Statewide Building Footprints for Oregon Data Standard

Version [0.4]

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Original Draft Written by Matt Williams – Oregon Dept. of Geology & Mineral Industries
[Version 0.2] revised based on [Building Footprints Workgroup]
[Version 0.3] revised based on [GIS community comment]
[Version 0.4] revised based on [Advisory Group comment]

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1.0 INTRODUCTION

The Department of Geology and Mineral Industries (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 was developed as 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 building attributes. The data standard is important because it ensures that the format (attributes and geometry) of the data meets the needs of its potential users. It also formalizes the attributes that are expected within the dataset, so that data creators can submit building footprints updates to the SBFO with attributes formatted to the data standard. 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 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.

Under the direction of the Oregon Geographic Information Council (OGIC) and with the guidance of the Oregon Framework Program, the Addresses and Buildings Framework Implementation Team (FIT) are working at creating statewide data standards for address points and building footprints. This document is the result of collaboration and cooperation between many building footprint data providers, building footprint data users, and other stakeholders. The goal is to establish a standard to facilitate gathering, combining, and distributing building footprint data for the entire state that is reliable, accurate, complete, and timely.

1.1 MISSION AND GOALS OF THE STANDARD

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). The Oregon Building Footprint Data Standard (BFDS) is designed to create and maintain a complete, accurate, and comprehensive dataset of all building footprints for the State of Oregon. In establishing a data standard for the SBFO, we hope to accomplish the following goals:

- Provide a uniform set of attributes and values ranges to enhance data usage and increase understanding of data sources and digitization methods used in data production,
- Assemble building footprint data that represents the best available statewide data for Oregon,
- Provide a flexible and robust dataset that can be used throughout the state for a myriad of uses,
- Set parameters that clearly define which structure types are included in the dataset,
- Identify unavailable related data for certain areas within the state,
- Provide a data structure that will identify when updates are necessary,
- Provide guidance on performing maintenance on the data,
- To support the broadest range of stakeholders and use cases.

Just as the local jurisdiction's building footprint schema is intended to meet local data needs, so the Oregon BFDS is designed to meet data needs at the statewide scale. These differences in scale and data usage needs will invariably result in differences in schema between local building footprints and the SBFO.

1.2 RELATIONSHIP TO EXISTING STANDARDS

1.2.1 Existing National Building Footprint Standards:

We are not aware of a data standard of building footprints in the U.S. Certainly, there is no recognized federal standard for building footprints. A review of existing building footprint datasets outside of Oregon was conducted and commonly used attributes were identified to inform Oregon's BFDS.

DOGAMI conducted a cursory review of state, county, and city building footprint data throughout the U.S. for datasets that were easily accessible. We identified common attributes in many of the datasets. These common attributes were included in the SBFO and are listed here:

- Unique Identifier
- Area (actual and/or footprint)
- Height
- Occupancy Type
- Address
- Year Built
- Source
- County

1.2.2 Existing Oregon Building Footprint Standards:

The building footprints are related to many other themes/datasets within the framework data. The building footprints are directly related to the following framework themes and the data elements within addresses and buildings, cadastral, administrative boundaries, land use/land cover, preparedness, and utilities. Data integration is important to the Oregon geospatial enterprise and data standards are designed to accommodate this goal.

Nearly all buildings in Oregon have a physical address or are located within an assessed property or designated parcel that has an associated address. Address points and parcels datasets, which are maintained by the Oregon Framework Program, are very closely related to building footprint data. To facilitate easy integration between these datasets, the data standards are designed with this concept in mind.

The relationship between buildings and addresses is complex. Some buildings, like apartment complexes, have multiple addresses contained in a single building. In other cases, one address, as in a farm property, can be associated with residential and auxiliary buildings on a single property. We give special consideration to these situations to ensure that these are integrated in a sensible way. In situations where multiple addresses are present for a single building or an address point is not located within the building footprint polygon, the parcel that contains the building will be needed to assign an address. When the parcel layer cannot be used to assign a single address to a building containing multiple addresses, a spatial join with the "FIRST" function on the address field in the address point layer can be used to correct these gaps. This ensures that at least one address is associated with a building.

