IN RE
Computer-Aided Engineering Services

Riga, 2018-09-13

BIM and Beyond
Baltic Tour 2018

Panevėžys 3D

A SmartCity Case Study in Lithuania

Dr. **Arūnas Urbšys**
Projects Development Director, UAB „IN RE“

Why SmartCities are growing?

Microsoft CityNext
What's next for your city?

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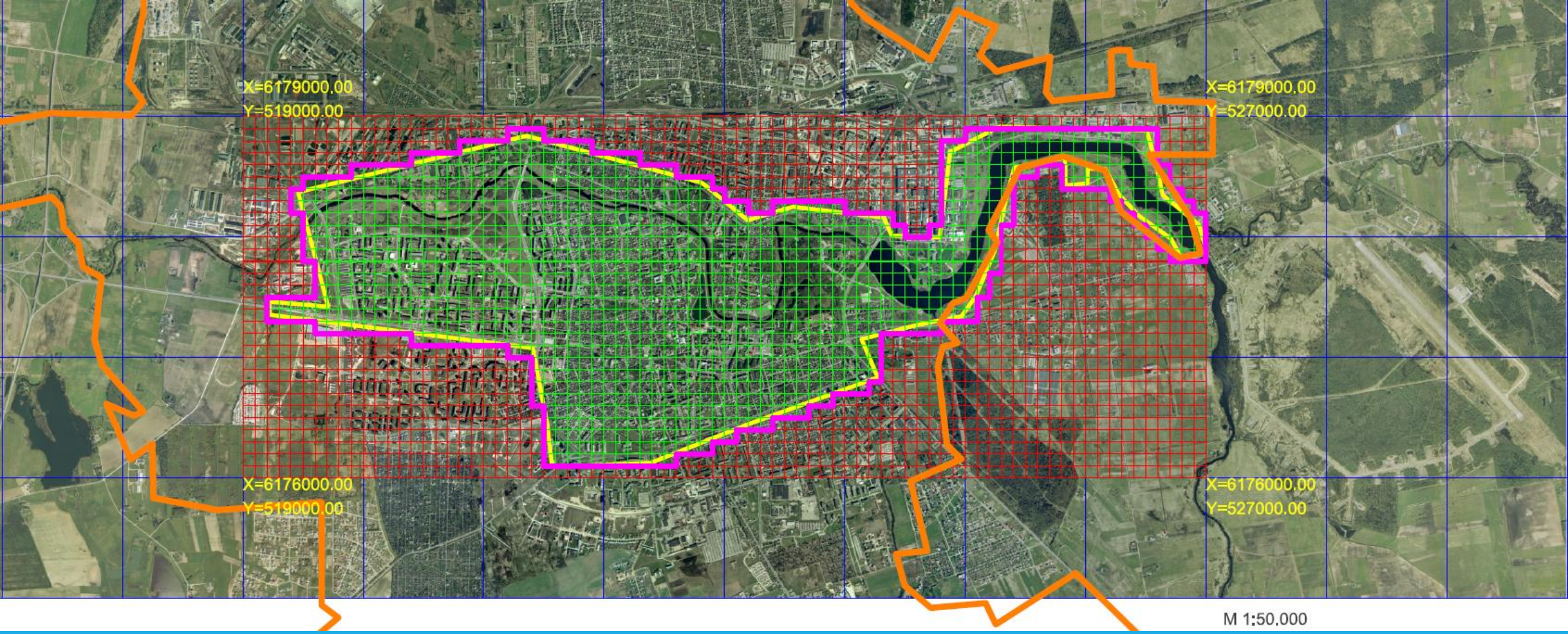
Gain better insights

Transform operations & infrastructure

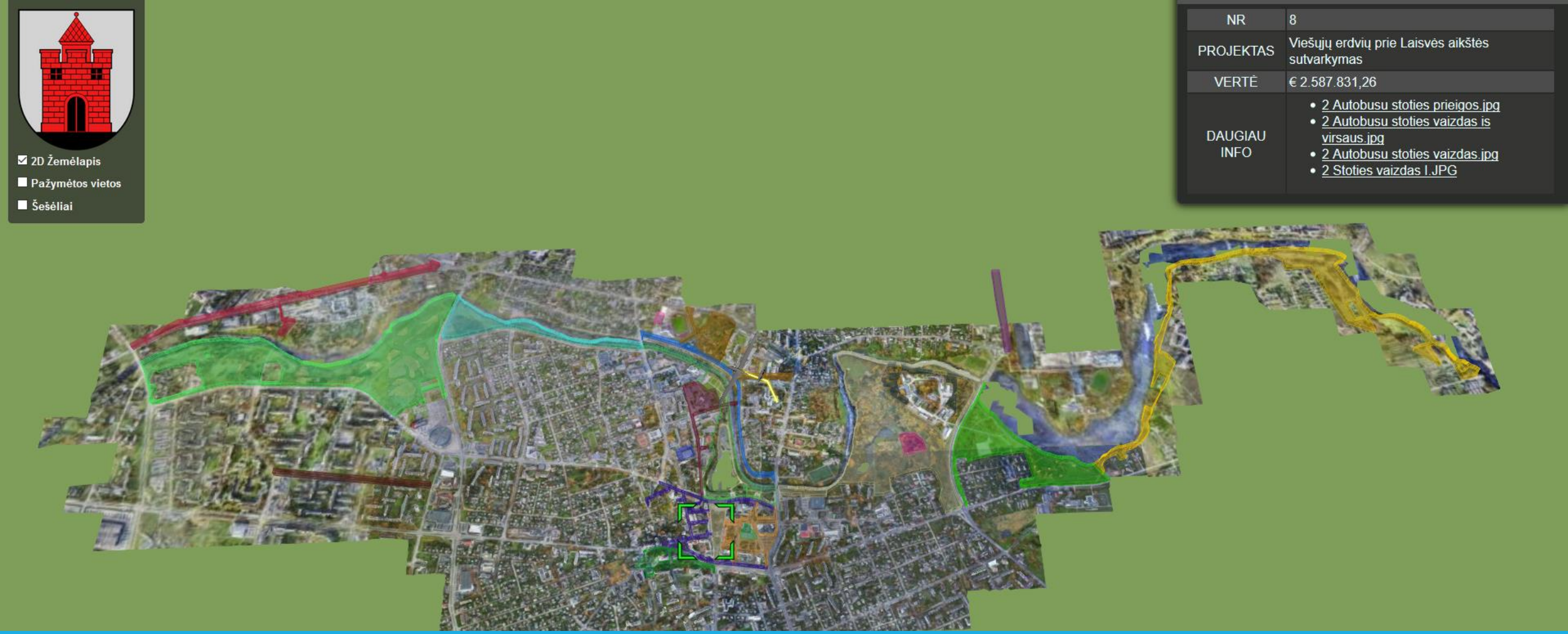
Better engage with citizens

Accelerate innovation

Panevėžys municipality 3D city model (panevezys3d.lt)



Integrated Territory of Panevėžys city – where city development and environmental management projects are located



Area of Panevėžys city Integrated Territory in 3D model – 11.000 ha

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The Drone Team – rapid development of 3D city model

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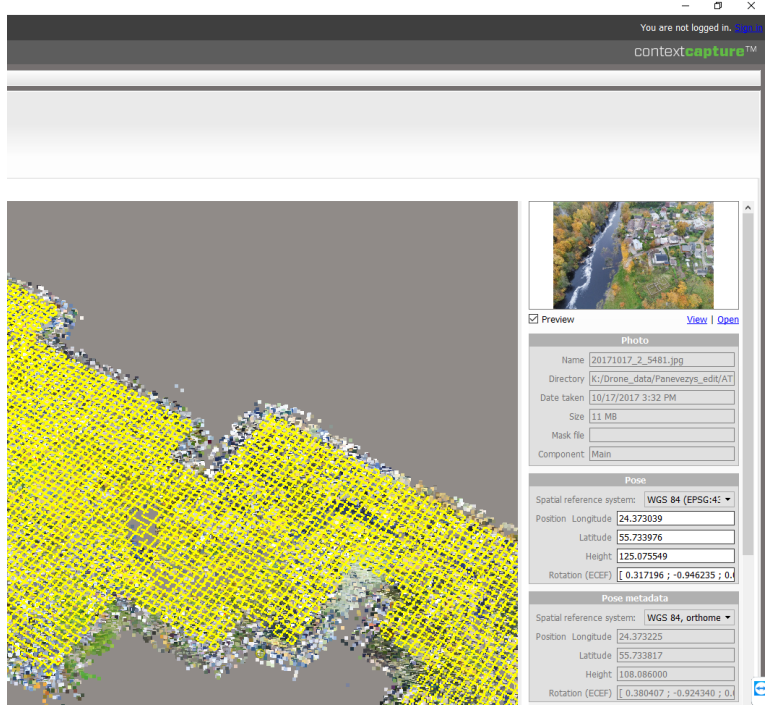
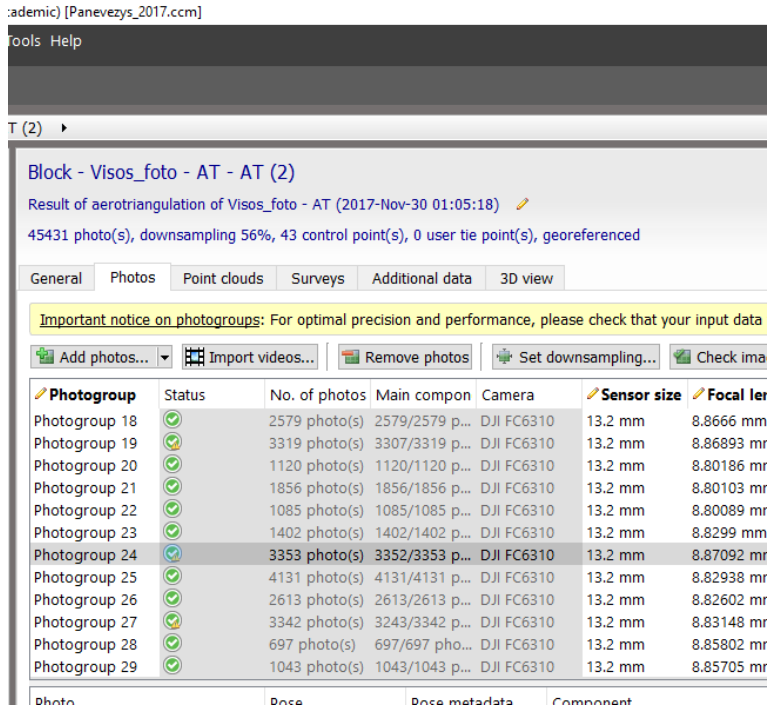
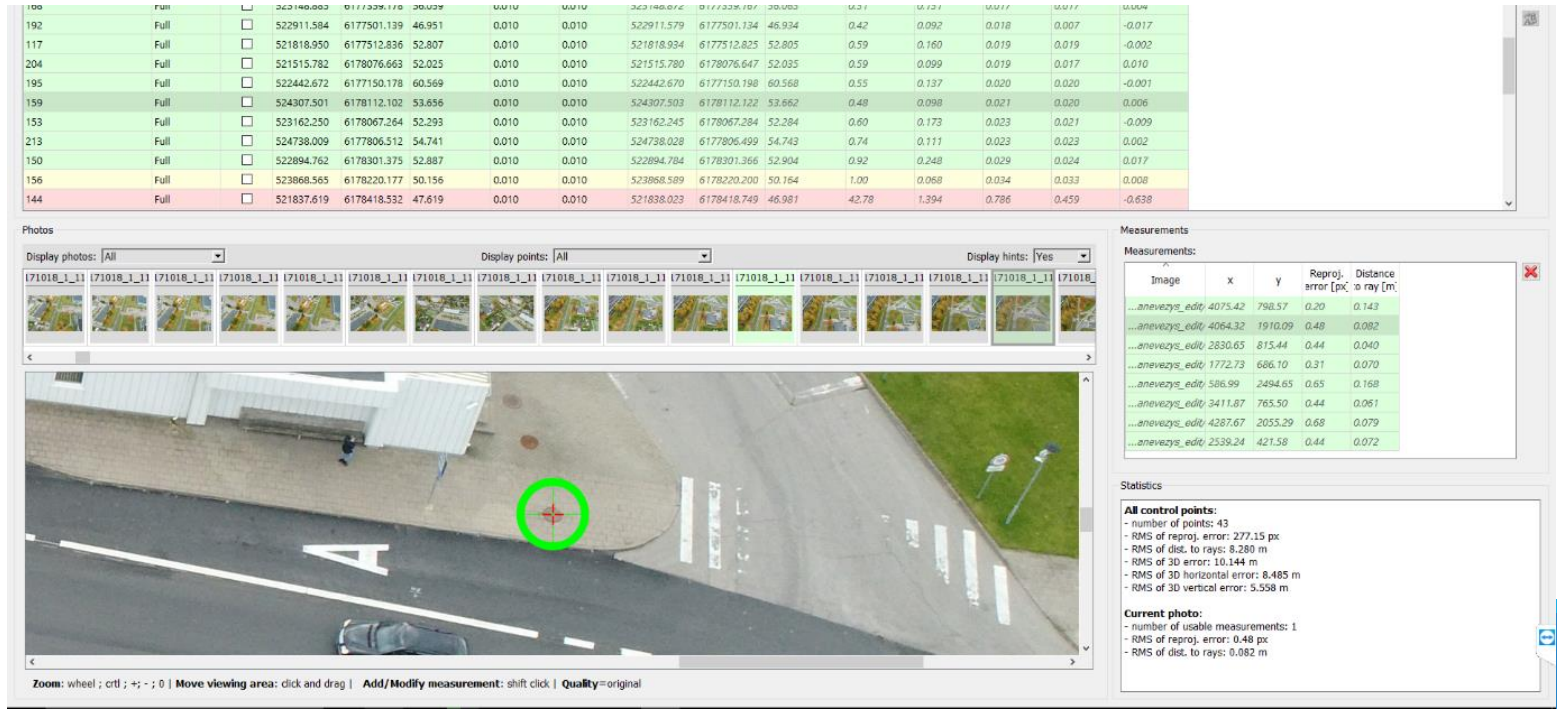
DRONE TEAM lt

Panevėžys 3D facts

- Territory: 11 sq. km
- Flight height: ~75 m
- Photo resolution: 16.8 Mpix
- Over 45.000 photos captured
- 3D model generated in 3,5 months
- Budget: 40.000 €







Detail resolution: 5-7,5 cm. (individual objects - up to 3 cm)

Compare:
Traditional geodetic topo map at scale 1:500 delivers 1 mm = 50 cm detail.

At graphical precision of 0,1 mm one can read topo data at maximal 5 cm detail.

