

V3D PILOT PROGRAM: VANCOUVER 3D DIGITAL MODEL SUBMISSION

1. OBJECTIVE

The objective of the Vancouver 3D Digital Model Submission (V3D) Pilot Program is to support digital innovation in urban design review and approval processes. The V3D Pilot Program allows submission of digital models as a potential alternative or enhancement to physical models.

V3D is structured to create opportunities to explore innovative digital representations after the proposal, and enhance the review experience for the public, stakeholders, and staff. The projects selected are contingent on program capacity, technical requirements, comprehensiveness, and suitability. The program will be limited to run through March 2022, after which time it will be reviewed for its efficacy.

2. ELIGIBILITY FOR THE PILOT PROGRAM

When the requirement for a model is determined during the approval process, staff will work with applicants on evaluating eligibility for V3D and the approach to digital presentations. There will be a limited opportunity for staff to select up to 20 projects. Applications will be considered based on the complexity of the proposal and its context, as well as the stage of detailed design development. Project typologies that may be considered for V3D include:

- Projects under the Development Permit Application review process following an approved Rezoning Application where a large scale physical model is already available; **or**
- Mid-rise (6-12 storeys) projects meeting the density and built form guidelines under community plans or other policies for both Rezoning and Development Permit Applications; **or**
- Projects where the built form is readily understood, such as mid-block infill projects, and where a high level of detail is important to evaluating the urban design responses.

3. SUBMISSION PROCESS AND REQUIREMENTS

a. Applicant and Vendor

- Applicant is to produce and submit a 3D digital model for the proposal, or engage a third-party vendor that can provide a digital modeling service.
- Applicant shall remain as the single point of contact with the City; applicant will work with any third-party vendor to meet the City's standards.
- Applicant shall be responsible for working with City staff during the process to make adjustments to the model and scenarios including presentation requirements and other visual representation requirements.

b. Use and Records

- Similar to plans and drawings included in a development permit application, the 3D digital model submission shall be filed for the City's records and become the property of the City.
- The digital files should be exportable to the City's standard format for record retention (AutoDesk Infracore).
- The digital files may be used to form part of the City's database for planning analysis in the future.
- All documents, intellectual property, and models owned by the City or that are in the custody or control of the City are governed by the Freedom of Information and Protection of Privacy Act.

c. Model Requirements

- The 3D digital model should:
 - Include a context of minimum 500m x 500m (approximately five minute walking distance). The exact extent of the context will be determined in consultation with City staff.
 - Be sufficient to identify the site and describe fully the proposed development, and appropriately georeferenced to enable import into the City database.
 - Comprise high level of details (LOD 2 or LOD 3 - see 4.c) including detailed roof form, architectural elements, and materials, colours and significant trees.
 - Allow interactive navigation and users to control and move from place to place.
- As part of the application notification and consultation process, a short animation or video may be requested for public access online or at other public events.
- A large scale physical model reviewed at a previous stage of approval, such as Rezoning, should be provided as applicable.

d. Technical Requirements

- The City will provide the applicant with hardware/software within the existing City's standards to run the 3D digital model at the Advisory Design Panel meetings and Council meetings. If additional hardware/software is required, it must be provided by the applicant (see 4.a and 4.b).
- The City may provide the applicant with our current city-wide LOD 2 (level of detail) data to support model if required (data to be used for the purposes of this pilot only).
- Applicant is to provide hardware, software and connectivity needed to run the 3D digital model at the Open Houses (e.g. high performance computer with projector, tablets.).
- The 3D digital model should be exportable to a format that can be retained by the City in accordance with corporate records retention policies (3D Models in AutoDesk Infracore or similar format that is compatible with the City's system - see 4.a).
- Scenario outputs (static images/animation files) should be exportable by the applicant and provided to the City for corporate records retention.

Desired Outcomes

- Support innovation in digital project representation as well as in the approval process;
- Understand details of models provided by vendors in the industry, including type and details of data being received.
- Identify gaps between what is being submitted vs. what the City can support, and actions required to fully support the processes.
- Understand if 3D modelling is beneficial to internal processes (cost/benefit).
- Understand impact on resource requirements across Planning Department, Technology Services, and Applicants.
- Identify appropriate approval stage for 3D digital model to be use.
- Enhance the accessibility of the 3D digital model for various stages of the review process
- 3D digital model to form part of the digital submission (ePlans).

4. STANDARDS

a. City of Vancouver Hardware Standards

Device	Model
Standard CAD/Graphic Workstation	ThinkStation P330 32GB RAM <ul style="list-style-type: none"> ◦ CPU: Intel Core i7-9700K Processor (12MB Cache, 3.60GHz) ◦ RAM: 2 * 16GB DDR4 2666MHz UDIMM ◦ HDD: 1024GB Solid State Drive, M.2, PCIe, Opal ◦ Graphics Card: NVIDIA Quadro RTX 4000 8GB (3xDP+VirtualLink)
Standard High Performance Mobile Workstation	ThinkPad P1 Gen 2 <ul style="list-style-type: none"> ◦ CPU: Intel Core i7-9850H Processor with vPro (2.60GHz, up to 4.60GHz with Turbo Boost, 6 Cores, 12MB Cache) ◦ RAM: 32GB (16+16) DDR4 2666MHz SoDIMM ◦ HDD: 512GB SSD NVMe M.2 2280 OPAL ◦ Display: 15.6 FHD (1920x1080), LED Backlight, IPS, Anti-glare, 300nits ◦ Video Card: NVIDIA Quadro T1000 4GB GDDR5 128bits
Mobile Phones	Apple iPhone XR - 64GB and 128 GB Samsung Galaxy JR (2018)
Tablets	Apple iPhone XR - 64GB and 128 GB Samsung Galaxy JR (2018)

Connectivity options:

- City's Public WiFi or applicant's own LTE plan

Presentation options:

- Meeting rooms with wireless adapters
- HDMI cables
- Any adapters required for tablet/mobile display

b. City of Vancouver Software Standards

The 3D digital model should be exportable to one of the following formats in order for the City to place it within the city-wide 3D model database.

City's internal application	Data format that can be read	Long term storage and compatibility with other applications
Autodesk InfraWorks	FBX, IMX, 3DS, OBJ, DAE, DXF, DWG, Revit (RVT), CityGML, Bentley (DGN), IFC (Open BIM format), LandXML, and SketchUp (SKP)	A well-supported format like FBX, or DAE (Collada). The conversion can be handled directly by InfraWorks or by FME.

Standard software options:

- ESRI ArcGIS Pro
- SketchUp
- Rhino

**Any software required to interact with the model outside of the above listed standards will be subject to Technology Services review and approval process, includes assessment of compatibility with the City's technical environment (cybersecurity, architecture standards)*

c. Level of Detail Specifications

Applicants are required to provide 3D models in LOD2 or LOD3.

- The majority buildings in our City model (InfraWorks) are LOD2 (generated from City's LIDAR), along with more detailed SketchUp Models and true LOD3 Pictometry Buildings.
- Depending upon the stage of the review we would expect a LOD2 building (early massing discussions) or a LOD3 building for the Development Permit Board,

Level of detail	LOD1	LOD2	LOD3
Definition	3D Extrusion	3D extrusion with roof form or building shell	High detail 3D building models
Data required	# of stories or total height & or usage	# of stories or total height & or usage & roof height	3D building shell with fine details (textured or un-textured)

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