

FOUNDATIONAL DATA ELEMENTS

Identifying Foundational Data Elements for Oregon's GIS
Framework

Point of contact:

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Background

- Framework Implementation Team leads were interested in focusing work completed under the Framework funding process
- Developed by Framework Implementation Team leads with help from the Oregon Framework Coordinator
- Strategy developed between March and December 2016
- Framework data elements categorized in early 2017



Foundational Data Elements Defined

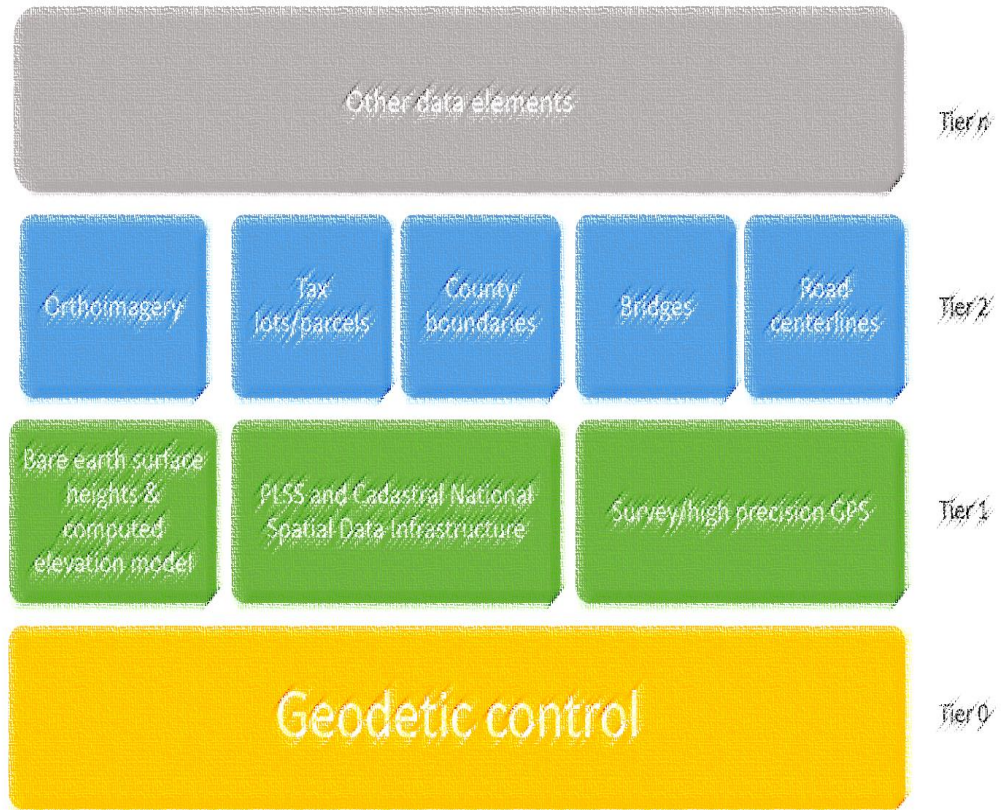
The collection of data elements whose geometries serve as the basis for the vast majority of Framework data elements



The Foundational Data Elements Diagram

Sketch to illustrate a concept

foundational data elements



Strategy Focal Points

1. Strategy for prioritizing framework work areas for funding process
2. Foundational data elements as polestar
3. Not all Framework data elements are foundational
4. Geodetic control is at the base
5. Ensure funding for non-priority projects



The Prioritization Scheme



Considerations: Two Framework Goals

- Accelerating completion of Oregon's GIS Framework
- Ensure Framework themes can be integrated horizontally and vertically



Considerations: NSDI Vision & Goals

- Spatial data infrastructure built from most accurate and precise data = local data sources
- Data integration, especially vertical



Considerations: Equality

- Consider all data elements at once (no theme divisions)



Funding Process Goals (2017 – 2022)

- Short-term:
 - Complete Framework data elements that provide the geographic foundation of Framework
 - Inject resources into high-quality efforts that enhance Oregon's Framework
- Long-term:
 - Increase the capacity for data integration, horizontally and vertically
 - Prepare the State of Oregon for the new datum for geodetic control that will replace NAD83 in 2022