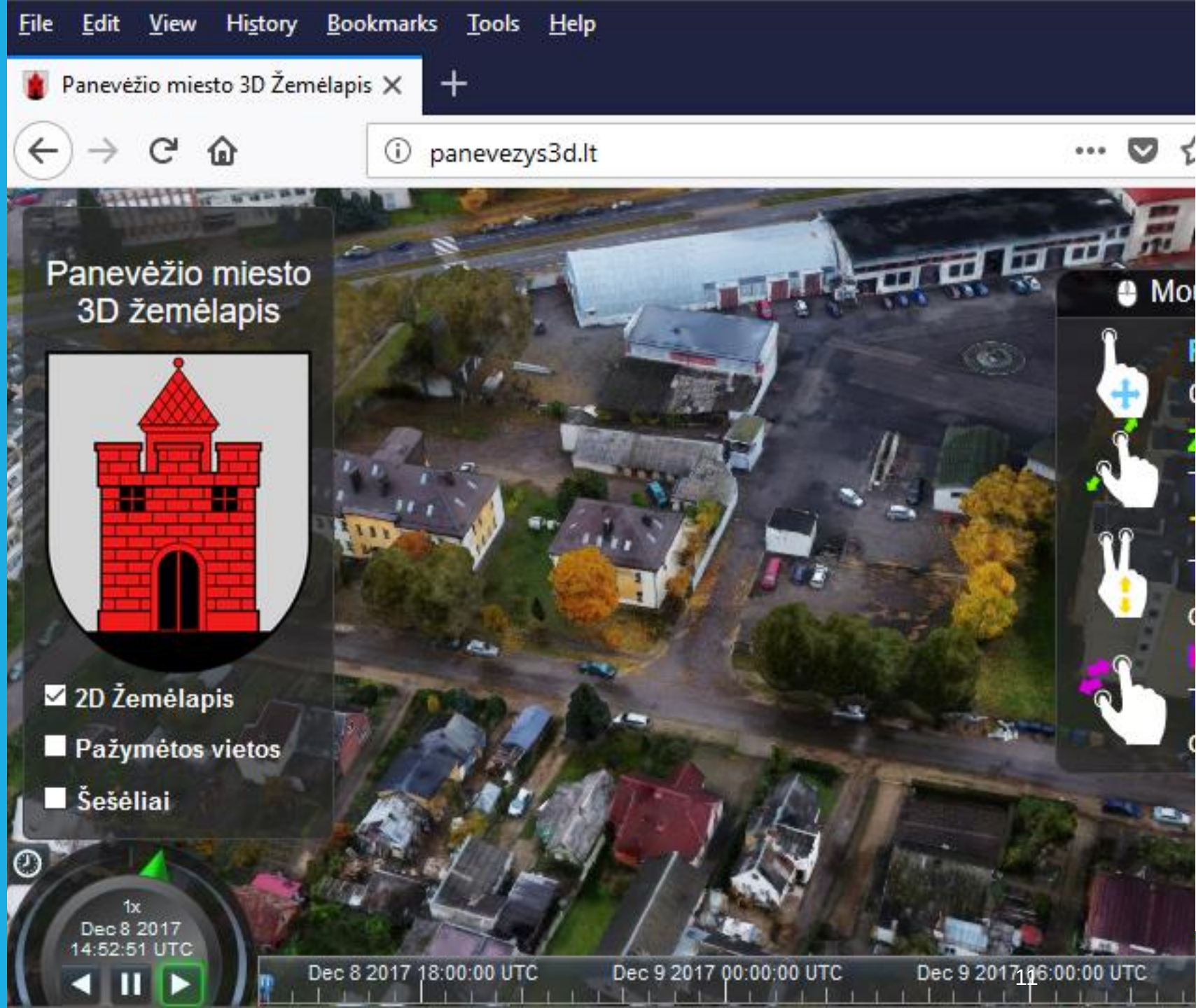
Panevėžys city 3D model presented on touch screen at RESTA 2018 Exhibition in Vilnius

Panevėžys city 3D model

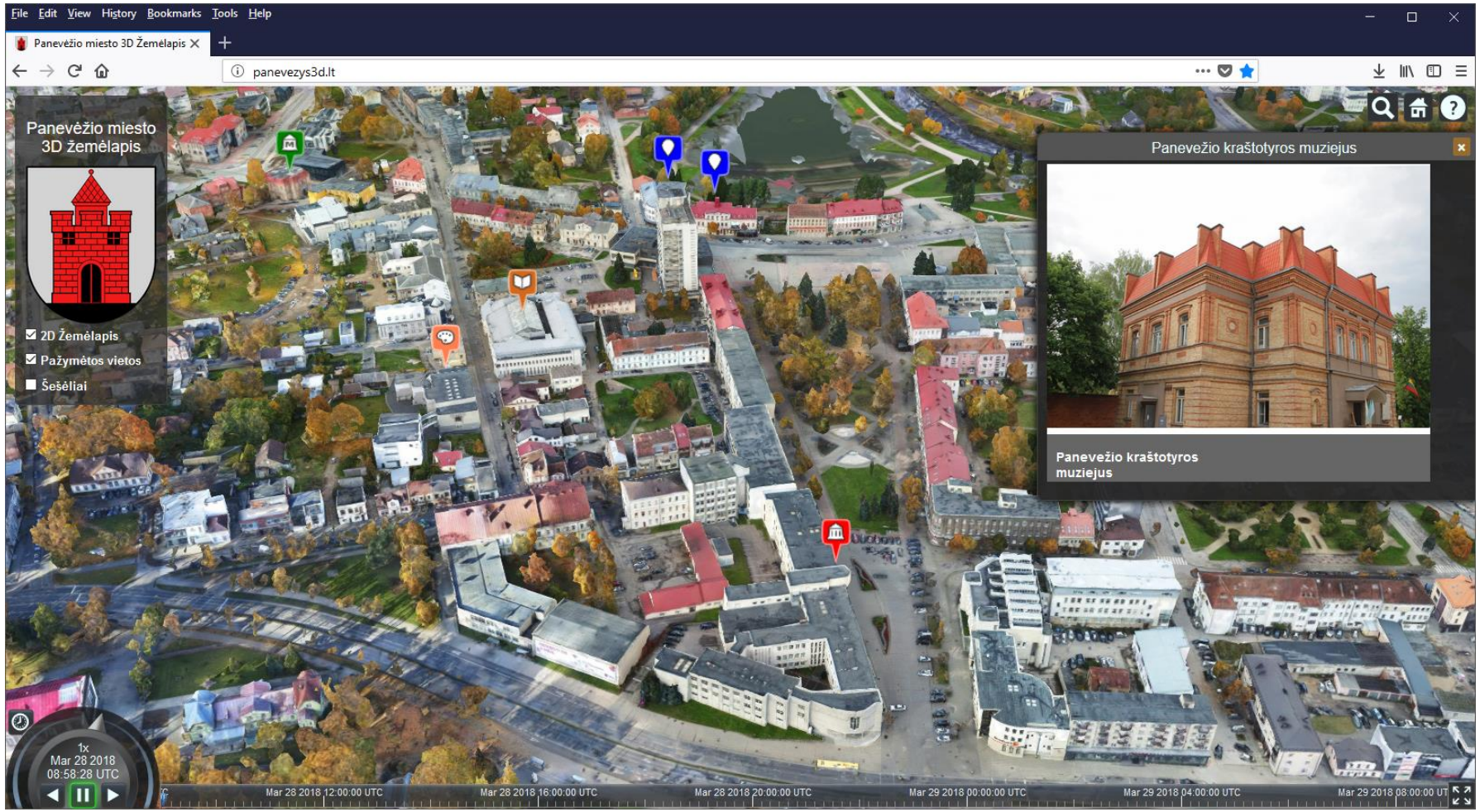
A mayor of Panevėžys city presents the project to Minister of Economy V. Sinkevičius, Minister of Environment K. Navickas and Government Chancellor A. Stončaitis at RESTA 2018 Exhibition

