**3D DIGITAL MODEL SUBMISSION REQUIREMENTS**

# **Overview**

The purpose of the guidelines is to provide technical guidance for submitting 3D digital models for planning applications to Bayside City Council. The 3D digital model will be inserted into the 3D virtual model of Bayside’s local government area and will be used for detailed development assessment.

All applications for planning permits within the Bayside City Council’s Major Activity Centres are to submit a 3D model that explicitly reflects the proposed development at each stage:

1. **Application** – Model of the initial proposal at the application lodgement stage.

2. **Advertised** – Model of the modified proposal before going to public advertisement (if modifications are made).

3. **Approved** – Model reflecting the final approved proposal prior to construction (if modifications are made)

# **File formats accepted**

**3D Models**

* COLLADA (DAE)
* OBJ
* Direct X (X) and its compressed version (XPC)
* 3D studio (3DS)
* OpenFlight (FLT)
* XPL and XPL2
* GLB

**Building Information Models (BIM)**

* Autodesk Revit (FBX)
* ****Industry Foundation Classes (IFC)

# **Technical specifications**

* Working units in meters and at 1:1 scale
* The model must be drawn with the correct orientation relative to North
* The height, as a Z value (Z is up) must be used in accordance with the Australian Height Datum (AHD)
* The model is to be delivered in two layers:
	+ 1. CADASTRE\_BASE, 2. BUILDING
* If georeferenced, use GDA2020, Zone55 (EPSG:7855). Include a georeferenced cadastral base (site boundary, aerial image). Entire development must be modelled up to the property boundary. The cadastral base of the model must follow the terrain slope across the site. Please put this layer on LAYER: CADASTRE\_BASE
* If georeferencing is not possible, models need to be provided as object-centred, having both the origin and pivot point at 0,0,0. A plan must also be provided that indicates applicable offsets from the title boundary if the model does not occupy the entire site. Provide the insertion point of the model in georeferenced space (GDA2020, Zone55 (EPSG:7855))

# **Model Optimization**

The two main factors in the optimization of a model for real-time visualization are: polygon count, as described in Model Geometry section, and texture size, as detailed in the Model Texture section.

**Model Geometry**

3D geometry must be modelled using polygons (NURBs and Subdivisional Surfaces are not acceptable).

Building envelope should show external walls, floor slabs, roof and roof pitches, roof services, windows, doors, skylights, openings, balconies – including glass balustrades, terraces, glazing. Models should be exported as a shell, where walls and class panels are made into a full 3D form. Models must have only single-sided faces that do not overlap. Ensure all the normal are facing outward.

A model that is over 3 million triangles on export must also be packaged with a lower detail version (less than 100,000 triangles). Please put this on LAYER: BUILDING

**Model Texture**

All textures must be in JPG, TIFF, and PNG formats. Use Basic Standard Materials on all surfaces.

3D model surfaces should be made of either all textured surfaces of all coloured surfaces, not both

If no textures are supplied, then colours must be used. It is recommended to group several small textures into one texture. Texture pixel dimensions should be multiples of two. Maximum total combined texture size for a single building – 2048 x 2048 pixels.  Only alphanumerical (A-Z and 0-9) characters are used in texture names. Spaces, symbols, and other characters are not supported.  The model should be purged of all unused texture links and object links.

**Exclusions**

* Vegetation, people, cars, and other entourage elements
* Internal and unseen features including internal walls, furniture, stairs, joinery, and fixtures
* Overly complex and highly polygonised features
* Model geometries should have no unnecessary vertices, faces or polygons. Redundant and duplicate polygons, co-planar faces, lines, and textures must be removed.
* ****Gaps or missing elements

# **File naming**

Models must be named according to:

* Planning application number (for live applications)
* Site address (Street name\_Street number\_Suburb)
* File export date (YYYYMMDD)
* Application status (‘Proposed’, ‘Advertised’, ‘Approved’)

For example: 5\_2022\_586\_RoyalAve\_76\_Sandringham\_20221011\_Proposed.zip

Please ensure that the site address is clearly provided. In the email communication, please use the naming conventions above and include it in your subject line.

# **Delivery**

Models are to be provided to the Planning Team.

**CHECKLIST FOR DIGITAL 3D MODEL SUBMISSION**

Please ensure that you have read the requirements and that the 3D Digital Model complies with the following:

|  |  |
| --- | --- |
| R | Accepted file format |
| R | Units in meters |
| R | Height in accordance with AHD |
| R | Correct North orientation |
|  |  |
|  | **Georeferenced** R | **Not Georeferenced** R |
| R | CADASTRE\_BASE Layer, in EPSG:7855 | Object-centred model, having both the origin and pivot point at 0,0,0.  |
| R | Entire development is modelled up to property boundary | A plan must also be provided that indicates applicable offsets from the title boundary if the model does not occupy the entire site.  |
| R | Model must include correct ground level fall across the site. | Provide the insertion point of the model in georeferenced space (EPSG:7855) |
| R | BUILDING Layer |
| R | All normal are facing outward |
| R | No internal features shown |
| R | Textured or coloured 3D digital mode, (not both) |
| R | Internal features were excluded |
| R | No redundant or duplicated features |
| R | No gaps or missing elements |
| R | Model is optimised |
| R | Correct file name |