

Amended Proposal – Data Standard Development for Building Footprints of Oregon		Review Panel Score: 30
Framework	The refocus on the creation of the standard and stewardship plan seem obtainable and reasonable as described in the proposal.	
	Project details are a little sparse, but basic elements are present. Unclear if data will be updated beyond the transformation to the new standard. Assumption is no, which is ok.	
	Could use more detail about how the standard will be drafted and revised. Project timeline seems unnecessarily compressed, and perhaps not enough time is available for getting feedback from stakeholders on iterations of the draft standard. But overall, if the process is followed and a standard and stewardship plan emerge, that should be an improvement on the current situation.	
Technical	The only things that were somewhat vague (i.e., identifying a willing steward, appropriately defined attributes) were vague for a reason, since that is the point of the project, developing a data standard (with attributes) and stewardship plan, as well as proving an update to the data itself. Overall, this is a much-improved proposal, and the right first bite-sized step in carrying the important building footprint work forward.	
	Concerns potentially with stewardship plan indicating future updates are dependent on funding. A willing steward needs to include support by the Agency for funding to back the work.	
Policy	Proposal provides minimal level of detail regarding the methodology to be used and does not show alignment with the budget proposed. Project timeline needs to be adjusted/lengthened to accommodate the data standard review process and the required presentation at a framework forum (in this case the Spring 2025 forum).	
	Do not recommend funding any data updates/edits as this is a complete unknown at this time. We do not know what edits will be needed or what data updates DOGAMI is planning. We also do not know how much of the budget is planned for this undefined item vs. the data standard and stewardship plan work.	
	(1) Need time milestone Spring 2025 for Forum and FIT approval. (2) Development cannot begin prior to FIT approval in Spring 2025, there extend timeline and opens potential budget concern. (3) Why Gneiss Editing for \$500?	

Data Standard Development for Building Footprints of Oregon

CONTRIBUTORS:

Prepared By Include primary project staff including agency or organization affiliation	
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PROJECT DETAILS:

Expected Project Begin Date	Expected Project End Date		Amount of Funding Requested
07/01/2024	06/30/2025		\$29,900

PRIORITY CRITERIA:

Project Objectives			
<input checked="" type="checkbox"/>	Improve data quality or accuracy of existing Framework data element	<input type="checkbox"/>	Increase update frequency of existing Framework data element
<input checked="" type="checkbox"/>	Fill gaps in existing Framework data element, geography, or critical attribute(s)	<input type="checkbox"/>	New data identified in Framework Program Work Plan as “Data Element for Future Consideration”
Priority Data Sets			
<input checked="" type="checkbox"/>	Foundational data ¹ set as currently listed in Framework Data Inventory		
<input type="checkbox"/>	Ties directly to the Governor's priorities (Housing and Homelessness, Behavioral Health, Education and Early Learning)	<input checked="" type="checkbox"/>	Ties directly to OGIC’s data sharing priority layers (Parcel data, Address points, Road centerlines)
Standards and Stewardship			
<input checked="" type="checkbox"/>	Creates or updates a stewardship plan		
<input checked="" type="checkbox"/>	Creates or updates a data standard		
Framework Program Requirements (New datasets only) - NOT SCORED			
<input checked="" type="checkbox"/>	Needed by multiple agencies (user-groups identified)	<input checked="" type="checkbox"/>	Statewide data set
<input checked="" type="checkbox"/>	Multiple use-cases identified	<input type="checkbox"/>	Data required by statute

¹ Foundational Framework data elements are base geospatial data used for constructing a majority of Framework data elements and are required for achieving the highest levels of integration among Framework themes.

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PROJECT ABSTRACT

DOGAMI published a statewide geodatabase of building footprints called the Statewide Building Footprints for Oregon, release 1.1 (SBFO-1.1) (Williams, 2023). The SBFO is a compilation of building footprint datasets obtained from public agencies and from an edited version of Microsoft Bing Buildings for areas that did not already have existing building footprint data.