Panevėžys 3D – public web application

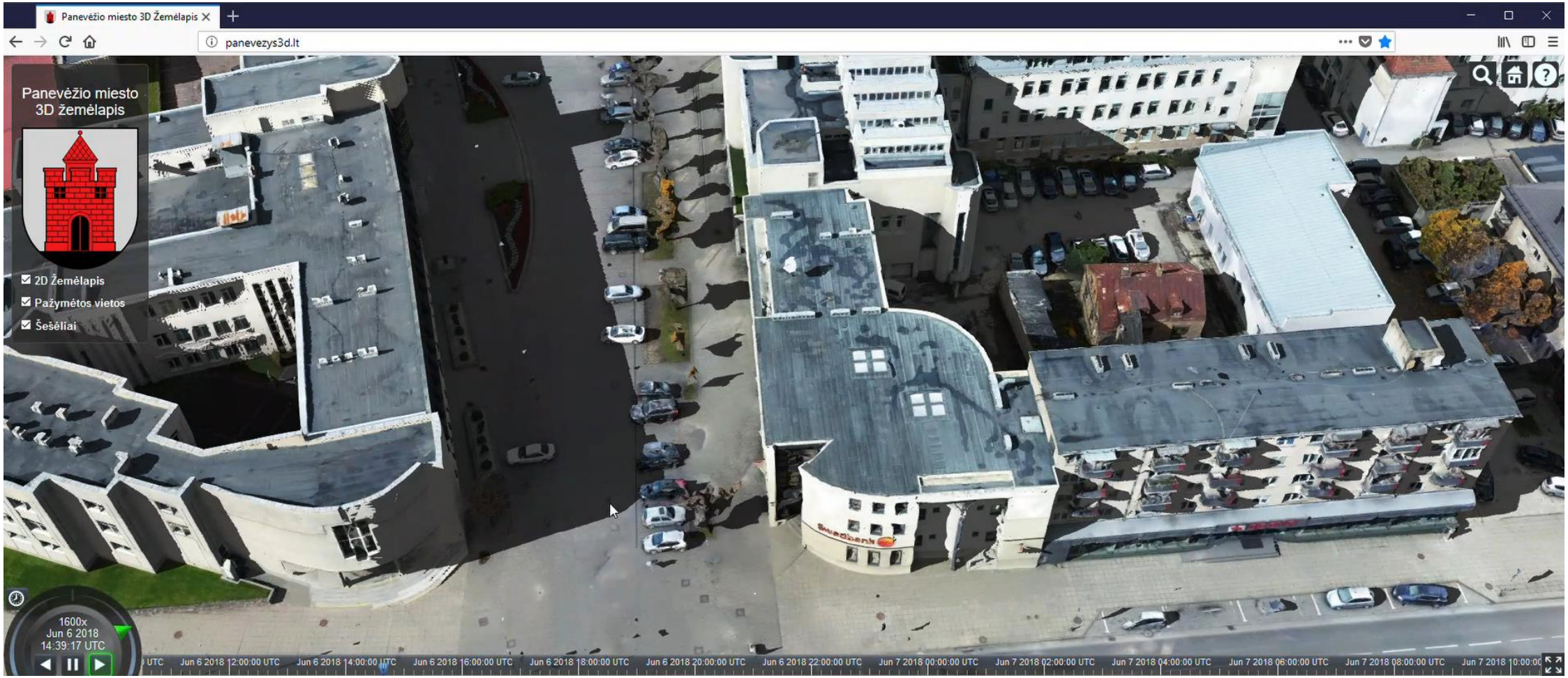
Ready for touch screen and tablets



Panevėžys 3D – points of interests and information about the object



Panevėžys 4D – shadows in real time and time scale animation



Integration of city development 3D models into Panevėžys city 3D model

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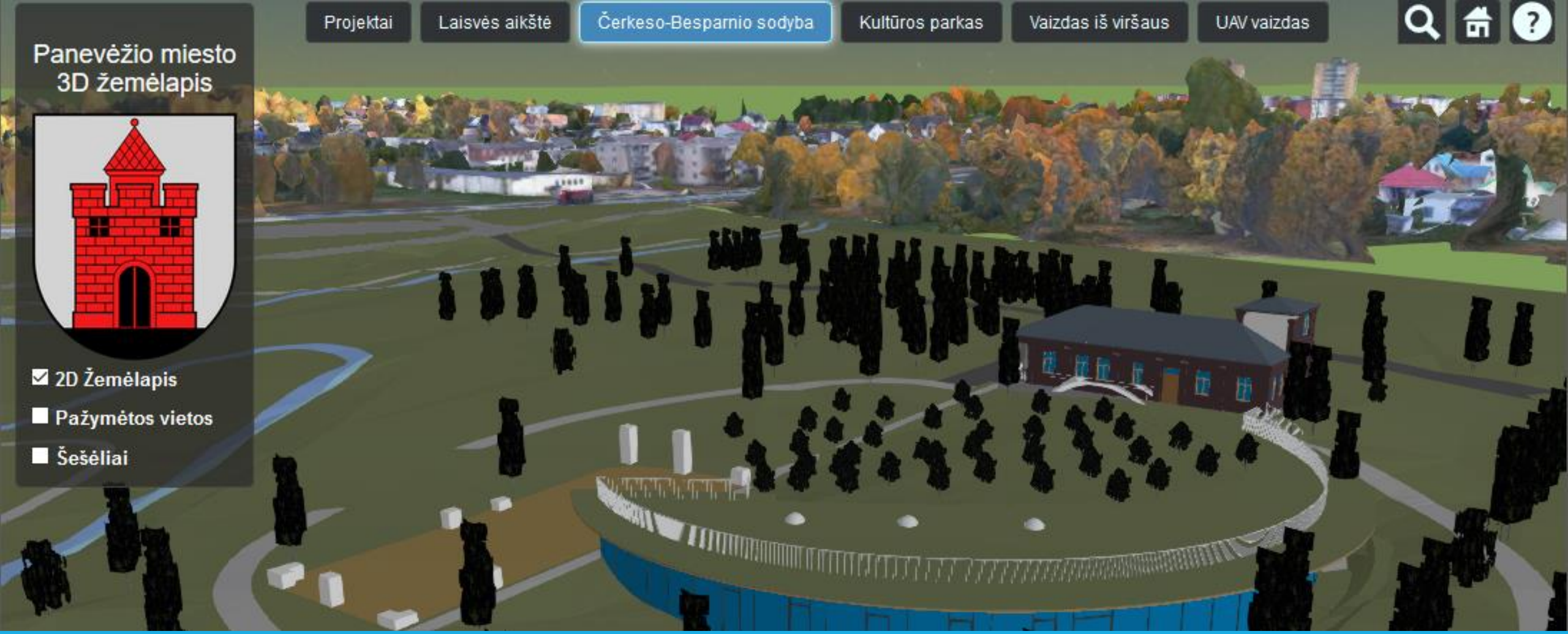
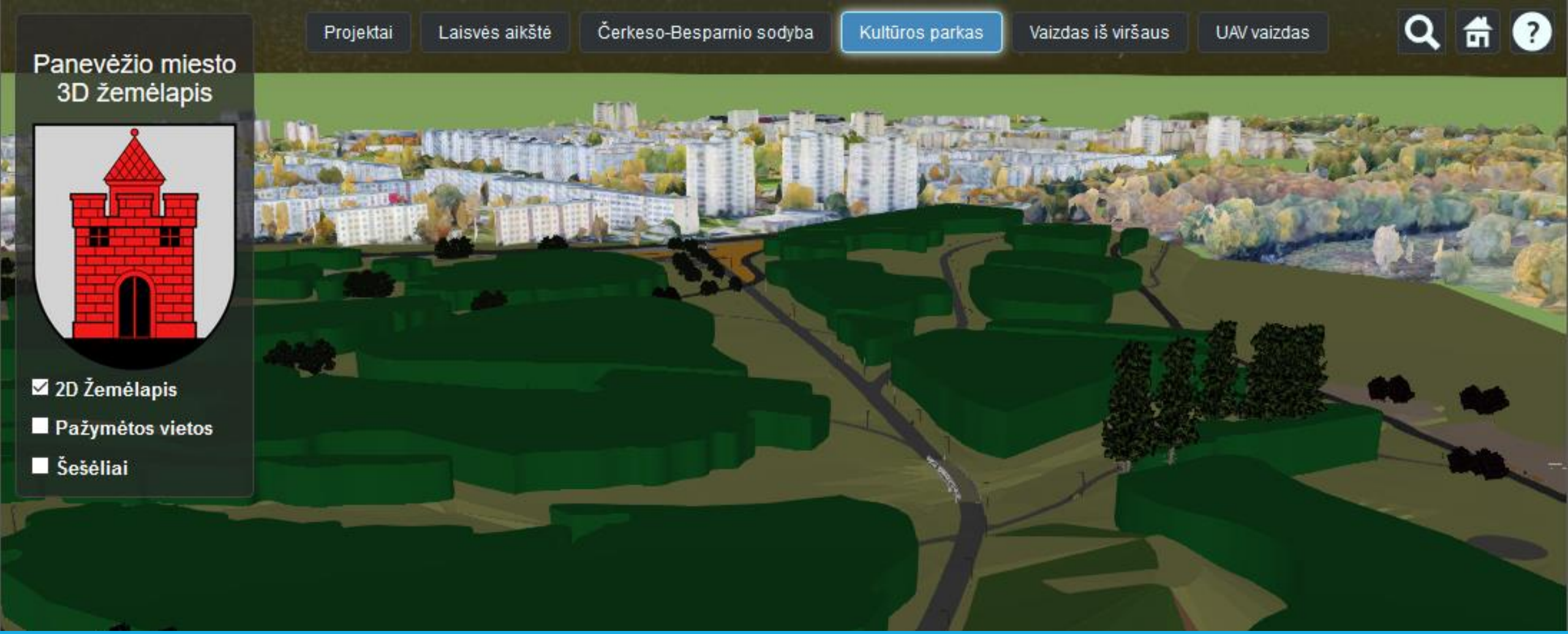


Integration of city development 3D models into Panevėžys city 3D model



Integration of city development 3D models into Panevėžys city 3D model

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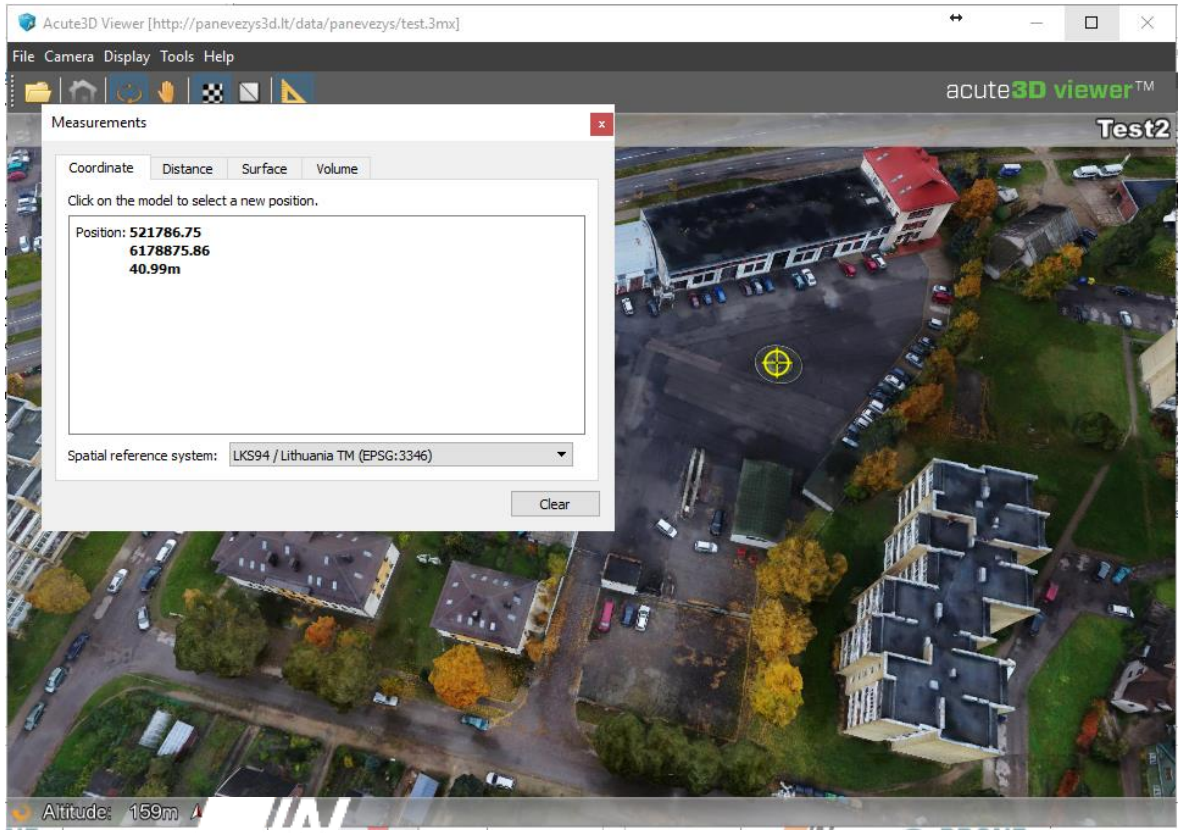
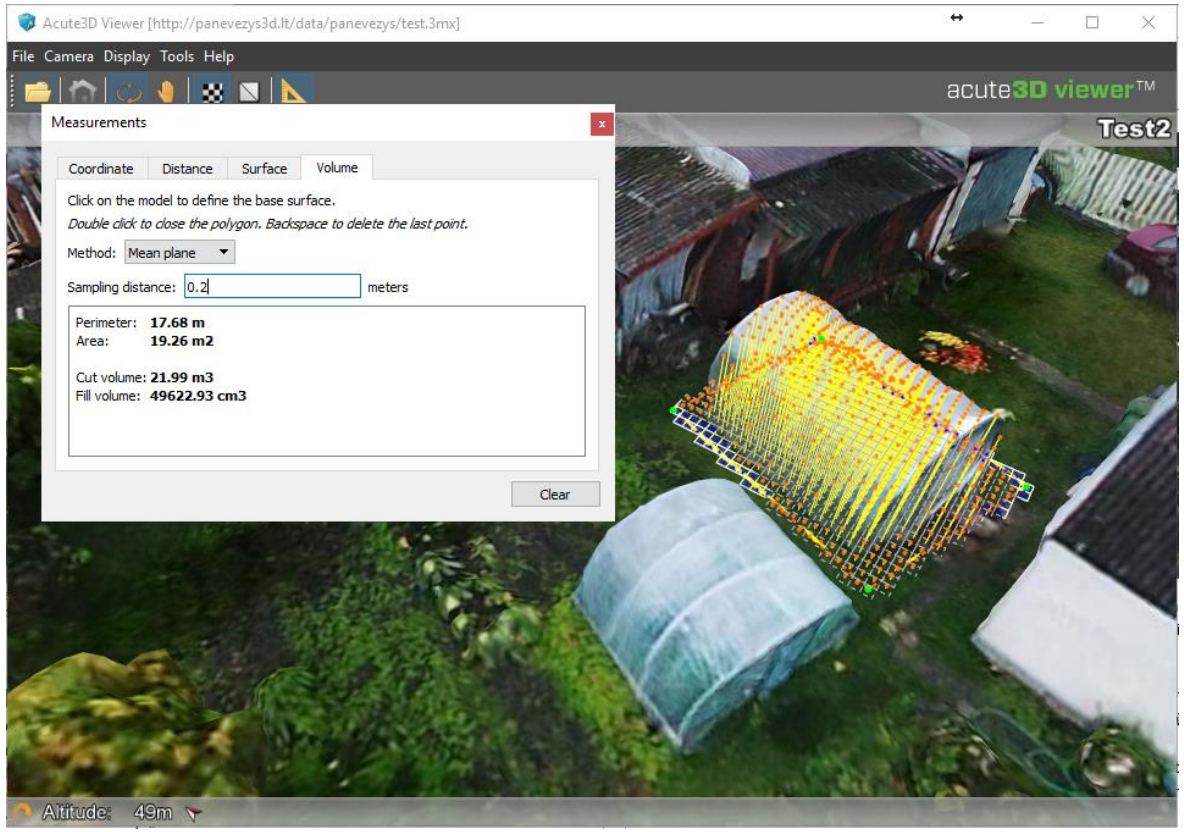
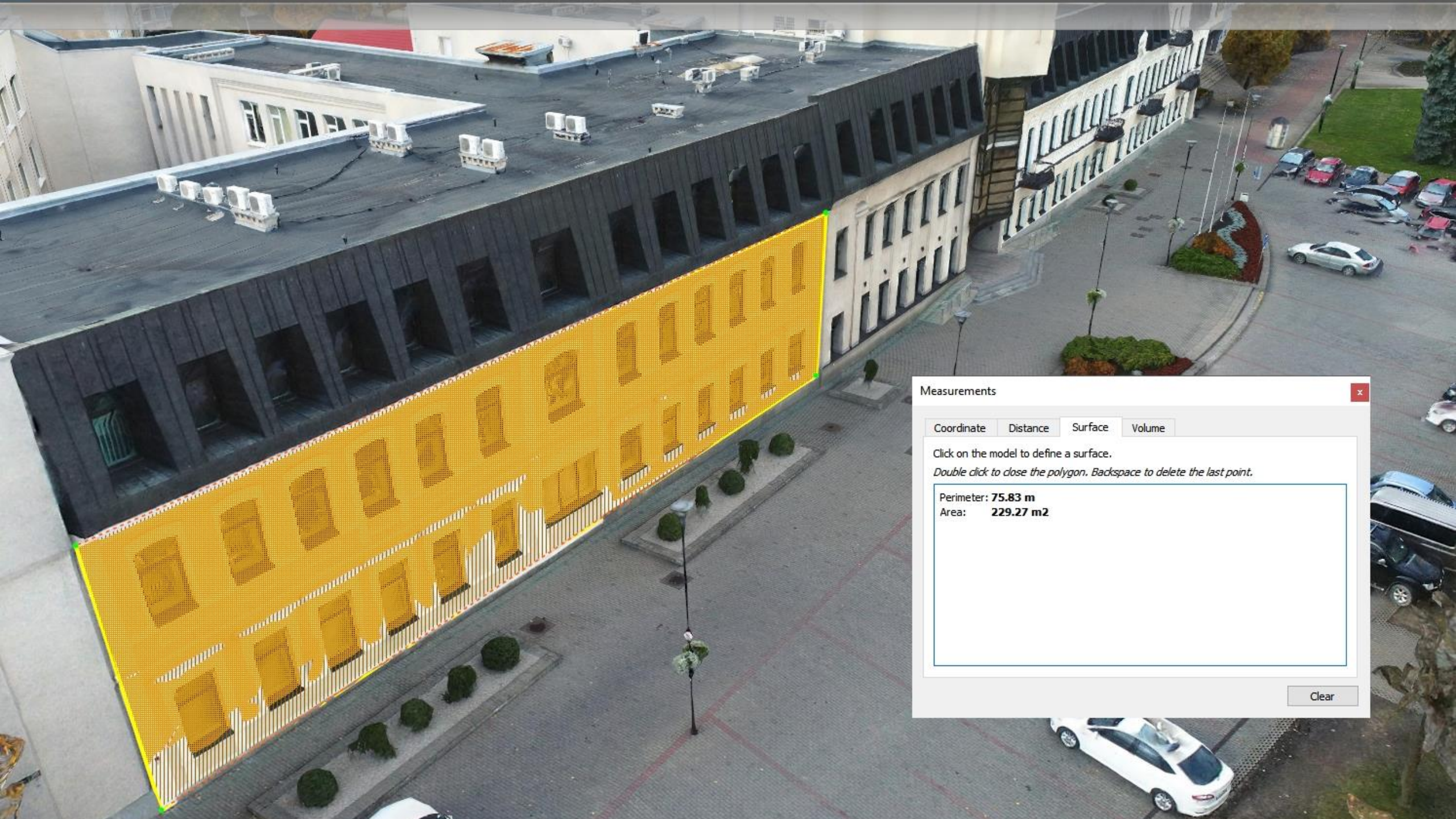
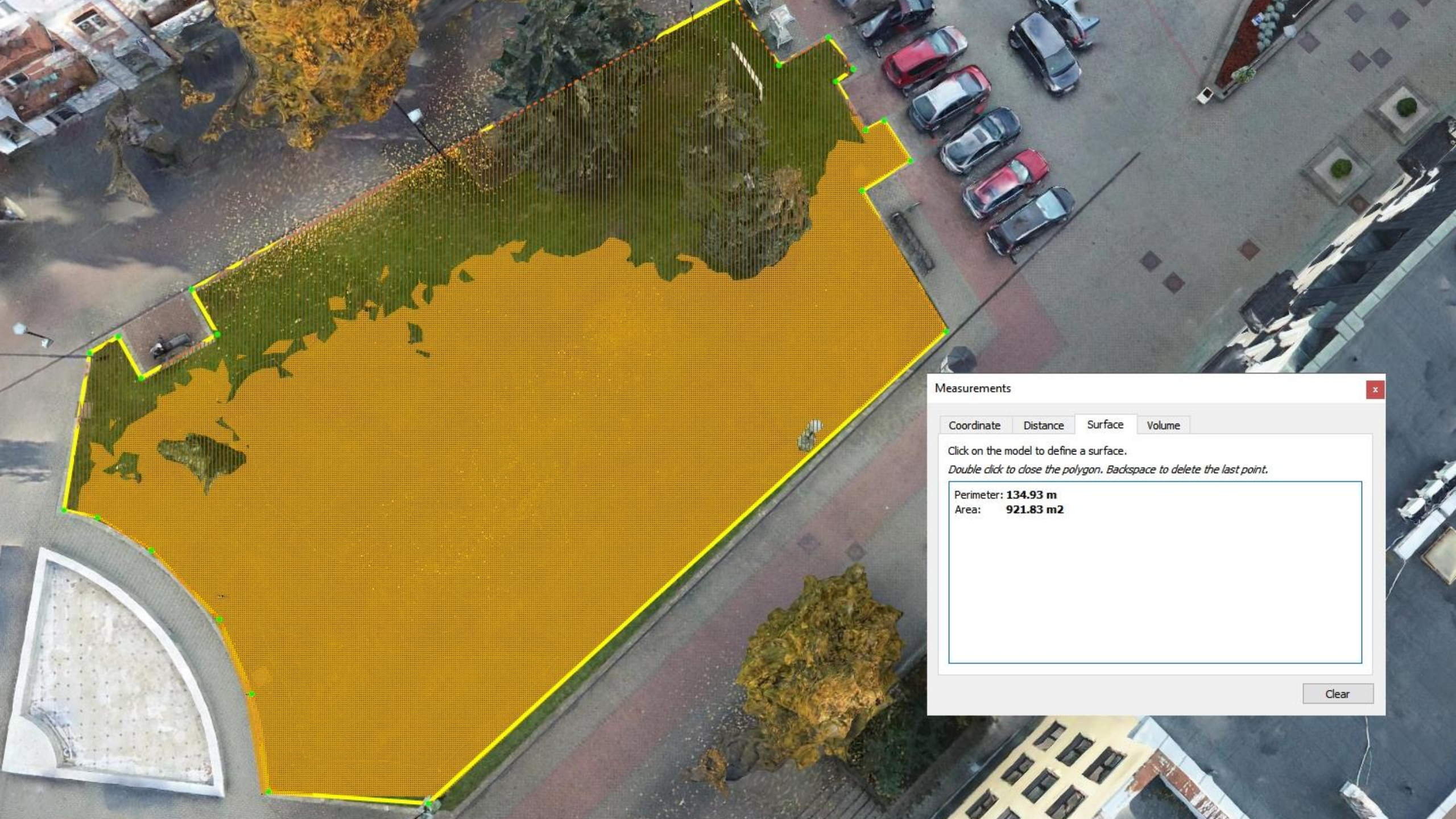
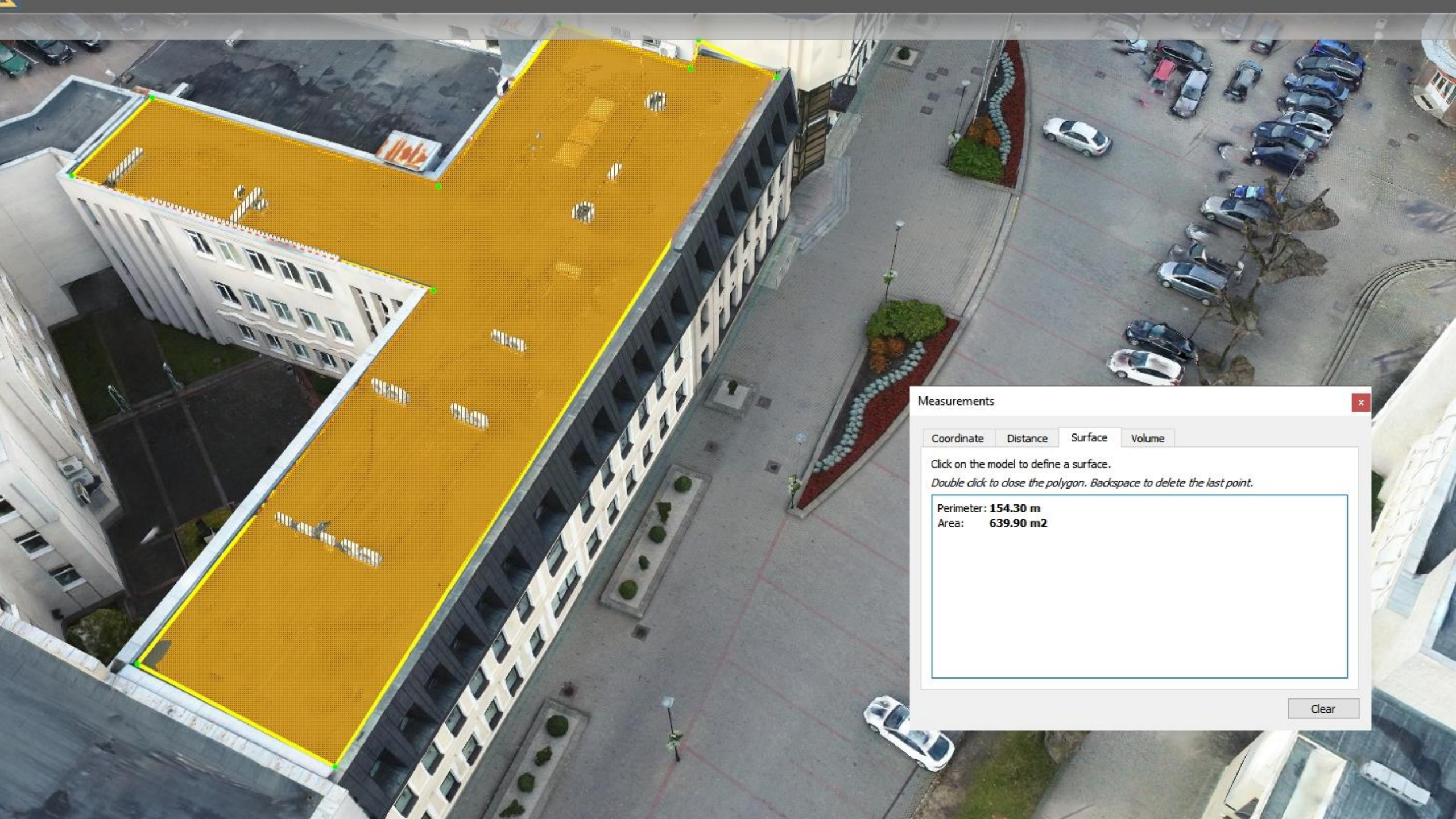
City 3D model – a tool for municipal managers: coordinate readout, measurements

