best practices set forth in *Geographic Data Stewardship Best Practices*, which is part of the GIS utility business case.

### 2.1 Basic Organizational Roles

Some organizational components are required to facilitate and manage stewardship activities. The following paragraphs refer to Figure 2, below.

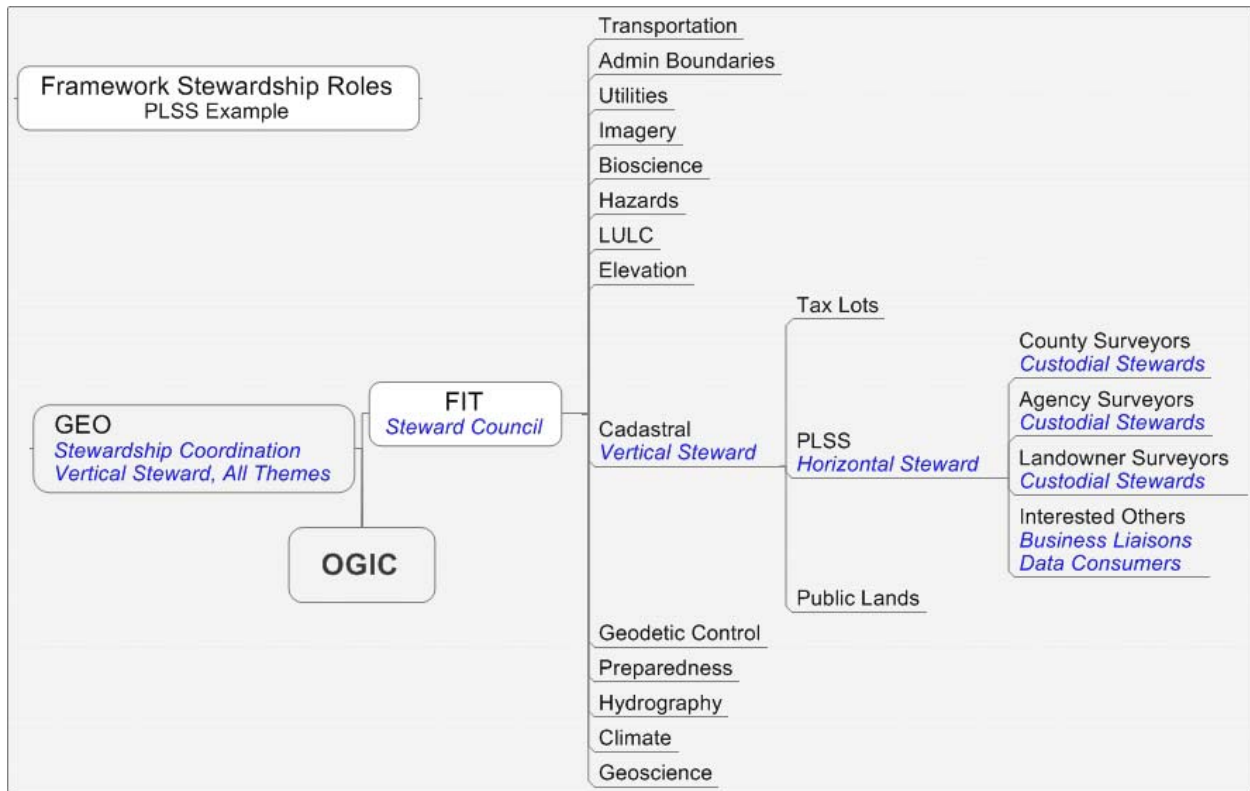


Figure 2. Stewardship Roles and Relationships

2.1.1 Governance

OGIC serves as the governing body for all of navigatOR, including Framework stewardship. OGIC’s role includes approval of stewardship documents, endorsing data standards, and promoting and facilitating data sharing.

2.1.2 Stewardship Coordination

GEO facilitates Framework stewardship in general and provides stewardship education activities, tracks stewardship charters and plans, brings issues to FIT when appropriate, and suggests modifications to the model documents. The Framework Coordinator serves as a central point of contact for stewardship issues that are not specific to a particular Framework element.

2.1.3 Custodial Stewardship

Custodial stewards create the data and are the custodians referred to in Oregon’s Public Records Law (ORS 192.410(1)(b)), defined as:

A public body mandated, directly or indirectly, to create, maintain, care for or control a public record. “Custodian” does not include a public body that has custody of a public record as an agent of another public body that is the custodian unless the public record is not otherwise available[.]

Custodial stewards are the best source of Framework data for any particular locale. In most cases, they develop and maintain the data because it is required in order to carry out their agency

mission. Most Framework elements will involve more than one custodial steward, such as the 36 assessors who are responsible for mapping tax lots within their county. Custodial stewards will make up the majority of the steward group membership (see below) and are accountable for the data contributed through the stewardship charter.