While this dataset is extremely beneficial in its current state, we still have not established a data standard for the attributes associated with the buildings. The data standard is important because it ensures that the format (attributes and geometry) of the data meets the needs of a wide range of use-cases. It also formalizes the attributes that are expected within the dataset, so that data creators understand what attributes are needed to include when contributing to updates of the SBFO. The data standard would also be developed with consideration to data stewardship with the intention of easing the level of effort to make regular updates to the SBFO.

The primary intention of the SBFO is to be a crucial dataset that meets the various needs of GIS users of Oregon. To ensure that these needs are being met, we will coordinate with GIS stakeholders at the state, regional, county, and city-level during the data standard development process. Their input will be instrumental in identifying the key attributes and means for maintenance of buildings footprint data.

DOGAMI proposes to coordinate with GIS stakeholders in Oregon to formalize a data standard for building footprints. We will use this opportunity to consider data stewardship when identifying key attributes during the data standard development process. The result will be foundational improvements to building footprint data and will provide an efficient and effective means of updating the statewide dataset in the future.

PROJECT NARRATIVE

The project narrative will become the Statement of Work for successful proposal agreements.

Project Scope

The purpose of this project is to develop and formalize the data standard of the existing Statewide Building Footprints for Oregon, release 1.1 (SBFO-1.1) geodatabase (Williams, 2021, 2023). We will meet and coordinate with GIS stakeholders around Oregon and assess their data needs. In assessing the data needs of the GIS stakeholders, we will identify the attributes that will comprise the building footprint data standard. We will also consider attributes that will ease the data stewardship and maintenance aspects of the SBFO.

This project will identify and leverage the expertise of GIS stakeholders in Oregon through a variety of coordination efforts. One part of the coordination will be to establish a Buildings Footprint Workgroup within the Framework Implementation Team (FIT) program. This workgroup will be composed mostly of (but not limited to) state-employed GIS experts of Oregon. We will also make efforts to coordinate with Oregon GIS stakeholders outside of the Buildings Footprint Workgroup. Communication and coordination with GIS stakeholders will be focused on identifying use-cases and recognizing the data needs of the users of building footprint data.

Once established, the Buildings Footprint Workgroup will also coordinate with other FITs and workgroups to identify related datasets that could be linked together using primary/secondary key fields. With a greater understanding of where building footprint data fits in with other datasets in Oregon, we can better integrate the dataset together.

The overall goal of the workgroup will be to assess all the input and feedback received from GIS stakeholders, identify the attributes that best address the array of data needs in Oregon regarding

building footprints, and work towards formalizing a data standard for the building footprints in accordance with the Framework Standards Development Process.

The deliverables of this proposed project will be a statewide standard and stewardship plan that define the attributes and ongoing maintenance requirements for an enterprise-level database for the State of Oregon.

Relationship to Oregon Framework

The building footprints are related to many other themes/datasets within the framework data. The buildings footprints are directly related to the following framework themes and the data elements within: Addresses and Buildings, Administrative Boundaries, Cadastral, Land Use/Land Cover, Preparedness, and Utilities.

This project will determine how the building footprint attributes can best integrate with the other framework datasets in Oregon. In addition, this project will make considerations in the attribute fields that will facilitate an efficient means for updating the SBFO as new building footprint data becomes available. Coordination in the Buildings & Addresses FIT and with other FIT Themes will assist in identifying opportunities for integration with other datasets.

The proposed building footprints datasets (SBFO-2) will complement a wide array of datasets currently in the Oregon GIS Framework. By building upon spatial relationships the building footprint datasets can link to datasets from emergency management to planning to environmental management to business development. For example, the number and types of buildings within a community that are within a geologic hazard zone is a simple relationship that is intrinsic to building locations and other datasets.

Expected Benefits

While analyses using census blocks or cadastral data can answer questions about the land, the quality of spatial analysis results can be greatly improved when combining land data with highly accurate and current building locations. The benefit of high-quality spatial data only improves when attributes about building data are also included. For example, in the world of natural hazard risk analysis, information that is based on census blocks, such as number of residents or building value, is aggregated across a wide area. Site-specific data, like building locations, can provide a much better picture of the level of vulnerability from a hazard for a given community.