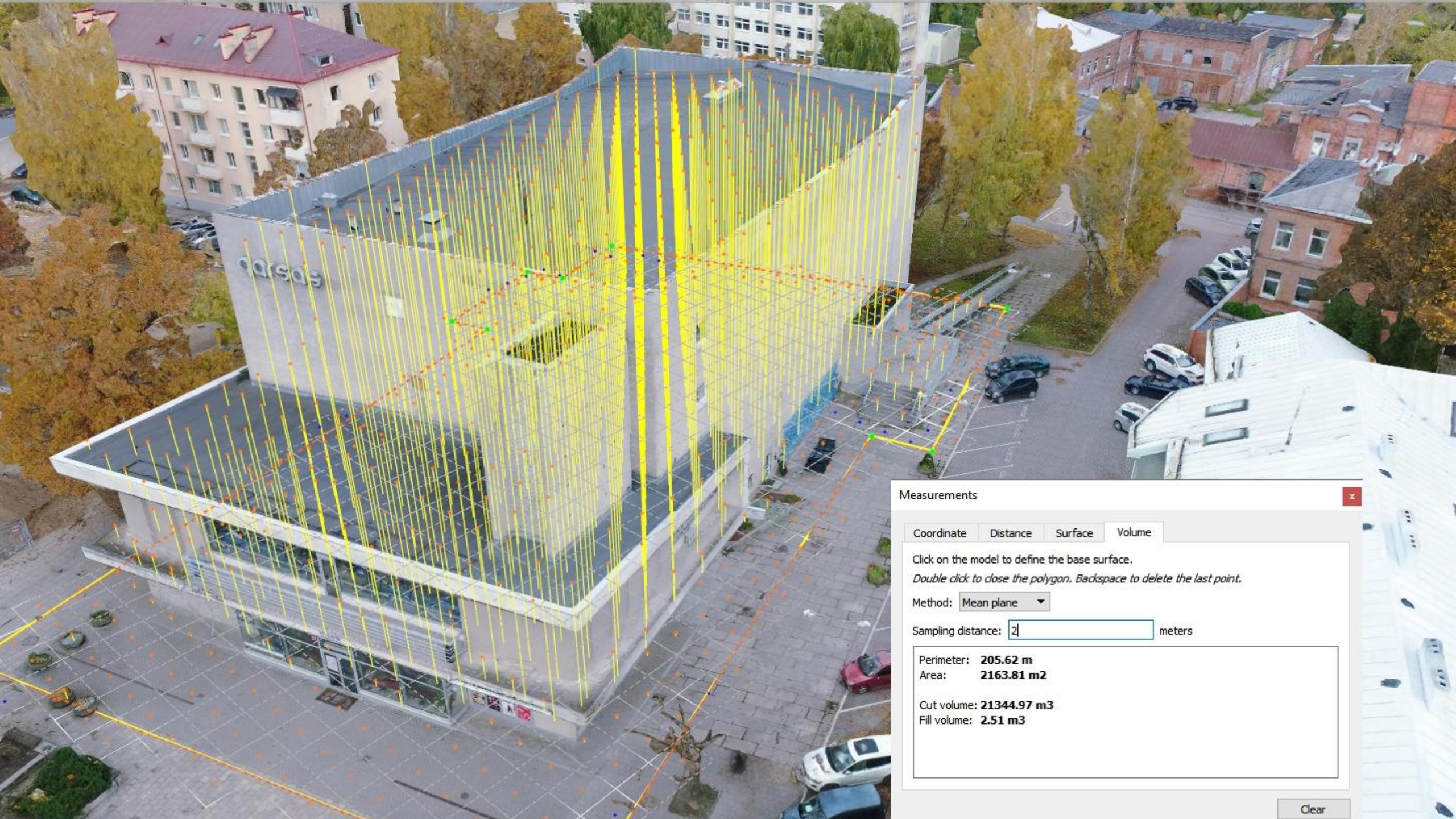





Measurements
Coordinate
Distance
Surface
Volume
Click on the model to define a surface.
Double click to close the polygon. Backspace to delete the last point.
Perimeter: 75.83 m
Area: 229.27 m2
Clear


Measurements
Coordinate
Distance
Surface
Volume
Click on the model to define a surface.
Double click to close the polygon. Backspace to delete the last point.
Perimeter: 134.93 m
Area: 921.83 m2
Clear


Measurements
Coordinate
Distance
Surface
Volume
Click on the model to define a surface.
Double click to close the polygon. Backspace to delete the last point.
Perimeter: 154.30 m
Area: 639.90 m2
Clear


Measurements
Coordinate
Distance
Surface
Volume
Click on the model to define the base surface.
Double click to close the polygon. Backspace to delete the last point.
Method: Mean plane
Sampling distance: 2 meters
Perimeter: 205.62 m
Area: 2163.81 m2
Cut volume: 21344.97 m3
Fill volume: 2.51 m3
Clear


File Edit View History Bookmarks Tools Help
Panevėžio miesto 3D Žemėlapis
resta.panevezys3d.lt
Panevėžio miesto 3D žemėlapis
2D Žemėlapis
Pažymėtos vietos
Šešėliai
Tūriai
Plotai
Paskaičiuoti>>
SES
Statybų Ekonominiai Skaičiavimai
SAS
SES
Vertinamas objektas
Perimeteras: 1077.64 m
Plotas: 27075.42 m2
Tūriai (+): 43979.25 m3
Tūriai (-): 61664.26 m3
Mato vnt.: Plotai
Darbai: Atnaujinimas
Tipas: Dangų keitimas
Paskaičiuoti >
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Apr 24 2018 16:00:00 UTC
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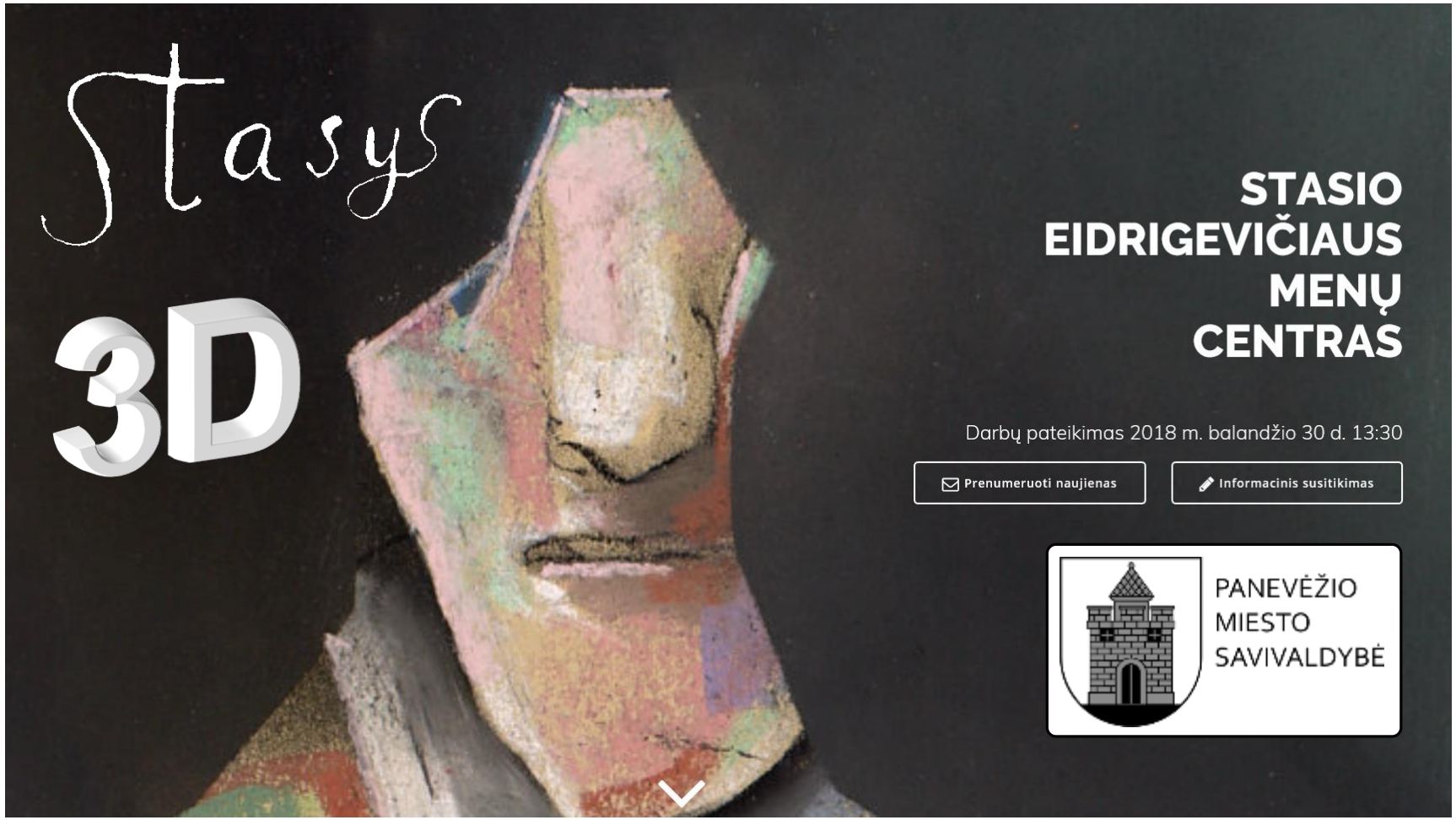
Apr 25 2018 00:00:00 UTC
Apr 25 2018 04:00:00 UTC

First time in Lithuania – public architectural tender, using 3D models for evaluation



Goals

Procurement Conditions:

- For comprehensive evaluation of future integration of the reconstruction of square and building into the existing environment, the experts are intended to evaluate tender proposals in a context of Panevėžys digital 3D model
- Digital 3D models of proposed projects will be presented for the public discussion on the internet at : http://panevezys3d.lt/

The ultimate goal of this requirement – to evaluate the tender proposals in most objective way in 3D environment

- in the context of real world,
- on equal conditions,
- in various view angles.