#### *2.1.4 Horizontal Stewardship*

In cases where data are contributed by more than one custodial steward, horizontal integration is required to transform the contributions into Framework datasets. This is the primary work of the horizontal steward. Typically, the horizontal steward is a central point of contact for the Framework element and acts as a coordinator for the steward group. Horizontal stewards are in regular contact with the appropriate FIT lead and will communicate periodically with the Framework Coordinator to relay information and suggestions for improving stewardship implementation.

Objectives of horizontal stewards are:

- To maintain a statewide perspective for the development and maintenance of the element
- To develop efficient and friendly methods for data maintenance
- To develop efficient methods and tools for integrating data
- To improve the usability, appropriate accessibility and quality of the element
- To assure the consistent use and interpretation of applicable standards by custodial stewards and others
- To facilitate the development of metadata by custodial stewards,
- To provide a certain level of technical support to the user community, and
- To ensure that any applicable data sharing agreements are in place and enforced.

#### *2.1.5 Vertical Stewardship*

Vertical stewards assure that two or more Framework elements can be used together easily. Spatial registration verifies that features of one element (like roads) are in proper relationship to features in other elements (like bridges and rivers). Since there are many possible combinations, a variety of strategies will be used to shape data development efforts for concurrent use. FIT leads will monitor and guide vertical integration of elements within their respective themes. The Framework Coordinator and GEO will monitor and guide the vertical integration of elements between themes, such as hydrography and transportation, with guidance from FIT.

#### *2.1.6 Steward Groups*

Steward groups consist of all the stewards contributing data or services to the Framework element. The vision, scope, roles, and business rules will be set forth in a stewardship charter signed by all relevant organizations. The initial task is to write and adopt the charter. The stewardship plan will address all phases of the data lifecycle. Writing a stewardship plan is the second task. Thereafter, the steward group will carry out comprehensive data management strategies and procedures pursuant to the plan. Steward group members will develop procedures for data management, resolve technical issues and generally communicate on issues and solutions. Steward groups may identify and champion modifications or extensions to an existing standard in order to enhance any aspect of its stewardship responsibilities. To assure alignment with business needs, the steward group will remain in regular contact with business purpose experts. Figure 3 depicts an example of steward group. Shading indicates the steward group members.