Establishing a data standard for the SBFO has several benefits. A consistent data format, which is the result of a data standard, allows for efficient data development from data contributors and will ease updates to the SBFO. Potential errors are reduced when the source field names and data types match the target field names and data types. Also, since the data standard will have been thoroughly vetted, attributes would be expected to serve the various intended functions of the building data. This will ensure that the building data is meeting the data needs of its GIS users. Finally, a formalized data standard allows for other framework datasets that are related to the buildings data to be designed so that integration can easily occur.

These results can assist planners to make better informed decisions regarding lowering risk to natural hazard for their community. An up-to-date statewide building footprints dataset, with an associated data standard, will also allow for the easy integration and joining to other statewide datasets, such as the recently published tax lot parcel data, without the need to adjust or conform the data during use in emergencies.

METHODOLOGY

To accomplish the proposed tasks, DOGAMI will follow the standards development process outlined in Oregon’s Geospatial Standards Development Guidelines.

Identify Stakeholders and Establish Workgroup

DOGAMI will establish a Buildings Footprint Workgroup composed of GIS stakeholders (mostly from the Address & Buildings FIT) and will focus on forming a consensus on the building footprint data standard. Forming this consensus will require coordination with county and city GIS stakeholders in Oregon and with other FIT groups.

Identify and Define Use-Cases and Attributes

DOGAMI will facilitate meetings with the Buildings Footprint Workgroup and lead the effort to coordinate with the county and city GIS stakeholders. DOGAMI will request feedback on their data needs regarding building footprint data, what attributes they would prefer for the data standard, and will discuss possible modes in which data updates could be submitted to the SBFO. In coordinating with other FIT groups, we will determine datasets that would benefit in integrating with the building footprints and will discuss ways in which integration may occur.

We will also review the status of building footprint data in other states of the U.S, to determine whether they manage a statewide dataset or not. We will also consider the attributes that are being used so that they might guide our decision-making process.

Develop Standard Documentation

Once all this information has been incorporated and the Buildings Footprint Workgroup has reached a consensus on the Data Standard, DOGAMI will work with the Buildings Footprint workgroup to document the data standard using the Oregon Data Standard Template and lead it through the approval process outlined in the Framework Standards Development Process. The SBFO Standard will define data attributes and format for building footprints in Oregon.

Develop Stewardship Plan

DOGAMI will also consider data stewardship for ongoing maintenance. The stewardship plan will identify a data steward and develop a process that allows city and county data stewards the ability to submit data into the statewide database.

Deliverables to be Funded by this Proposal

Deliverables of this proposed project will include documentation that defines the attributes and maintenance of the SBFO. The proposed project will also include an updated geodatabase which will include attributes and formats compliant with the SBFO data standard developed from this project.

The specific deliverables of this project will be:

1. Oregon SBFO Data Standard
2. Oregon SBFO Stewardship Plan

3. SBFO-2 geodatabase published by DOGAMI in our Digital Data Series and made available through DOGAMI (<https://www.oregon.gov/dogami/pubs/Pages/index.aspx>), including updated attributes based on the new data standard.
4. Metadata compliant with the Oregon Metadata Standards.

Project Timeline

The project is estimated to require approximately 12 months to complete. Below is a generalized project timeline with tasks.

Task	2024 Q3 & Q4	2025 Q1 & Q2	2025 Q3 & Q4	2026 Q1 & Q2
Stakeholder Coordination				
Data Standard Development				
Data Standard application to the SBFO				
Metadata and Documentation				

Stewardship Overview

As previously described, part of the proposed project will be to develop methodology for updating future versions/releases of the SBFO that can efficiently preserve existing building attributes while also updating newly developed buildings or remove buildings that have been demolished. This will provide a means to make regular updates to the SBFO more effectively and without impacting attribution of buildings currently in the SBFO that do not need updating. In other words, developing a method beyond simply replacing all the buildings in a given county with new ones.