Requirements for contestants

Stasys

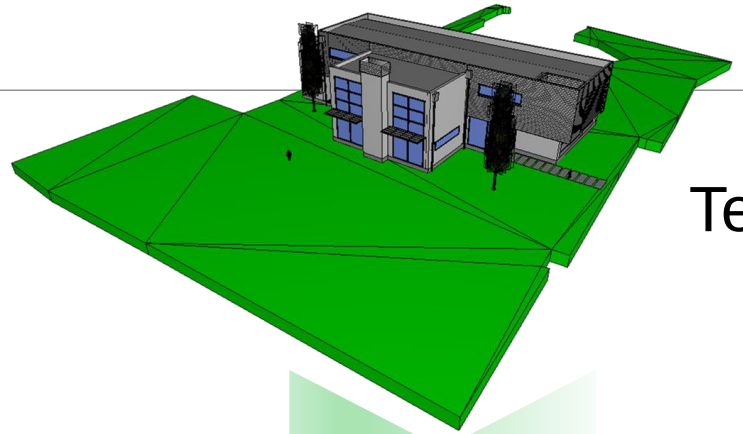
Together with the technical proposal, contestants must provide the digital 3D model of the building and site (within strict boundaries of the project).

The content of 3D model must fully reflect the information, which is otherwise provided on proposal posters.

The 3D models must be delivered in one of below formats:

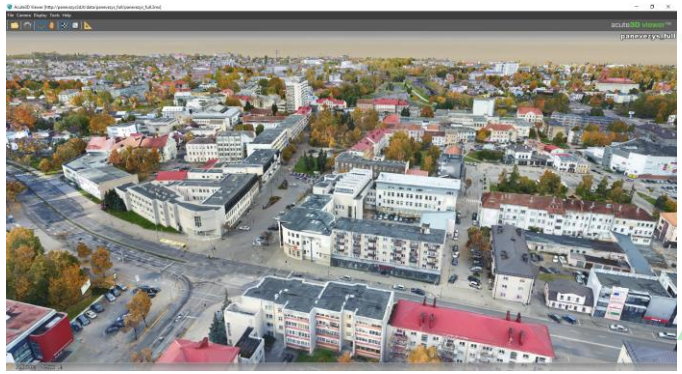
- Sketchup SKP, or
- 3D Studio 3DS, or
- Wavefront OBJ, or
- Collada DAE

Solution

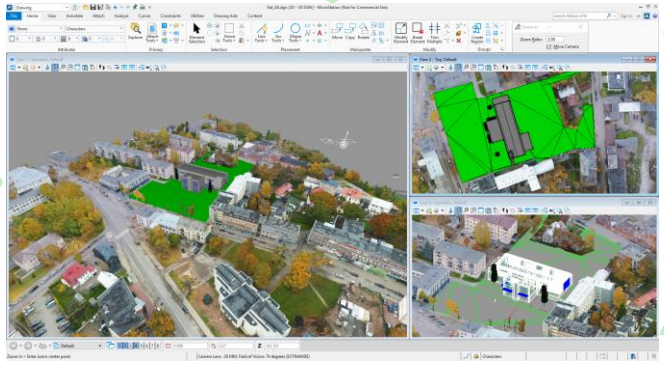


Tender Proposals

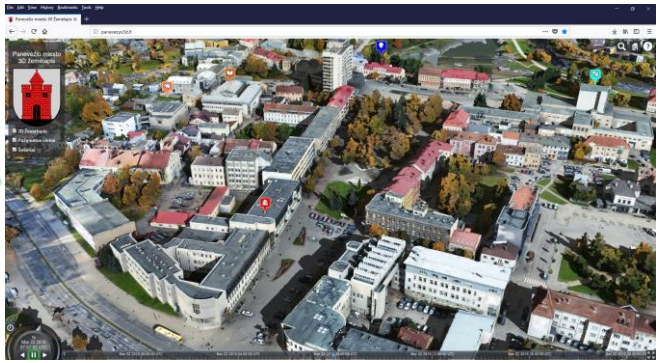
http://panevezys3d.lt



Recreating context
or environment in 3D

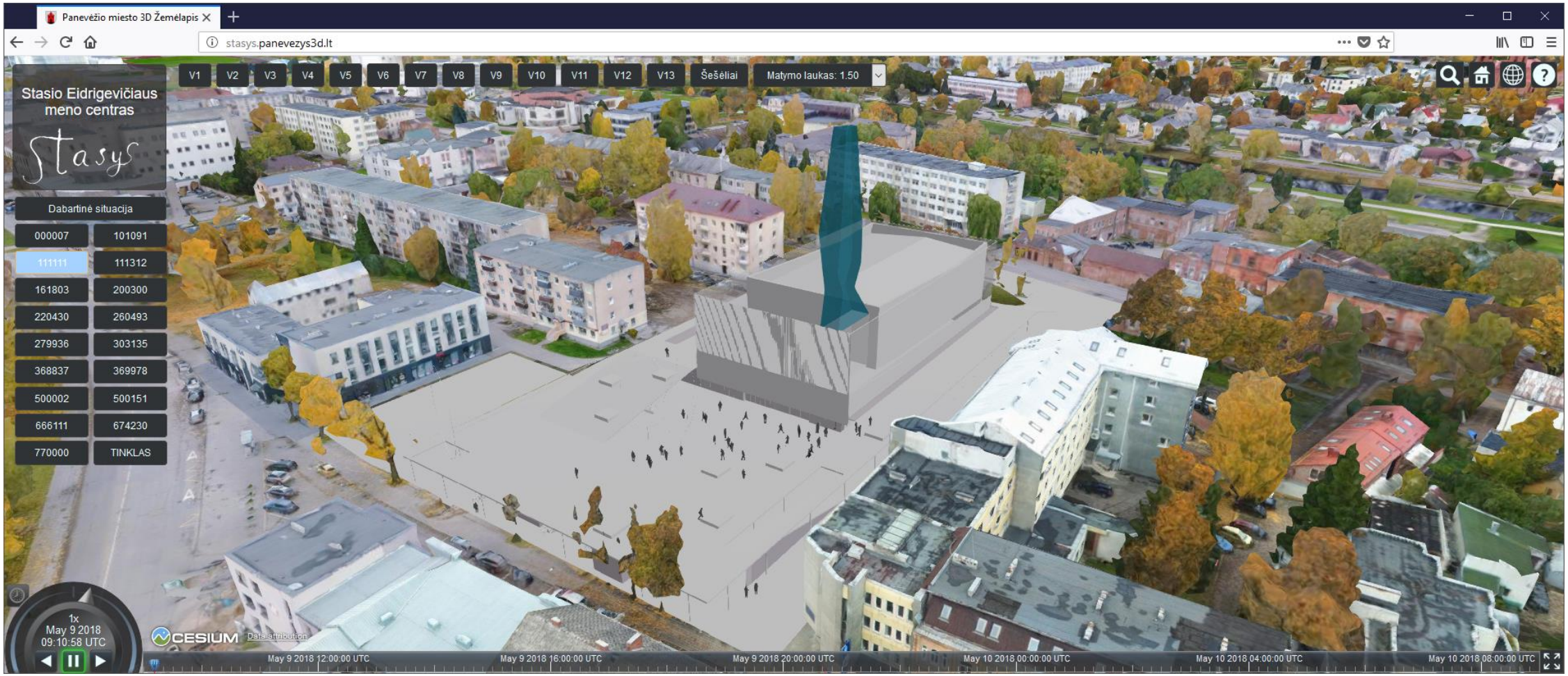


Integrating
tender proposals



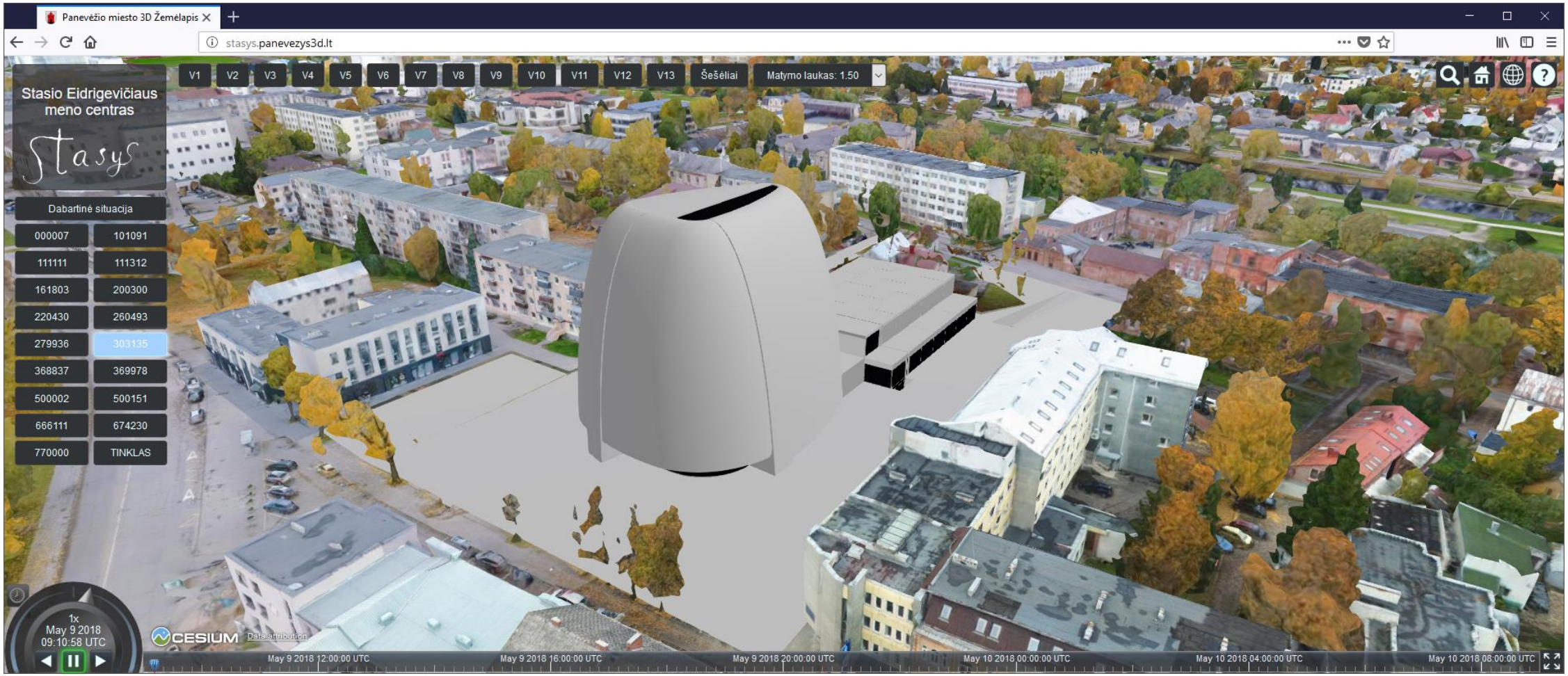
Publishing joint 3D models
on the internet

Evaluation of proposal in 3D in equal context



Evaluation of proposal in 3D in equal context

Evaluation of proposal in 3D in equal context



Evaluation of proposal in 3D in equal context

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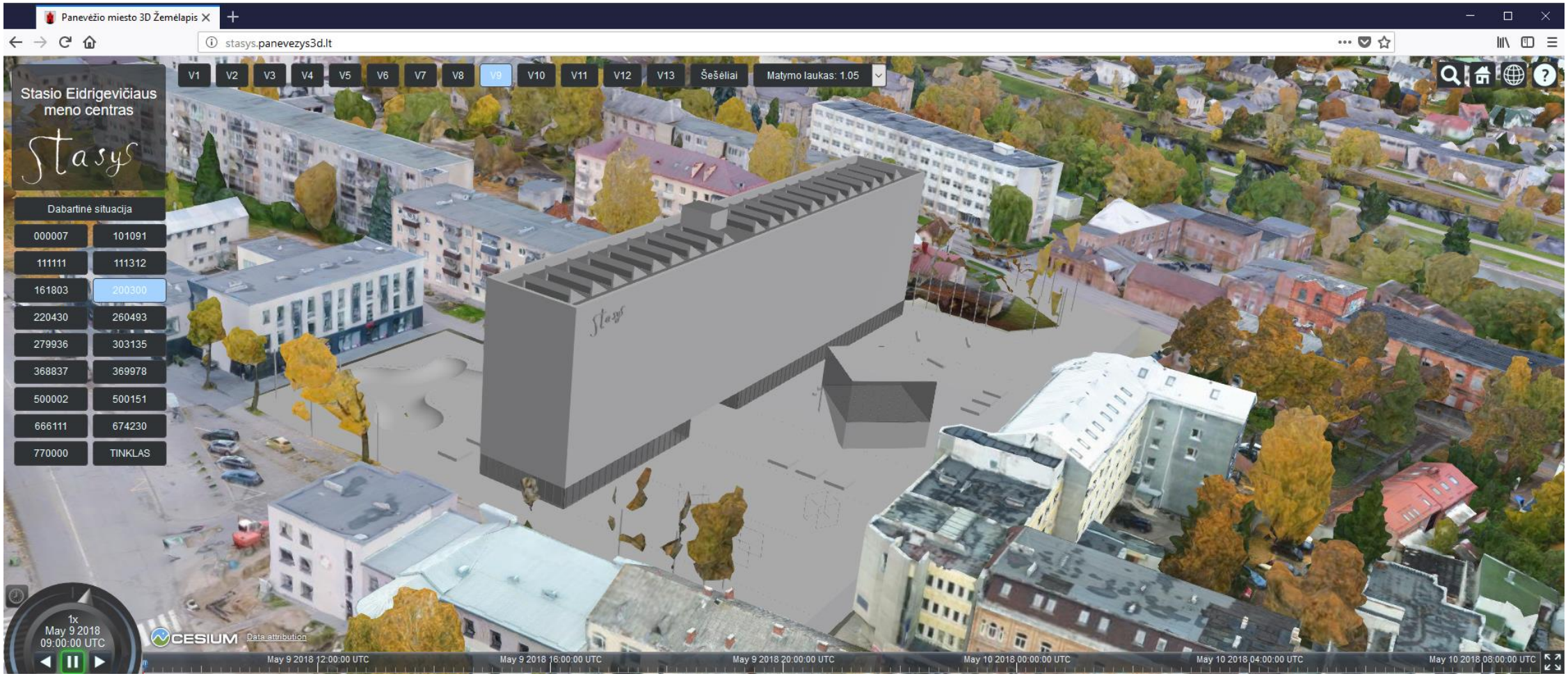

The benefits to the Municipality

- The use of 3D digital technologies is showing the innovativeness of the city government (a SmartCity)
- It is an aid for attracting the investments – potential foreign partners can take a walk through the virtual city
- Fixing the real situation – the automated photogrammetry is the fastest technology for cartography today
- The virtual inspection of public and private spaces
- The evaluation of real estate development projects in the context of real world – avoiding rough mistakes and visual frauds

Technologies are ready to assist in rapid development of smart 3D cities!