The relationship between buildings and parcels is more straightforward compared to buildings and addresses because in nearly all situations a building will be contained by a single parcel. However, sometimes parcels are divided into sub-parcels, as in condominiums, where one building footprint can contain multiple parcels. In these circumstances, a spatial join with the "FIRST" function will assign the parcel identifier to the building footprint. It is a necessary workaround in situations where it is not a one-to-one relationship.

1.3 DESCRIPTION OF THE STANDARD

The standard describes the content and data structure necessary to define, generate, and use the statewide building footprints of Oregon. The fundamental aspect of the BFDS is to support data sharing and make it easier for data contributors to provide updated building footprints to the statewide dataset. It will also serve to ensure that a consistent and reliable dataset is accessible for the entire state.

Attributes outlined by this data standard were determined to best address the potential uses of the data and to facilitate data maintenance over time. Building footprint data is intended to serve a variety of functions, so the data structure must reflect this characteristic. Needs and functionality can shift across the entire state, so the data standard must be applicable to this extent as well. The data standard enables connectivity to other associated Framework datasets. Unique identifiers (address points key field and cadastral key field) were included to aid data maintenance and so that subsets can easily be generated.

1.4 APPLICABILITY AND INTENDED USE OF STANDARD

The intent of this data standard is to support the development, sharing, and maintenance of the building footprints dataset. This standard establishes a consistent format, structure, and documentation for users of the building footprint dataset. It is a minimum standard intended to be usable by all levels of government, academia, and the private sector. Future versions of the building footprints data standard may contain revisions that differ from the standard described in this document as unanticipated needs arise.

An up-to-date statewide building footprints dataset will also allow for the easy integration and joining to other statewide datasets, such as the recently completed address point data, without the need to adjust or conform the data during use in emergencies.

With the formalization of a building footprints data standard, contributors that provide updates to the building footprints dataset can format attributes to integrate with the SBFO. While data contributors are not required to format data to fit the SBFO, this additional step can expediate the update process. Some field values may be unavailable or other constraints may prevent data contributors from fully attributing building footprints to the data standard. DOGAMI will complete missing values to ensure that all building footprint updates are following the data standard.

1.5 STANDARD DEVELOPMENT PROCEDURES

1.5.1 Participants:

The Building Footprints Workgroup is composed of state, county, and city representatives. Participation in the workgroup is open to all entities that are concerned with production, use, and exchange of statewide building footprint data. Present member affiliations range from state agencies, local and regional government, planning organization, and academia.

1.5.2 Comment Opportunities and Reviews:

The Oregon Building Footprints Data Standard was circulated throughout Oregon's GIS Community for review and comment. Table 1.1 describes the review period and refinement throughout the development process.

Table 1.1 – Data Standard Development and Review Process

Date	Review	Result
Winter/Spring 2025	Workgroup Development	Draft Standard
May 15, 2025	Proto Standard Presentation	Presentation to GIS Community at Framework Forum.
August 2025	Public Review Period	Proto Standard published on GEO Website and circulated through Listservs (FIT, Address & Buildings FIT, Cadastral FIT, GPL, TAC, OGIC, etc.)
September 2025	Formal Peer Review	Draft Standard underwent formal peer review by Advisory Group comprised of active Framework members from multiple themes.
November 2025	Technical Review of Preliminary Final Draft	Technical Review by members of OGIC TAC. Recommendations provided for OGIC's Review.
April 2026	OGIC Request for Endorsement	Presentation to OGIC of Final Draft. Request for Endorsement.
May 2026	Endorsement & Promulgation	Published to GEOHub and communicated through listservs and upcoming Framework forum

1.6 MAINTENANCE OF THE STANDARD

Maintenance of the standard will occur on an as-needed basis. Over time an unforeseen need or data usage could emerge that the building's data standard does not meet. In this case, the data standard can be revised so that the SBFO accommodates this usage. Opportunities for feedback from data users will be important so that revisions will fill in gaps that the current data standard does not address.