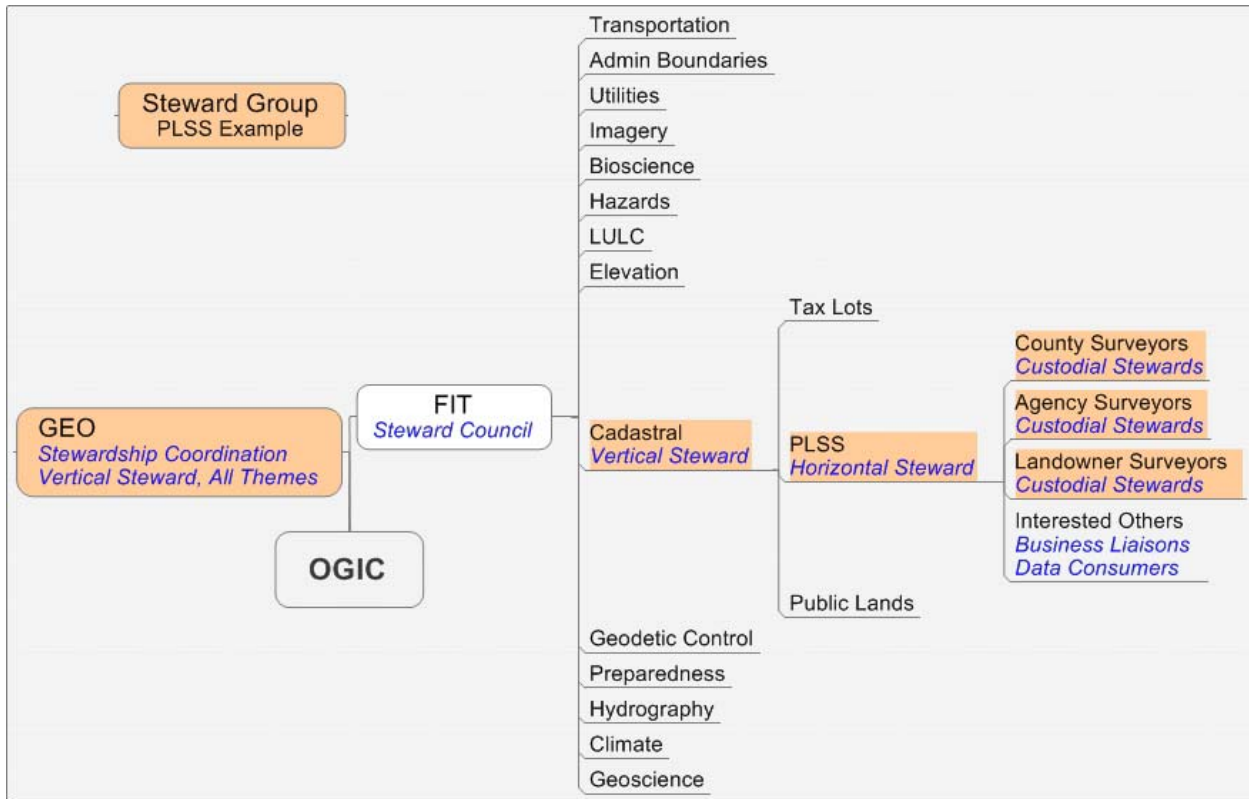


Figure 3. Steward Group Example

2.1.7 Steward Council

FIT will function as the steward council and have responsibility for developing approaches and guidelines that promote the horizontal and vertical integration of Framework data. FIT will also help identify vertical and horizontal stewardship issues, act as a primary resource for stewards, and accumulate and exchange information about issues and solutions relating to Framework stewardship and data integration.

2.2 Additional Roles

The specific needs of each Framework element may suggest additional roles necessary for its successful management over the long term. Each steward group will make that determination. Additional roles might include establishing subtypes of custodial stewards and establishing intermediate or regional steward roles to gather and bundle data prior to sending to the horizontal steward. Variations in terminology to describe the basic roles are also acceptable. It is important to clearly link the variant name to the basic role from which it arises.

3.0 Stewardship Context

Framework stewardship exists within a larger context and will benefit from efforts in other arenas. The primary challenges to effective and perpetual stewardship are briefly identified in Section 3.2.

### 3.1 FIT Guidance

The FIT will develop a Framework Implementation Plan (I-Plan) that encompasses the entire Framework effort. The I-Plan and *Best Practices* will provide the foundation for Framework stewardship. Additional guidance will include:

- approaches for complying with business rules and standards
- procedures for certifying that data submitted by custodial stewards meets the particular acceptance criteria appropriate to it
- model documents and guidance to assist steward groups
- strategies for addressing privacy and security concerns
- strategies for resolving vertical integration issues, and
- organizational structure and communications plan.

### 3.2 Challenges

Implementing stable Framework stewardship will involve resolving several challenges.

#### 3.2.1 Funding

In order to facilitate the orderly development and maintenance of Framework elements by many contributors, it is essential to develop a mechanism that promotes sustainable funding in a collaborative context.

#### 3.2.2 Data Integration

Seamless statewide data is the objective of horizontal integration. In many cases, this represents a long-term, iterative process. Appropriate stewardship structure, adoption of and adherence to standards, phased implementation, and incorporating lessons from similar efforts will facilitate this process. To achieve the vision of seamless integration, where multiple custodial stewards contribute chunks of data to form a single Framework element, the steward group will develop an integration plan as a component of the stewardship plan.

Vertical integration assures the frictionless use of Framework datasets together. The data integration plan will address vertical integration issues particular to the element in keeping with the overall strategy developed by the FIT.

#### 3.2.3 Managing Liability

Liability issues are a concern when creating an integrated dataset compiled from a variety of sources and when that composite dataset is then made available for unrestricted public use. A comprehensive solution will be developed under the guidance of OGIC and the Oregon Legislature in order to address liability and related issues. In the meantime, standard disclaimers and appropriate use statements for spatial data have been developed and adopted in Oregon. More restrictive language to address particular situations may need to be included in the stewardship plan and in the metadata that accompanies each element.

#### 3.2.4 Standards

Each steward group will promote the use of and adherence to the applicable standards for their Framework element. Input regarding changes, additions and deletions will be forwarded to the appropriate FIT theme for consideration. Guidance for updating standards is available on the standards Web page (see Appendix B).

### *3.2.5 Distribution and Access*

Currently, the Oregon Geospatial Data Clearinghouse (OGDC) hosts some Framework data. navigatOR envisions establishing a network of distributed sites to host Framework data and serve it through Oregon Explorer, navigatOR portal. The appropriate steward groups and FIT leads will make decisions about hosting and distribution-related issues. At a minimum, metadata, as well as a hyperlink to the data storage/distribution URL, will be available.

### *3.2.6 Institutionalizing Stewardship*

For the most part, duties and responsibilities required for Framework stewardship will be performed by personnel employed by individual agencies. In many cases, these activities will extend beyond the needs of the agency. Therefore, incorporating stewardship into agency planning and budgeting, and incorporating stewardship responsibilities into position descriptions for Framework stewards, are necessary steps to achieving long-term stability for Framework and realizing its enterprise benefits.