Let‘s develop digital city!

PANEVĖŽIO MIESTO SAVIVALDYBĖ

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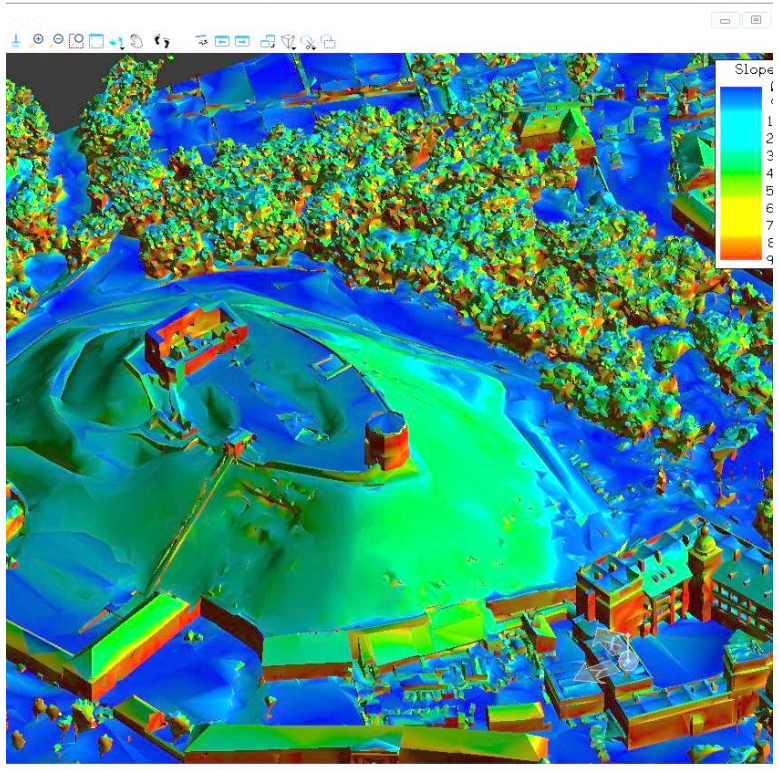
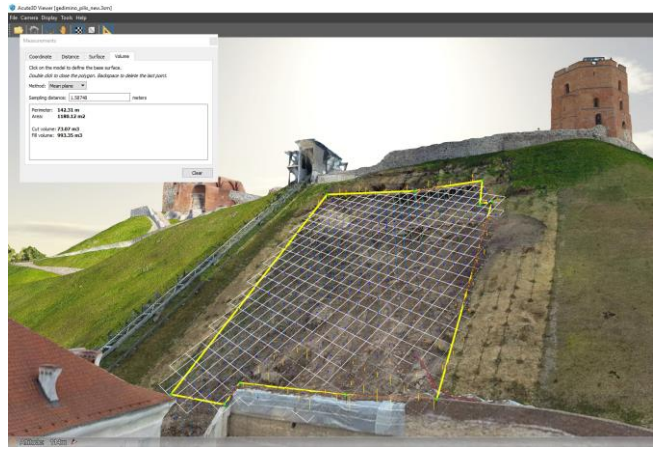
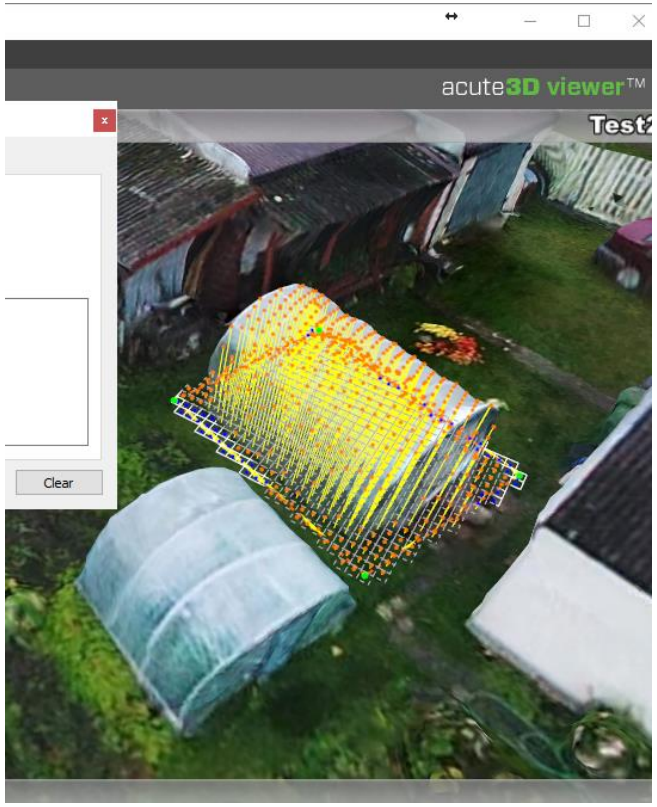
www.aec.lt » www.pcscad.lt »