Differentiating Foundational Elements

- Lineage and data dependencies
 - Tier or mixture of tiers of the base data for a data element



The Logical Classification Scheme



Assumptions

- Foundational data elements can be differentiated
- Geodetic control provides the most accurate reference system for Framework
- Human features came “after” natural features in many (but not all) cases



Tier 0. Geodetic control elements

- Geodetic control

Monumented points randomly located but also objects such as lighthouses, masts, & church spires. These are then used to locate section corners and meander lines. Focus is now on active control points (CORS).

- Other survey control

Horizontal and/or vertical points established to support surveying or mapping projects. May be referenced to a datum and coordinate system or just locally defined (e.g., fixed point for site survey). May or may not have a physical marker.



Tier 0. Geodetic control elements

1. Geodetic control
2. Other control
3. Horizontal datum
4. Vertical datum
5. Oregon Coordinate Reference System
6. Oregon's projection standard
7. Oregon real-time GNSS network

Only control points and other survey control currently identified as Framework data elements



Tier 1. Basic reference elements

1. Height
2. PLSS or Cadastral NSDI



Tier 2.

- Elements based entirely on tier 1 elements
- Georeferenced to GPS data
- Derived entirely from remote sensing technologies
- Derived directly from land survey
- Georeferenced using horizontal and vertical data (e.g., orthoimagery)



Tier 3.

- Based entirely on tier 2 elements
- Based on a mixture of tier 1 and 2 elements
- “Contextualized” by tier 2 elements
 - Example: Land ownerships
 - nested inside other boundaries in a hierarchical way
 - i.e., occur within national and state boundaries



Tier 4.

- Based on tier 2 and/or 3 elements
- Derived from models



Categorizing Elements



Guiding Questions for Categorization

- What is the georeferencing basis?
- What is the data element's lineage (relative to other data elements and geodetic control)?
- Which data elements are derived elements?



Additional Guidance Questions

- What is the current tier?
- What is the realistic ideal tier?