DOGAMI plans to publish the new SBFO geodatabase and assure it is widely available by placing it on our website for download by anyone. This will be the second version of the SBFO by DOGAMI and thus a sign of our commitment to data stewardship.

Because DOGAMI already works with all communities in Oregon to understand natural hazard risk, there is a collaborative network in place. Building footprints are sometimes developed by a community, for example the Lane Council of Governments (LCOG). During a recent project in Lane County, DOGAMI created building footprints and delivered the data to LCOG, who in turn performed further updates that were returned to DOGAMI and went into the SBFO-1.1 (Williams, 2023).

DOGAMI plans to continue to update the SBFO geodatabase as funding allows. At this point, an update method will be developed and put into place. With the method established, we will work with the theme and data element framework implementation teams and the communities in Oregon to develop a stewardship plan in the future.

Data Storage and Distribution Plan

The SBFO dataset of Oregon will be updated and delivered to the Geospatial Enterprise Office for distribution and storage. It will also be stored, and available to download from the DOGAMI Publications Center (<https://www.oregon.gov/dogami/pubs/Pages/index.aspx>).

Commitment to Effort

One of DOGAMI’s primary commitments to the legislature (via key performance measure, KPM #1. Hazard & Risk Assessment Completion) is to produce and publish building-level natural hazard risk assessments for every city in the state. To make progress on this measure DOGAMI needs consistent and high-quality building footprint data. DOGAMI also recognizes the importance of sharing existing

building footprint data with the broader Oregon GIS community and sees this funding opportunity as an ideal mechanism to do so.

Relevant Experience/Expertise of Project Team and Organizational Capacity

As an agency, DOGAMI acts as the data steward for the Oregon Lidar Consortium. In fulfilling this role, DOGAMI has a team of geospatial professionals with many years of experience working with highly complex geospatial data.

DOGAMI will draw upon several years of experience of building footprint digitization, including developing and publishing the SBFO in 2021 and updating it 2023. This experience includes heads-up digitization and building footprint polygonising derived from lidar. The project team will include Matt Williams as the principal investigator. Matt has conducted several countywide natural hazard risk assessments, which make heavy use of building footprints and assessor’s data.

BUDGET JUSTIFICATION STATEMENT

The primary cost for the proposed tasks is the salary of the principal scientist/project manager. The only external cost is for Gneiss Editing, a Portland-based copy-editing company whom DOGAMI uses to edit all publications released by the agency. They will review and copy-edit the open file report before it is published. DOGAMI realizes approximately \$9,921 of uncollected indirect costs based on the total budget of the project.

BUDGET

Project title								
	FTE	Monthly Salary	Project Months*	Salary Cost	OPE Rate	OPE Cost	Total Cost	Project Hours
SALARIES	%							
Project Manager / PI	1.00	\$ 7,368	.31	\$ 1,692	.6858	\$ 1,160	\$ 2,852	40
GIS Stakeholder Coordination	1.00	\$ 7,368	.54	\$ 2,974	.6858	\$ 2,040	\$ 5,014	70
Data Center Development	1.00	\$ 7,368	2.06	\$ 11,372	.6858	\$ 7,799	\$ 19,171	268
Technical Reviewer	1.00	\$10,570	0.19	\$ 1,471	.6061	\$ 891	\$ 2,362	24
Total Salaries				\$ 17,509		\$11,890	\$ 29,400	
SUBCONTRACTS								
Gneiss Editing							\$ 500	
TOTAL DIRECT COSTS							\$ 29,900	
TOTAL COST							\$ 29,900	

* Project Months = Project hours / (75% of standard 173.33 payroll hours per month)

OPTIONAL INFORMATION

The current DOGAMI Strategic Plan outlines our mission and goals. The natural hazards goal is “Create and compile comprehensive assessments of natural hazards and community vulnerability, and promote risk reduction strategies to build resilient communities.” Updating building footprints is directly helping to achieve this goal.