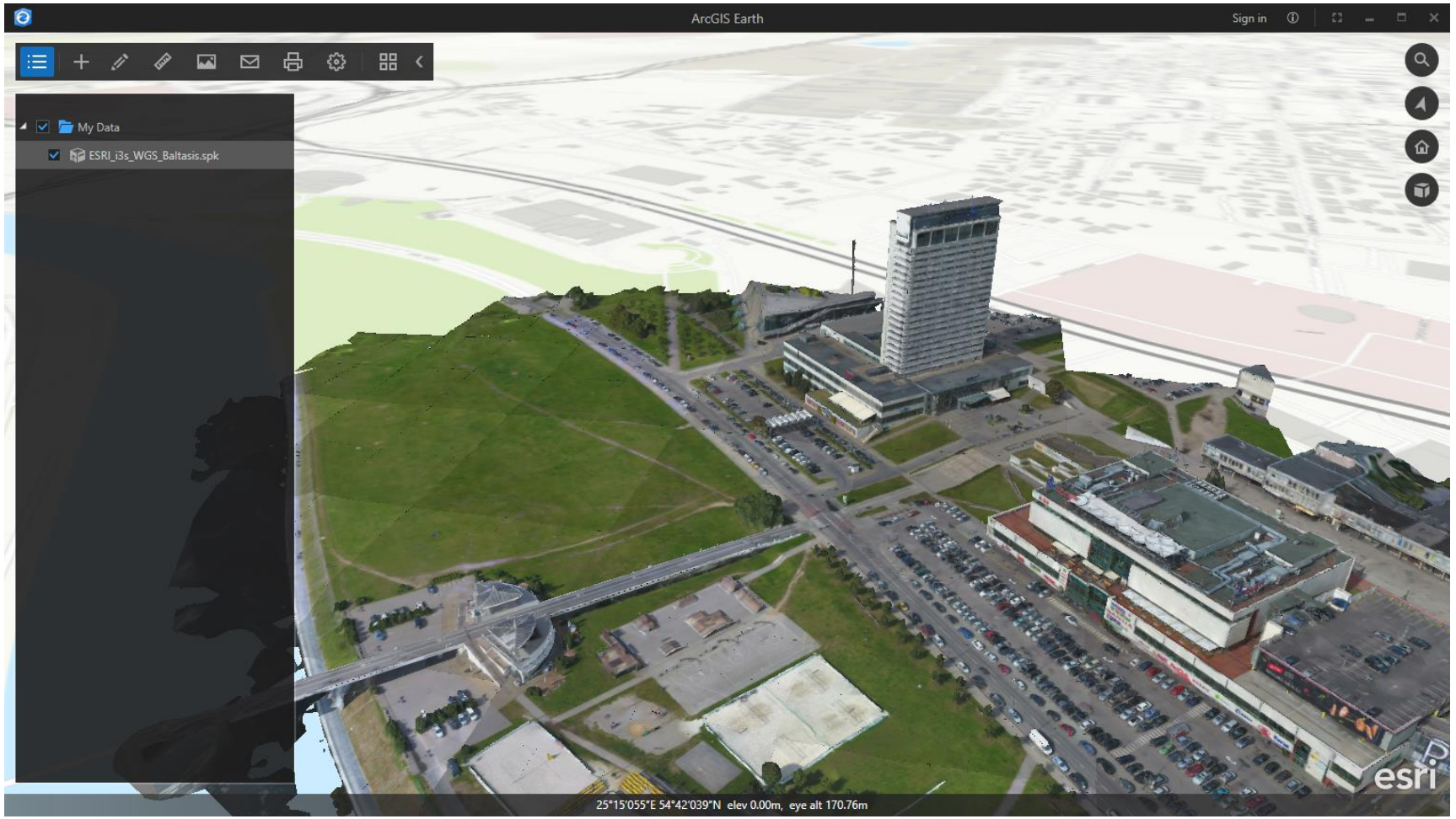
Other applications of 3D city models



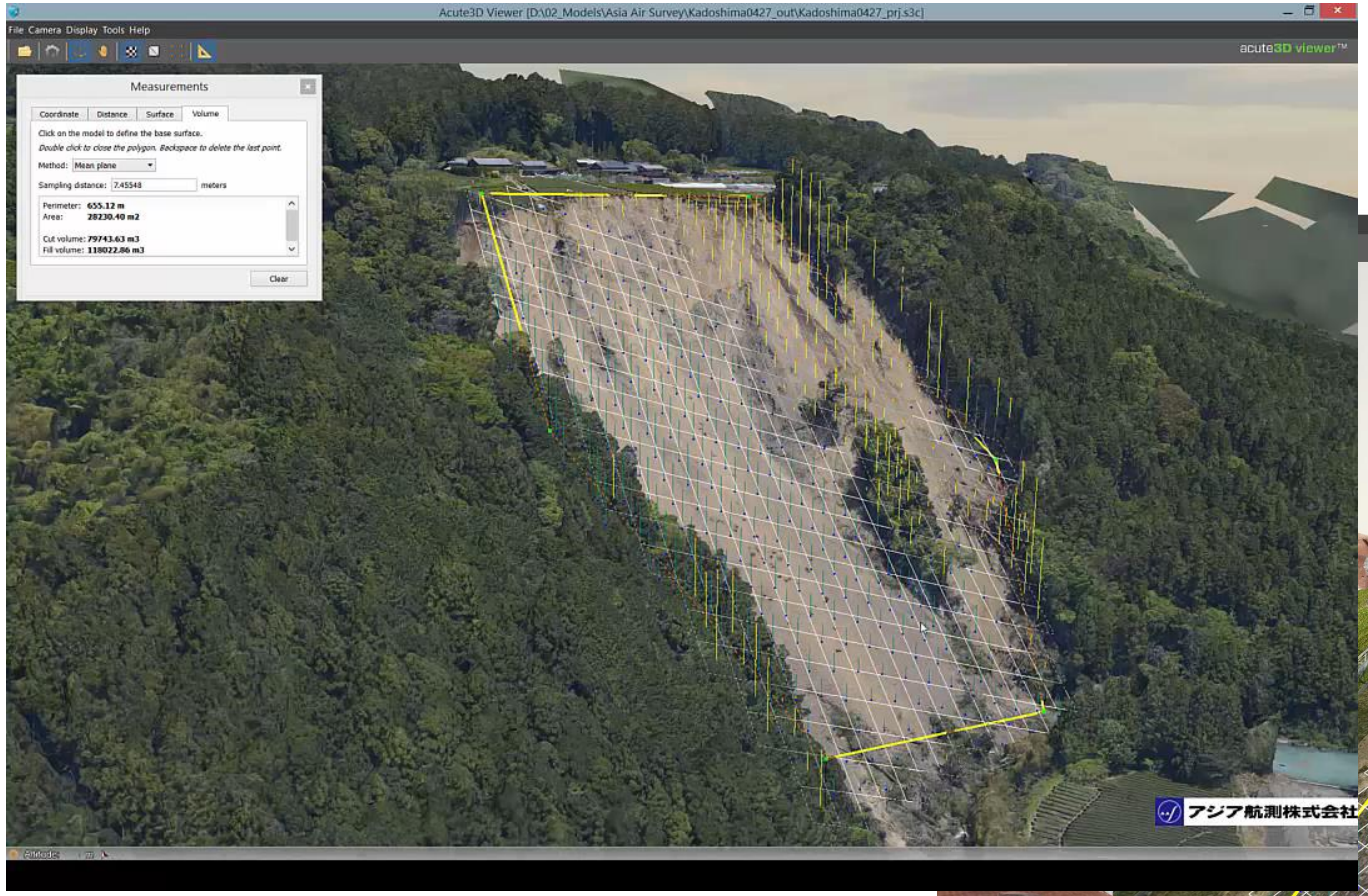




Integration with 3D GIS

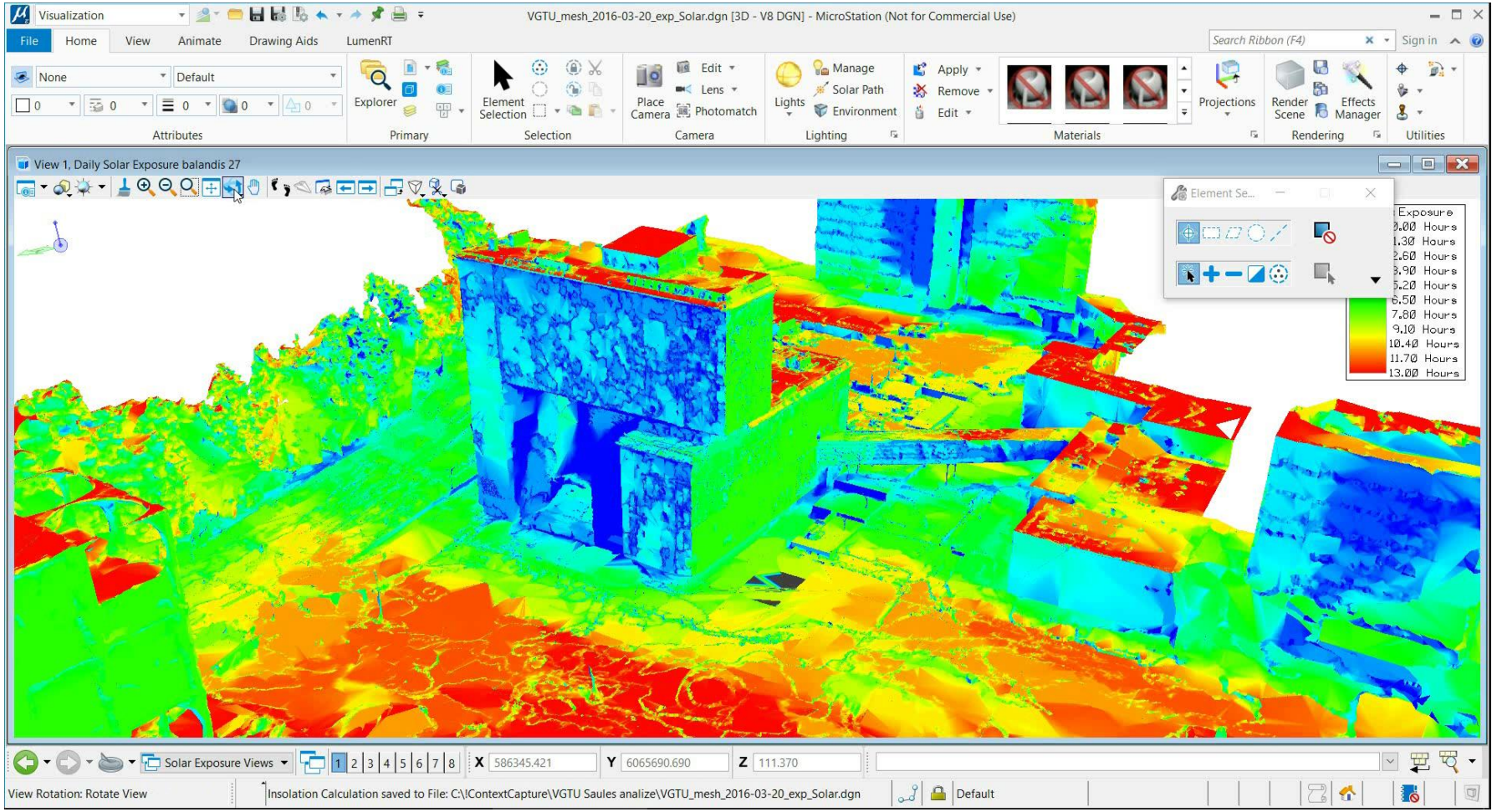


Disaster Management

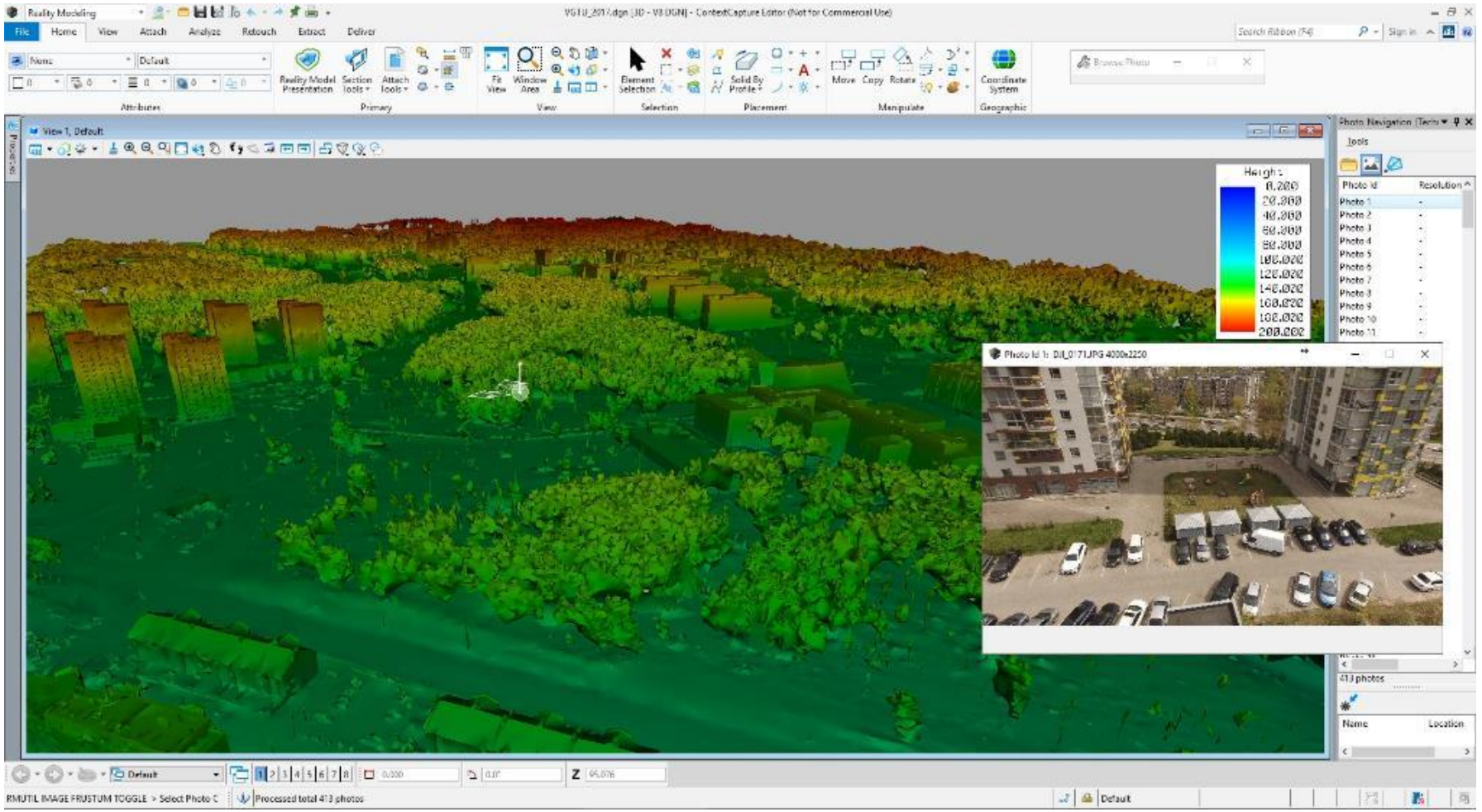


Energetic efficiency analysis

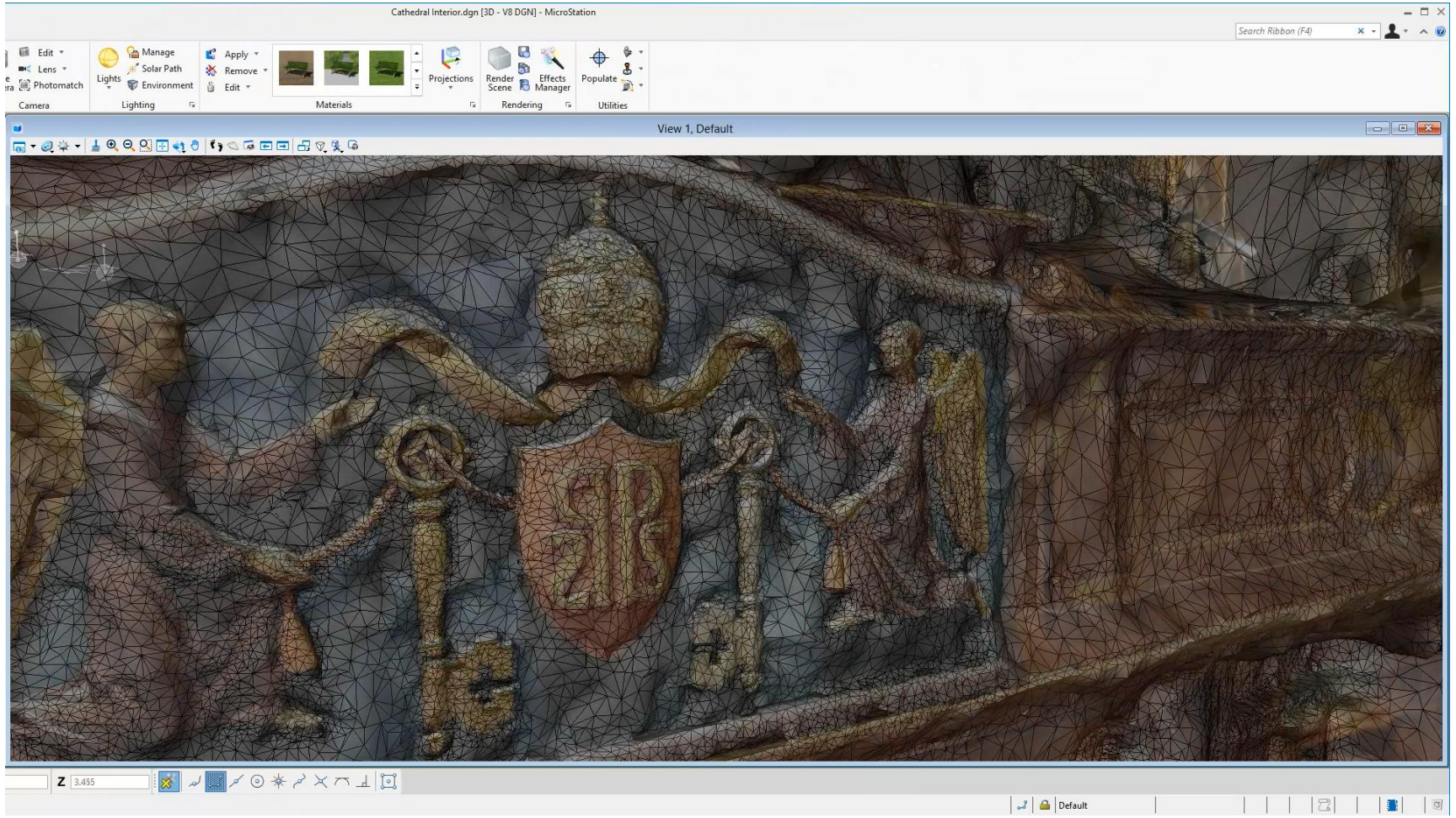
Energetic efficiency analysis



Height analysis

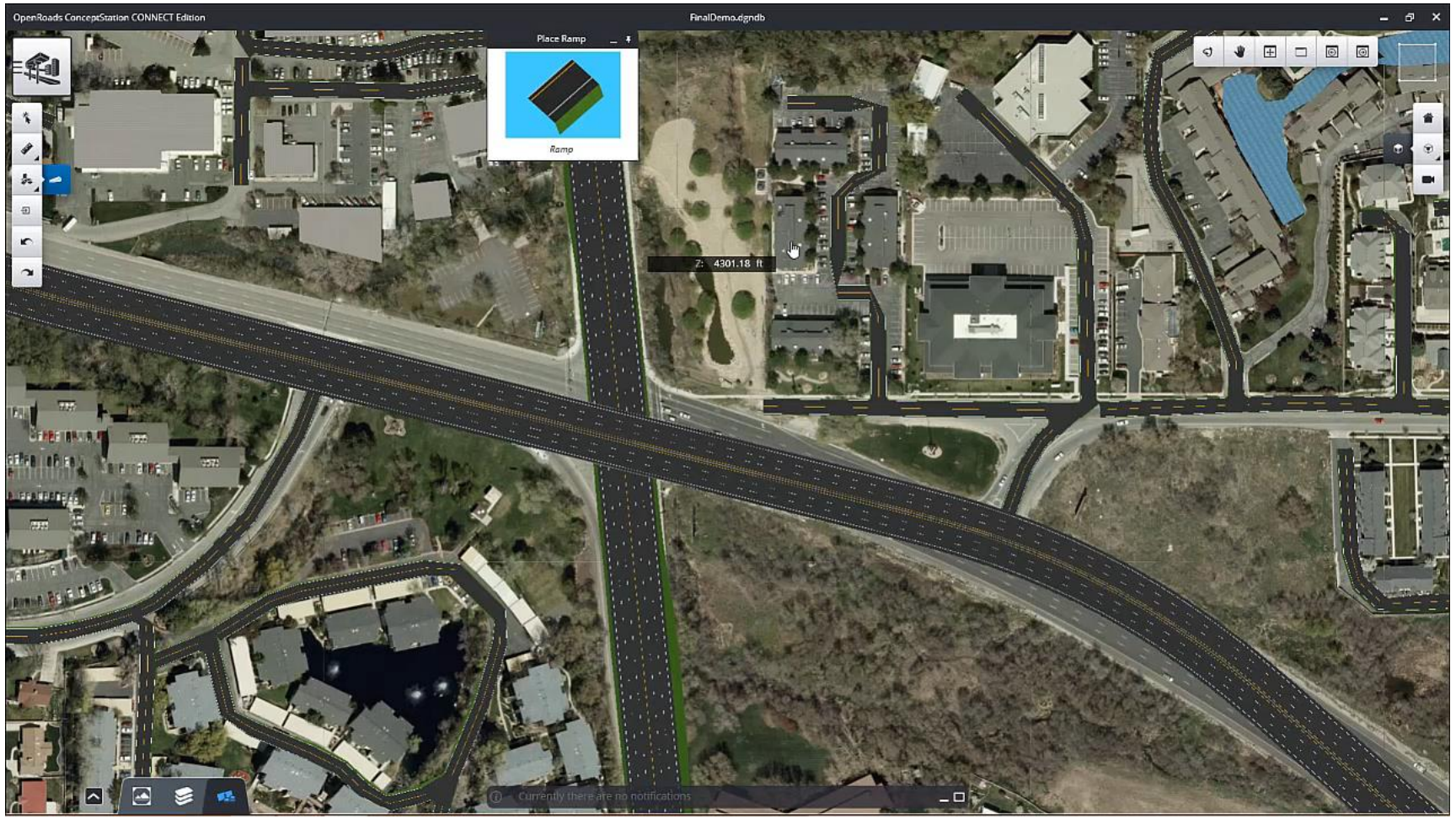


Tourism

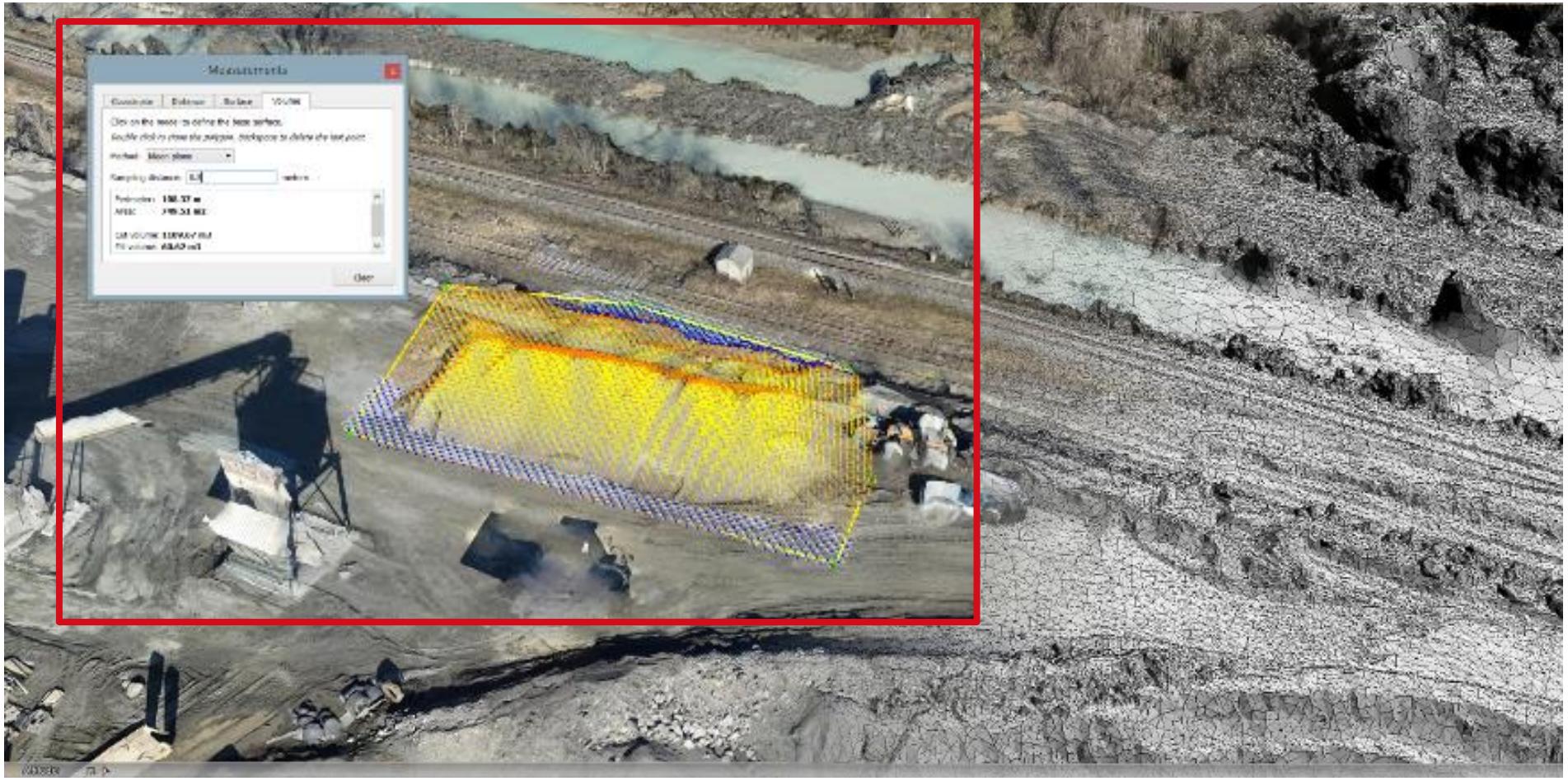

Cathedral Interior.dgn [3D - V8 DGN] - MicroStation
Search Ribbon (F4)
Edit
Lens