DOGAMI is the stewarding agency of the SBFO and its data standard and will provide annual updates to the SBFO to maintain its status as the best available data source for building footprints in Oregon. DOGAMI through the FIT program, specifically the Address and Buildings FIT, will regularly be in contact with many of the data users and data contributors to the SBFO so that new datasets will be identified and the update process can begin. For data submissions that need additional editing, DOGAMI is developing tools that will be used to automate the process of updating the building footprint dataset with new data. The automation process will ensure consistency and quicken the amount of time needed to update the SBFO.

Data contributors should format data submissions of building footprints based on the data standard and strive to complete attribute values to the extent of their resources and capabilities. DOGAMI will modify data submissions that do not meet the minimum data standard, so that updates to the SBFO are in alignment with the data standard. We will use GIS processes and automated tools developed specifically to prepare data for an update to the SBFO.

2.0 BODY OF THE STANDARD

2.1 SCOPE AND CONTENT OF THE STANDARD

The scope of SBFO data standard defines a building as a permanent, walled and roofed structure that can be occupied by a human for a duration of time. Structures included in the statewide building footprint dataset can act as shelter, even if that is not their primary function. We recognize that some structures still do not neatly fall within this definition, so a determination was made during the review process that would result in consistency across the separate datasets. A size limitation of greater than 100 square feet (9.3 square meters) was set to remove most of the superfluous structures from the dataset. Non-building structure types intended to be removed were:

- Hoophouses or plastic-covered greenhouses,
- Types of infrastructure (dams, water tanks/towers, electric transmission, sewage and water treatment tanks),
- Tents, awnings, and carports,
- Small garden/storage sheds,
- Manufactured homes for sale (to be transported after purchase),
- Grain silos

2.2 NEED FOR THE STANDARD

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 meets the data needs of its GIS users.

2.3 PARTICIPATION IN STANDARD DEVELOPMENT

The Oregon Building Footprints Workgroup was comprised of local jurisdictions, state agencies, and academic partners. Participation in the workgroup was open to all entities interested in the production, use and exchange of building footprints. The workgroup was intentionally composed of participation throughout various levels of stakeholder interest including data originators, data aggregators, and data consumers. Listed below are all local, state, and academic organizations that participated in development or review of the building footprint standard.

Local Jurisdictions:

- City of Portland
- Douglas County

- Lincoln County

Regional Planning:
- Lane Council of Governments

State Agencies:
- Oregon Department of Emergency Management
- Oregon Department of Forestry (ODF)
- Oregon Department of Geology and Mineral Industries
- Oregon Department of Land Conservation and Development
- Oregon Geospatial Enterprise Operations
- Oregon Department of Environmental Quality (DEQ)

Academic Partners:
- Portland State University, Population Research Center

2.4 INTEGRATION WITH OTHER STANDARDS

The BFDS coordinates closely with the Address Points Data Standard and Cadastral Data Exchange Standard.

Statewide Address Points Data Standard[1]: The Oregon Address Point Standards workgroup will coordinate closely with the Statewide Buildings Footprint workgroup to ensure the integration of the two datasets will be a top priority. Address points are associated with building footprint polygons and a building identifier can be added to the address points to group them by building. Previously mentioned methods for attributing buildings with multiple addresses or multiple buildings that share an address will be used to assign building footprints with an address. Buildings that legitimately do not have an address will be attributed with "NO ADDRESS" to indicate that it is a building without an associated address.

Cadastral Data Exchange Standard[2]: Buildings are located within parcel polygons and a parcel identifier can be added to the building footprints to group them by parcel. Occasionally, building polygons or their centroid can fall outside of a parcel area, but this can be due to an error in the map projection or during digitization. Other situations can also create a misalignment between building polygons and their corresponding parcel area. In some situations where multiple parcels intersect with a single building footprint, a spatial join with the "FIRST" function will assign the parcel identifier to the building footprint.

2.5 TECHNICAL AND OPERATIONAL CONTEXT

2.5.1 Data Environment

[1] https://www.oregon.gov/eis/geo/Documents/Oregon-DRAFT-Address-Point-Standard-for-Public-Review-20250116.pdf

[2] https://geohub.oregon.gov/pages/cadastral-theme

This standard can be implemented as an ESRI file geodatabase with domains. The SBFO is composed of a single dataset of polygon data elements that represent the outline of a building. This geographical data is stored in an ESRI file geodatabase, a format supported by most GIS software used in public agencies.