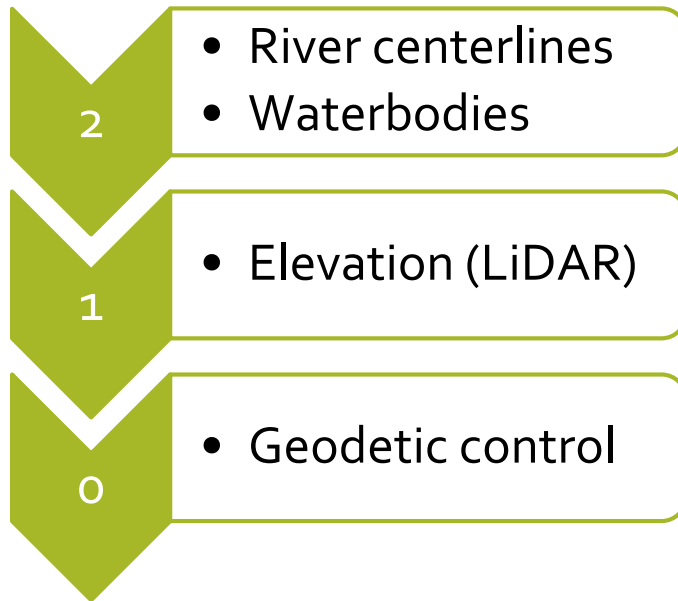
Examples



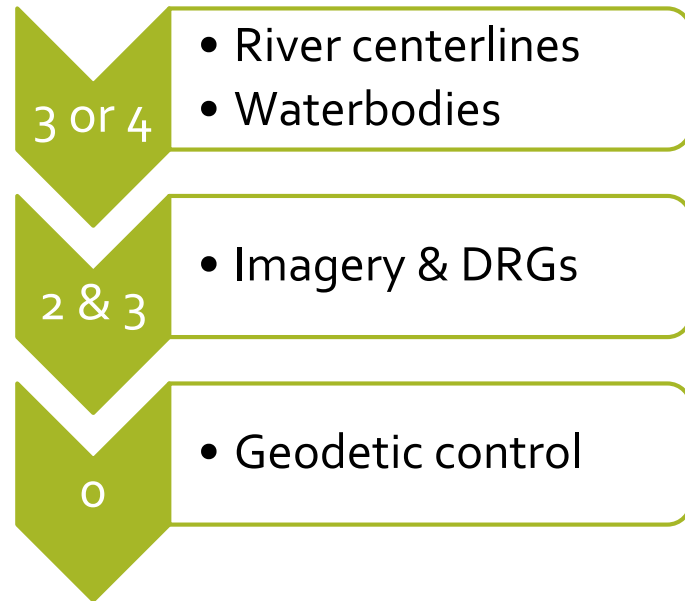
What tier?

River centerlines

Ideal tier



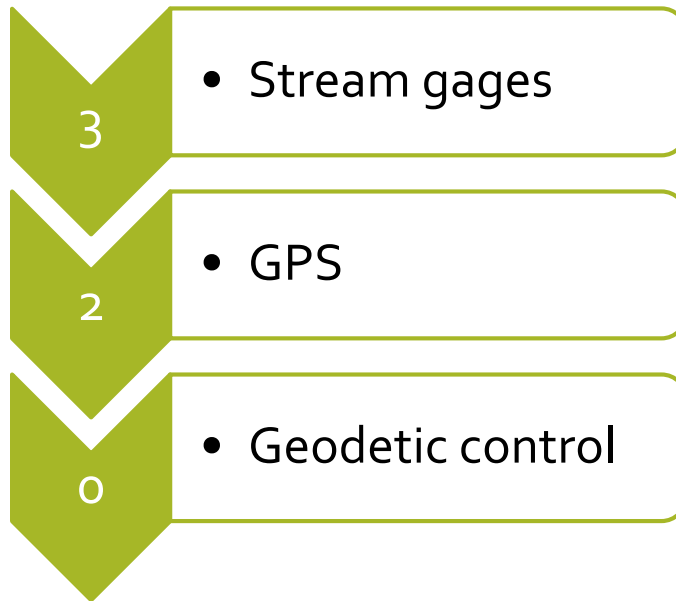
Current tier



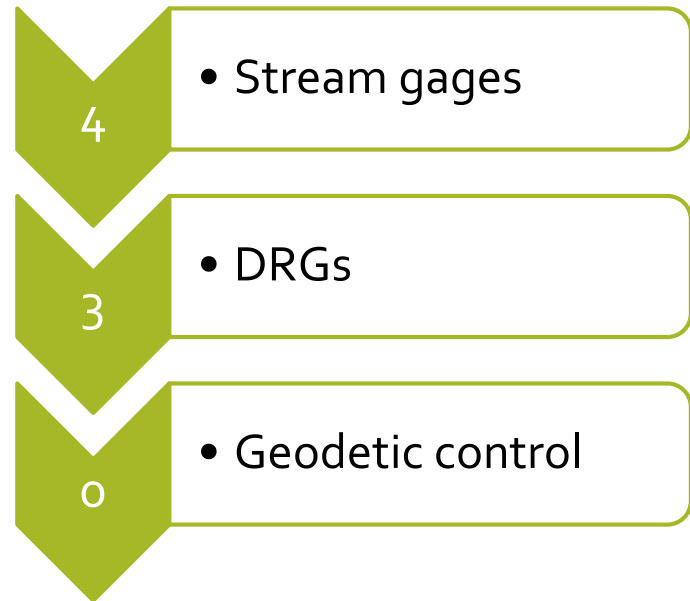
What tier?

Stream gages

Ideal tier



Current tier



What tier?

Road centerlines

Characteristics

- ODOT maintains centerlines as:
 - reference for assets
 - cartographic representations
- Multiple data sources
 - sometimes based on survey

References & lineage

- PLSS corners
- Highway ROWs
- Road authorities



What tier? Tax lots

Characteristics

References & lineage



Questions?

Contact

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