Photomatch
Camera
Lights
Manage
Solar Path
Environment
Lighting
Apply
Remove
Edit
Materials
Projections
Render Scene
Effects Manager
Rendering
Populate
Utilities
View 1, Default
Z
3.455
Default

Heritage

Transportation infrastructure

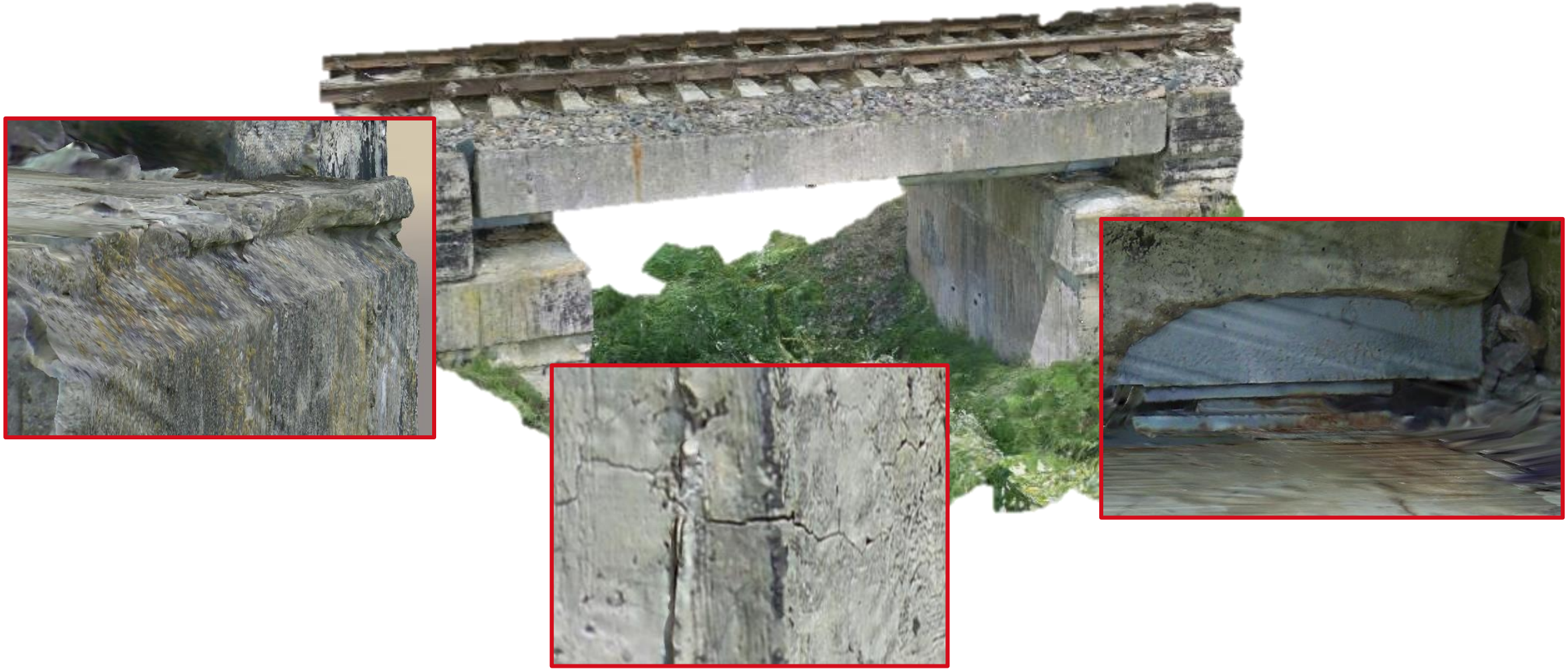


Preparation for construction

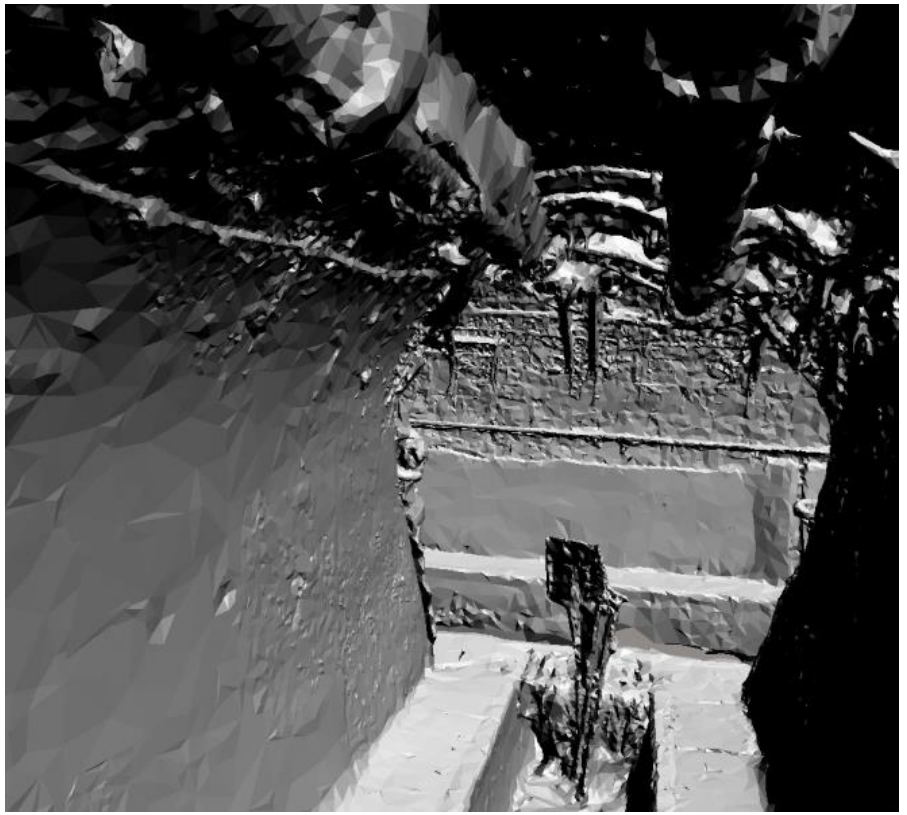


Construction supervision

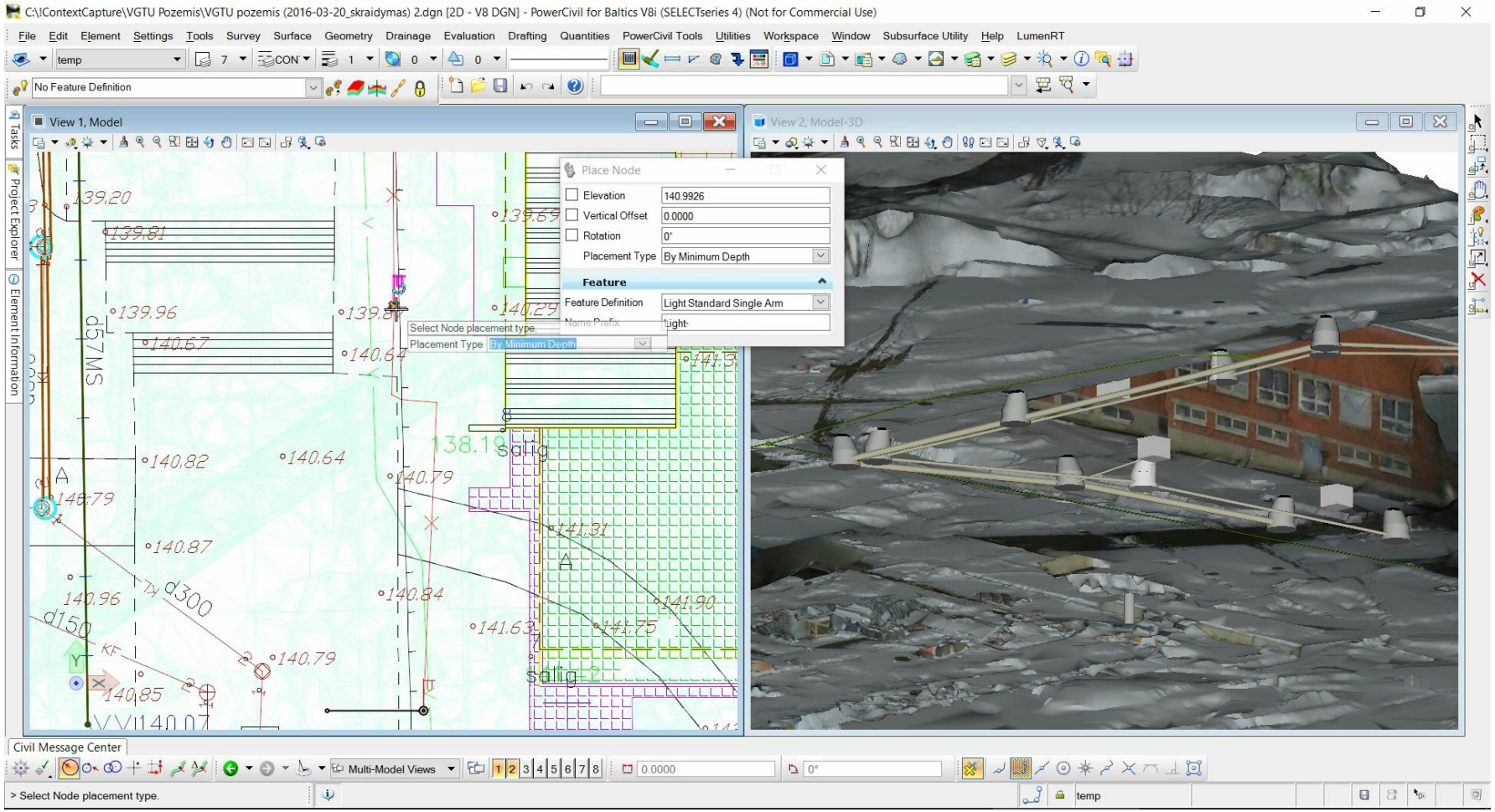
Expertise and inspection



Underground mapping



Subsurface utilities in 3D



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