2.5.2 Reference System

The SBFO data utilizes a coordinate reference system that is typically used in other datasets that have an extent that encompasses the state of Oregon. The Oregon Lambert map projection is most suitable for the SBFO data because of its statewide extent and will integrate well with other closely related datasets in the state. This is the map projection endorsed by the Oregon Geographic Information Council as the standard for state agencies. Since the SBFO is a compilation dataset that is updated from data contributors in the state, potential spatial transformation may need to be applied to data from contributors not using this system.

2.5.3 Integration of Themes

Oregon's Framework Program oversees multiple geospatial datasets that are organized into 16 data themes. Each theme is composed of multiple datasets that are related by broad subject matter. Every theme is managed and maintained by a group of volunteers called Framework Implementation Teams (FIT).

The SBFO is located within the address and buildings theme, which are data elements that are strongly associated with one another. Buildings typically have one or multiple associated addresses, or are located on a property with an address, and addresses are assigned to a building or constructed feature. There is a very high correlation between the two datasets.

The SBFO is also closely tied to the Cadastral Theme in that nearly every building, barring a spatial error or other special circumstances, is located within a parcel polygon. The SBFO is attributed with a parcel identifier within every building footprint. For buildings that occasionally cross jurisdictional boundaries, the centroid of the building footprint determines the precise location of a building.

The integration of the address and parcel datasets into the building footprints will be handled by DOGAMI using GIS processes and automated tools. All data submissions for updating the SBFO will go through this integration process before being incorporated into the SBFO.

Briefly, an address point that is within a building footprint will be joined to that building. For buildings with multiple address points within, a "FIRST" setting will be using to assign a single address to the building. Similarly, for the parcel that contains a building, will have its unique identifier transfers to that building. In cases of multiple parcels, like condominiums, within a single building a "FIRST" setting will be used to assign a single parcel ID to a building. Parcels will also be used to assign an address ID to buildings that do not contain any address point.

2.5.4 Encoding

Data elements of the SBFO are all vector polygons and are stored in a file geodatabase.

2.5.5 Resolution

The resolution of building footprint data is determined by the businesses, organizations, and agencies that generate the data. Most building footprints in the state dataset were digitized from orthoimagery that ranges from a 0.5 ft^2 (0.046 m^2) to 3 ft^2 (0.28 m^2) resolution.

Many of the buildings in Oregon were generated by Microsoft using Bing imagery falling into the resolution parameters mentioned in the preceding paragraph. Due to the prevalence of errors in the Bing dataset, it was necessary to visually review the data. Those building footprints were reviewed at a 1:3,000 to 1:6,000 map scale to make corrections as needed (Williams, 2023).

2.5.6 Accuracy

2.5.6.1 Horizontal Accuracy

Most of the building footprints in the SBFO correctly represent the 2D geometry of Oregon's buildings, but there are a variety of inaccuracies that can occur. Most horizontal inaccuracies are related to methods used to generate the building footprint.

Automated building digitization used in generating the Microsoft Bing buildings dataset, which comprises ~30% of the buildings in the state, can have errors that fall primarily into three types. The first are errors due to vegetation that obscures the outline of the building. The second are errors that occur for very large buildings (>50,000 ft^2), where the outline completely misrepresents the actual footprint. We cannot determine with high certainty why this occurs, but we do see this consistently across the dataset. Third, there are many false positives and missed buildings in the original dataset (Williams. 2023).

The aim of the review process was to correct these mistakes as much as possible (Williams, 2023). DOGAMI spent hundreds of hours reviewing the Bing dataset to edit out these errors. In the future, automated building digitization products should have fewer of these types of errors.

2.5.6.2 Attribute Accuracy

The accuracy of the attributes is largely dependent on the source data from which they are derived. Most attribute fields of the SBFO are consistently accurate. Attributes derived from source data, imagery, and associated datasets (address points and cadastral) are reliable.

Some attribute fields can only be obtained through assessor's information, which is both inconsistent and more accurate than other alternatives. This source is created on a county-by-county basis and so intrinsically has a wide range in quality of details and accuracy. When assessor's data is unavailable, we can use default values or very coarse datasets to approximate an attribute value.