Some communities in Oregon have GIS, skills, and funding in place to create building footprints, but many communities do not. Because of this disparity, development of a statewide database assists these underserved communities.

One of the three priorities of the Governor of Oregon is Housing and Homelessness. Knowing where all of the existing buildings are located and if they are owned by the State of Oregon will assist in this priority. Building footprints is a secondary framework data element.

We provide the following letters of support:*

- Matthew Crall, Planning Services Division Manager, Department of Land Conservation and Development
- Jake Edwards, GIS Coordinator, Hood River County Community Development

REFERENCES

Williams, M. C., 2021, Statewide Building Footprints for Oregon, release 1.0: Oregon Department of Geology and Mineral Industries Digital Data Series SBFO-1. <https://www.oregongeology.org/pubs/dds/p-SBFO-1.htm>

Williams, M. C., 2023, Statewide Building Footprints for Oregon, release 1.1: Oregon Department of Geology and Mineral Industries Digital Data Series SBFO-1.1. <https://www.oregongeology.org/pubs/dds/p-SBFO-1.1.htm>

***NOTE: DOGAMI was not asked to update letters of support with the amended proposal.**



Oregon

Tina Kotek, Governor

Department of Land Conservation and Development

635 Capitol Street NE, Suite 150

Salem, Oregon 97301-2540

Phone: 503-373-0050

www.oregon.gov/LCD

February 29, 2024



To: OGIC Grant Review Panel
Copies to: William Burns, Engineering Geologist, DOGAMI
Matt Williams, DOGAMI
Jason McClaughry, Geological Survey and Services Manager, DOGAMI
Ruarri Day-Stirrat, State Geologist and Executive Director, DOGAMI
From: Matthew Crall, Planning Services Division Manager

Subject: Framework Data Development Grant Program: Building Footprints

The Oregon Department of Land Conservation and Development (DLCD) strongly supports the application from the Oregon Department of Geology and Mineral Industries (DOGAMI) to the Framework Data Development Grant Program to fund the update and improvement of the Building Footprints Data Element. The update would include:

- Adding attributing for all state owned buildings, schools, fire, police, and hospitals
- Linking building footprints to rapid visual screening seismic vulnerability data
- Updating Hood River County with new building footprints dataset

A complete and accurate statewide building footprints data set is a high priority for DLCD. We would use the data in most of our programs including:

- Supporting the governor's priority of building 36,000 housing units
- Determining what land is developed and undeveloped
- Inventorying buildable lands
- Tracking changes in development over time
- Identifying critical assets for hazard mitigation and recovery
- Preparing local natural hazards mitigation plans
- Supporting cities and counties in the National Flood Insurance Program
- Conserving farm and forestlands
- Maintaining our own Framework data element: Land Use

Matthew Crall

Planning Services Division Manager



Hood River County Community Development

Planning, Building Codes, Code Compliance & GIS

601 State Street, Hood River OR 97031

ERIC WALKER, DIRECTOR

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February 29, 2024

Matt Williams | Geohazards Analyst
Oregon Department of Geology and Mineral Industries
800 NE Oregon St., Ste. 965
Portland, OR 97232

RE: Statewide Building Footprint Dataset

Dear Matt:

Hood River County Community Development Department is pleased to offer its support to the Oregon Department of Geology and Mineral Industries' (DOGAMI) grant proposal to update the current statewide building footprint dataset (SBFD). The SBFD has been particularly helpful in analyzing natural hazard risk to the people and structures within Hood River County. It is vital that this dataset remains current and accurate. There are currently numerous local governments who acquire and manage their own building footprint layers. It is important that a process is developed where local governments can submit updates to the Oregon Geospatial Enterprise Office and have current buildings included in the statewide layer.

Hood River County looks forward to supporting the improvement of the SBFD throughout Oregon. Thank you for your efforts.

Sincerely,

Eric Walker, Director
County Community Development

cc: Jake Edwards, County GIS Coordinator