## **3.3 Documents**

To facilitate the orderly and accountable conduct of stewardship through the entire data life cycle, the following documents are required for most Framework elements or a closely related cluster of elements being handled together:

- 1) Stewardship Charter
- 2) Stewardship Plan

Selected elements will also require:

- 3) Standard Operating Procedures
- 4) Business Rules.

Models or examples of these documents will be available as part of the resources provided by FIT.

## Appendix A Glossary

(Adapted from Parts 0 and 5 of the  
Geographic Information Framework Data Content Standard)

<u><b>Term</b></u>	<u><b>Definition</b></u>
<b>Accuracy</b>	<p><b>Absolute</b> - A measure of the location of individual features on a map when compared to their true position on the face of the earth.</p> <p><b>Relative</b> - A measure of the location of individual features on a map when compared to other features on the same map.</p>
<b>Attribute</b>	Characteristic of <b>features</b> .
<b>Custodial Steward</b>	Agency or organization that is the source of part or all of a Framework element. Custodial stewards are responsible for tasks relating to maintaining and documenting source data and providing it to a <b>horizontal steward</b> for quality control and, if appropriate, statewide integration.
<b>Element</b>	A single <b>Framework</b> dataset, consisting of <b>features</b> and <b>attributes</b> .
<b>Element Workgroup</b>	A subgroup of a <b>Framework theme</b> responsible for developing a single <b>element</b> or closely related cluster of <b>elements</b> . Most participants in the <b>element Workgroup</b> will be members of the <b>steward group</b> as well.
<b>Feature</b>	Abstraction (point, line or polygon) of a real world phenomenon (such as a domestic well, a road centerline, or a county boundary) that is stored in a spatially enabled database.
<b>FIT</b>	Framework Implementation Team, consisting of a Chair and the leads of each of the themes and reference category. Responsible for guiding <b>Framework</b> stewardship.
<b>Framework</b>	In Oregon, Framework includes over 300 datasets organized in 14 themes and a reference category. A subset of these will be incorporated into the <b>NSDI</b> and accessed through the National Map.
<b>Framework Coordinator</b>	Person responsible for guiding and assisting <b>steward groups</b> in meeting their stewardship responsibilities and providing overall coordination and tracking of the steward network.

<b>FGDC</b>	Federal Geographic Data Committee; responsible for setting national spatial data standards, providing guidance for developing Framework data nationwide, and developing a national portal for accessing Framework data.
<b>GEO</b>	Geospatial Enterprise Office, within the Enterprise Information Strategy and Policy Division of the Department of Administrative Services for the state of Oregon. Performs statewide GIS coordination and responsible for navigatOR management; provides staff support to OGIC.
<b>GIS</b>	Geographic Information Systems are composed of hardware, software, and people to organize, store, analyze, integrate, report and maintain spatial information.
<b>Horizontal Integration</b>	For a given data theme or element, this is the process of piecing together source data from <b>custodial stewards</b> into a format that can populate a statewide geodatabase.
<b>Horizontal Steward</b>	The agency or organization responsible for evaluating and assembling data contributed by <b>custodial stewards</b> into a <b>Framework element</b> , coordinating access to it, and facilitating its maintenance. The horizontal steward usually coordinates the steward group.
<b>Metadata</b>	Formally structured documentation of digital data products that describes the "who, what, where, when, why, and how" of every aspect of the data it references.
<b>National Map</b>	Web-based portal for discovering and accessing <b>NSDI</b> data (see below).
<b>NSDI</b>	National Spatial Data Infrastructure. <b>FGDC</b> initiative to create and implement a shared data collection and maintenance resource for geospatial datasets nationwide.
<b>OGIC</b>	Oregon Geographic Information Council. The governing body for <b>GIS</b> activities in Oregon state agencies, as currently defined by Executive Order 00-02.
<b>Steward Group</b>	Group comprised of <b>custodial stewards</b> , a <b>horizontal steward</b> and, sometimes, one or more <b>vertical stewards</b> , who contribute data or services to a <b>Framework element</b> and is responsible for its entire lifecycle.

<b>Steward Council</b>	A body providing support and overall guidance to the steward groups; the <b>FIT</b> will act in this capacity.
<b>Theme</b>	Group of <b>Framework elements</b> ; there are currently 14 themes and a reference category in Oregon's <b>Framework</b> .
<b>Vertical Integration</b>	The act of verifying and, if necessary, making adjustments to the spatial registration and data models of multiple <b>Framework elements</b> so that they can be used together easily.
<b>Vertical Steward</b>	The agency or organization responsible for assuring that a particular <b>Framework element</b> can be used with other <b>Framework elements</b> .

## Appendix B References and Web Links

PlanGraphics, Inc., for OGIC. *Geographic Data Stewardship Best Practices*. 2005.  
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(Find all Oregon GIS standards on this page.)

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