Two SBFO attributes that can be obtained from assessor's data, square footage and year built, also have associated source attributes to inform the data user of their potential for inaccuracy. In both cases, the assessor's information data source, are typically more accurate than other possible sources for these attributes.

2.5.7 Edge Matching

Issues related to edge matching were very minimal for the SBFO and errors were corrected using

GIS tools. In nearly every case, buildings that were located on a county boundary might be duplicated. The same issue could happen during the compilation process where the same building was digitized in different datasets and then repeated in the final compiled SBFO. These duplicated building footprints were identified and removed.

2.5.8 Feature Identifier

Every feature identifier is assigned to a building footprint and is unique and permanently fixed to that building location. Buildings where modifications to the original structure occur will retain the original identifier. A county FIPS code will be used as a prefix to the identifier to prevent a potential repeating identifier from different data providers.

2.5.9 Attributes

Attributes of the SBFO are grouped into four categories based on their source:

- Structure – attributes associated with the location or the polygon itself
- Address – attributes associated with the address source
- Parcel – attributes associated with the assessor's data or a taxlot source
- Metadata – attributes related to aspects of the metadata

2.5.10 Transactional Updating

DOGAMI will oversee data updates and has taken steps to involve state data providers into the data standard development process. We anticipate annual updates to the SBFO with some reformatting or other adjustments to the data to be appended from state data providers. Open-source building footprint datasets that are generated using automated methods are infrequent and have no determined timeline require a more intensive process. We will need to review newly added building footprints, run edits, and perform attribution before appending to the SBFO on a county-by-county basis. In the future, we anticipate that open-source building footprints will be available and will be a key component to maintaining the SBFO.

2.5.11 Records Management

The SBFO Data Standard will be available to the public via OGIC's Hub site with all other Oregon Framework standards. The SBFO data will be publicly available as online data services or data downloads through GEOHub. The SBFO and associated report will also be accessible through DOGAMI's publication website at https://www.oregon.gov/dogami/pubs/Pages/dds/p-SBFO-1.1.aspx.

2.5.12 Metadata

The standard follows the Oregon Framework Metadata Standard for geospatial data, which is integrated with the Federal Geographic Data Committee, Content Standard for Digital Geospatial Metadata.

3.0 DATA CHARACTERISTICS

3.1 SPATIAL DATA ELEMENTS

The SBFO is composed of a single dataset of polygons that represent the outline of building, called a building footprint.

3.2 ATTRIBUTES OR NON-GRAPHIC DATA ELEMENTS

Table 3.1 describes the data attributes that are included for building footprint features. The details shown for features are the category, name, description, data type, width (or length), and nullable.

Table 3.1 – Building Footprint Data Schema

GROUP	FIELD NAME	FIELD DESCRIPTION	DATA TYPE	WIDTH	REQUIRED
STRUCTURE	ORBLD_ID	Unique Building Footprint Identifier	TEXT	10	Y
STRUCTURE	Float_Bld	Whether the building is floating on water	SHORT INT	1	Y
STRUCTURE	LAG	Lowest Adjacent Grade above sea level in feet	LONG INT	4	N
STRUCTURE	Mean_Roof_Ht	Average height of roof above ground in feet	SHORT INT	3	N
STRUCTURE	County	County name	TEXT	20	Y
ADDRESS	Address_ID	Unique address Identifier	TEXT	20	Y
ADDRESS	Address	Physical street address	TEXT	100	Y
ADDRESS	Num_Units	Number of housing units in building	SHORT INT	2	N
ADDRESS	Historic_ID	Unique historic building identifier	SHORT INT	1	N
PARCEL	Parcel_ID	Parcel unique identifier	TEXT	20	Y
PARCEL	Parcel_Pub	Publication date of parcel layer for version identification	DATE	4	Y
PARCEL	Area_ft	Square feet of the building footprint	LONG INT	6	Y
PARCEL	Area_Src	Source of building footprint area	TEXT	75	Y
PARCEL	Basement	Presence of a basement	SHORT INT	1	Y
PARCEL	Num_Stories	Number of Stories	SHORT INT	3	N
PARCEL	Year_Built	Year Built	DATE	4	N
PARCEL	Year_Built_Src	Year Built Source	TEXT	75	N
PARCEL	Bld_Type	Building Type	TEXT	6	Y
PARCEL	Occ_Type_Gen	Occupancy Type Gen	TEXT	6	Y
PARCEL	Occ_Type_HAZUS	Occupancy Type HAZUS	TEXT	6	Y
PARCEL	RMV	Real Market Value	LONG INT		Y
PARCEL	RMV_Source	Source of the RMV	TEXT	75	Y
METADATA	Pub_Date	Most recent publication date of the data	DATE	4	Y
METADATA	Review_Date	Year of the most recent validation review	DATE	4	Y
METADATA	Review_IMG	Image identifier used for validation review	TEXT	75	Y
METADATA	Review_IMG_Year	Image year used for validation review	DATE	4	Y
METADATA	Source	Name of source used to generate data	TEXT	75	Y
METADATA	Source_Date	Year of data source	DATE	4	Y
METADATA	Source_Type	Type of data source	TEXT	25	Y
METADATA	Contributor	Group that contributed data to compilation	TEXT	75	Y

4.0 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://pubs.oregon.gov/dogami/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://pubs.oregon.gov/dogami/dds/p-SBFO-1.1.htm.

Appendix A: Acronyms

Acronym	Description
BFDS	Building footprints data standard
FIPS	Federal Information Processing Standard
GEO	Geospatial Enterprise Operations
GIS	Geographic information system
OGIC	Oregon Geographic Information Council
SBFO	Statewide Building Footprints for Oregon

Appendix B: Workgroup Participants

Participant	Organization
Anne Stine	City of Portland
Arthur Rodriguez	Oregon Department of Forestry
Chris Hughes	Lincoln County
Christine Barrows	Lane Council of Governments
Daniel Stoelb	Oregon
Elliot Akwai-Scott	City of Portland
Erik Larson	Oregon Department of Forestry
Ethan Sharygin	Portland State University, Population Research Center
Heidi Wood	Douglas County
Lauren McKinney-Wise	City of Portland
Matt Williams	FIT Co-lead, Oregon Department of Geology and Mineral Industries
Melissa Foltz	Framework Coordinator, Oregon Department of Administrative Services
Neil Loehlein	City of Portland
Paul Cone	City of Portland
Stuart Mills	City of Portland
Tanya Haddad	Oregon Department of Land Conservation and Development
Tom Elder	FIT Co-lead, Department of Administrative Services
Vyla Grindberg	Douglas County

Appendix C: Implementation

Sample code for implementing the standard.

Oregon Building Footprint Data Standard – SQL Server data definition language

```
CREATE TABLE [dbo].[OREGON_BUILDING_FOOTPRINT_STANDARD] (
-- STRUCTURE
 [ORBLD_ID]           [VARCHAR]     ( 10)     NULL
,[Float_Bld]          [INT]         (  1)     NULL
,[LAG]                [INT]         (  4)     NULL
,[Mean_Roof_Ht]       [INT]         (  3)     NULL
,[County]             [VARCHAR]     ( 20)     NULL
-- ADDRESS
,[ADDRESS_ID]         [VARCHAR]     ( 36)     NULL
,[ADDRESS]            [VARCHAR]     (255)     NULL
,[Num_Units]          [INT]         (  2)     NULL
,[Historic_ID]        [VARCHAR]     ( 20)     NULL
-- PARCEL
,[Parcel_ID]          [VARCHAR]     ( 20)     NULL
,[Area_ft]            [INT]         (  6)     NULL
,[Area_Src]           [VARCHAR]     ( 75)     NULL
,[Basement]           [INT]         (  1)     NULL
,[Num_Stories]        [INT]         (  3)     NULL
,[Year_Built]         [DATE]        (  4)     NULL
,[Year_Built_Src]     [VARCHAR]     ( 75)     NULL
,[Bld_Type]           [VARCHAR]     (  6)     NULL
,[Occ_Type_Gen]       [VARCHAR]     (  6)     NULL
,[Occ_Type_HAZUS]     [VARCHAR]     (  6)     NULL
,[RMV]                [INT]         ( 12)     NULL
,[RMV_Source]         [VARCHAR]     ( 75)     NULL
-- METADATA
,[Pub_Date]           [DATE]        (  4)     NULL
,[Review_Date]        [DATE]        (  4)     NULL
,[Review_IMG]         [VARCHAR]     ( 75)     NULL
,[Review_IMG_Year]    [DATE]        (  4)     NULL
,[Source]             [VARCHAR]     ( 75)     NULL
,[Source_Date]        [DATE]        (  4)      NULL
,[Source_Type]        [VARCHAR]     ( 25)     NULL
,[Contributor]        [VARCHAR]     ( 75)     NULL;
```

Appendix D: Lookup Tables

Database lookup tables are used for the domains of acceptable values of a field.

County Lookup Table

Table D.1: County Lookup Table Schema

LOOKUP_COUNTY

NAME	TYPE	WIDTH	DESCRIPTION
COUNTY_FIPS	Text	3	Census county code – Leading values of ORBLD_ID attribute
County	Text	100	County name.

Table D.2: County Lookup Table Attributes

COUNTY_FIPS	County
001	Baker
003	Benton
005	Clackamas
007	Clatsop
009	Columbia
011	Coos
013	Crook
015	Curry
017	Deschutes
019	Douglas
021	Gilliam
023	Grant
025	Harney
027	Hood River
029	Jackson
031	Jefferson
033	Josephine
035	Klamath
037	Lake
039	Lane
041	Lincoln
043	Linn
045	Malheur
047	Marion
049	Morrow
051	Multnomah
053	Polk
055	Sherman
057	Tillamook

059	Umatilla
061	Union
063	Wallowa
065	Wasco
067	Washington
069	Wheeler
071	Yamhill

Occupancy Type (General) Lookup Table

Table D.1: Occupancy Type (General) Lookup Table Schema

LOOKUP_OCCTYPG

NAME	TYPE	WIDTH	DESCRIPTION
Occ_Type_Gen	Text	6	Generalized building use type

Table D.2: Occupancy Type (General) Lookup Table Attributes

Occ_Type_Gen	DESCRIPTION
AGR	Agriculture
RES	Residential
COM	Commercial
PUBLIC	Public
INDUS	Industrial

Occupancy Type (HAZUS) Lookup Table

Table D.1: Occupancy Type (HAZUS) Lookup Table Schema

LOOKUP_OCCTYPH

NAME	TYPE	WIDTH	DESCRIPTION
Occ_Type_HAZUS	Text	6	Building use type based on HAZUS default Occupancy Class Types

Table D.2: Occupancy Type (HAZUS) Lookup Table Attributes

Occ_Type_HAZUS	DESCRIPTION
AGR1	Agriculture
COM1	Retail Trade
COM2	Wholesale Trade
COM3	Personal and Repair Services
COM4	Professional/Technical Services
COM5	Banks
COM6	Hospital
COM7	Medical Office/Clinic
COM8	Entertainment and Recreation
COM9	Theaters
COM10	Parking

EDU1	Grade Schools
EDU2	Colleges/Universities
GOV1	General Services
GOV2	Emergency Response
IND1	Heavy
IND2	Light
IND3	Food/Drugs/Chemicals
IND4	Metals/Minerals Processing
IND5	High Technology
IND6	Construction
REL1	Church/Non-Profit
RES1	Single Family
RES2	Mobile Home
RES3A	Multi Family - Duplex
RES3B	Multi Family – 3-4 units
RES3C	Multi Family – 5-9 units
RES3D	Multi Family – 10-19 units
RES3E	Multi Family – 20-49 units
RES3F	Multi Family – 50+ units
RES4	Temporary Lodging
RES5	Institutional Dormitory
RES6	Nursing Home

YES_NO Lookup Table

Table D.1: YES_NO Lookup Table Schema

LOOKUP_YES_NO

NAME	TYPE	WIDTH	DESCRIPTION
Float_Bld	SHORT INT	1	Whether the building is floating on water
Basement	SHORT INT	1	Presence of a basement

Table D.2: YES_NO Lookup Table Attributes

YES_NO	DESCRIPTION
1	Yes
0	No