

The Fourth International Workshop  
on GIS Technology and Application

# 3D GIS Technology for Urban Planning

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Urban Planning



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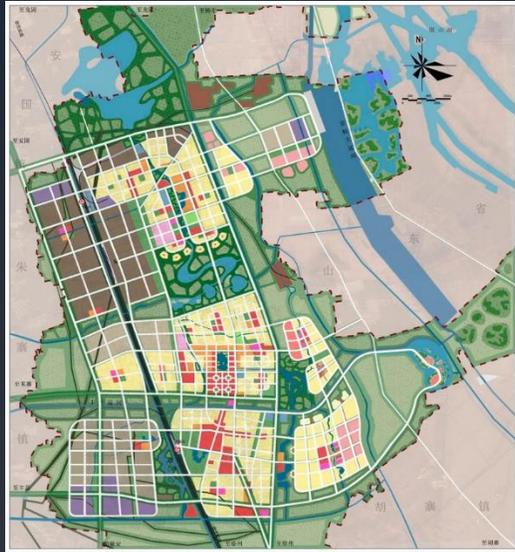
**PART 1**  
**3D GIS for**  
**Urban Planning**





# PART 1 3D GIS for Urban Planning

## New System for Urban Planning



Land Use  
Planning  
(2D)

Urban  
Planning  
(Integration  
of 2D & 3D  
Data)



Building Design  
(3D)





# PART 1 3D GIS for Urban Planning

## GIS Capability for Urban Planning

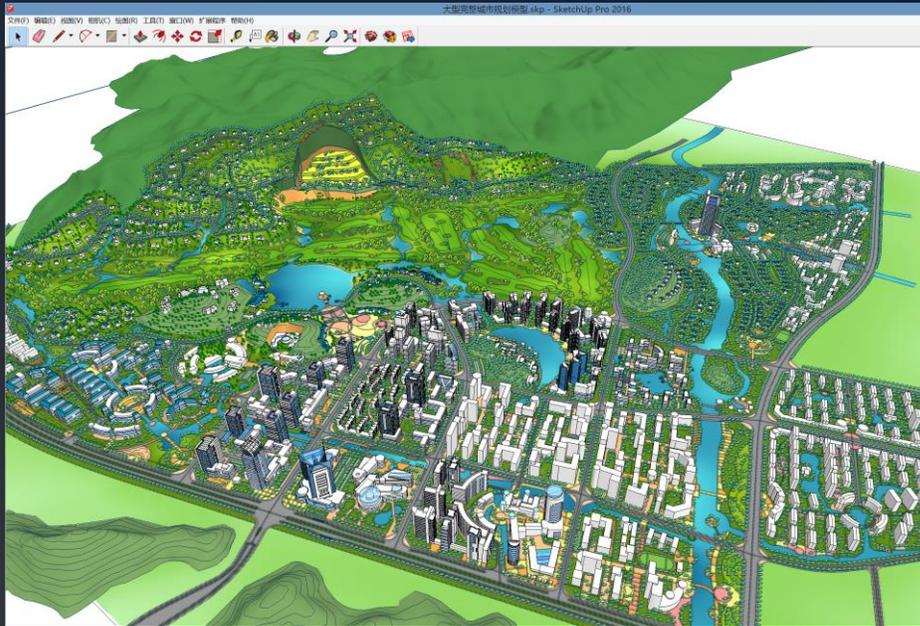
- **Connection to Urban Design Data**
- **Quick Modeling Based on 2D Data**
- **Spatial Processing for 3D Features**
- **Spatial Query and Analysis**
- **Aesthetic 3D Scene**





# PART 1 3D GIS for Urban Planning

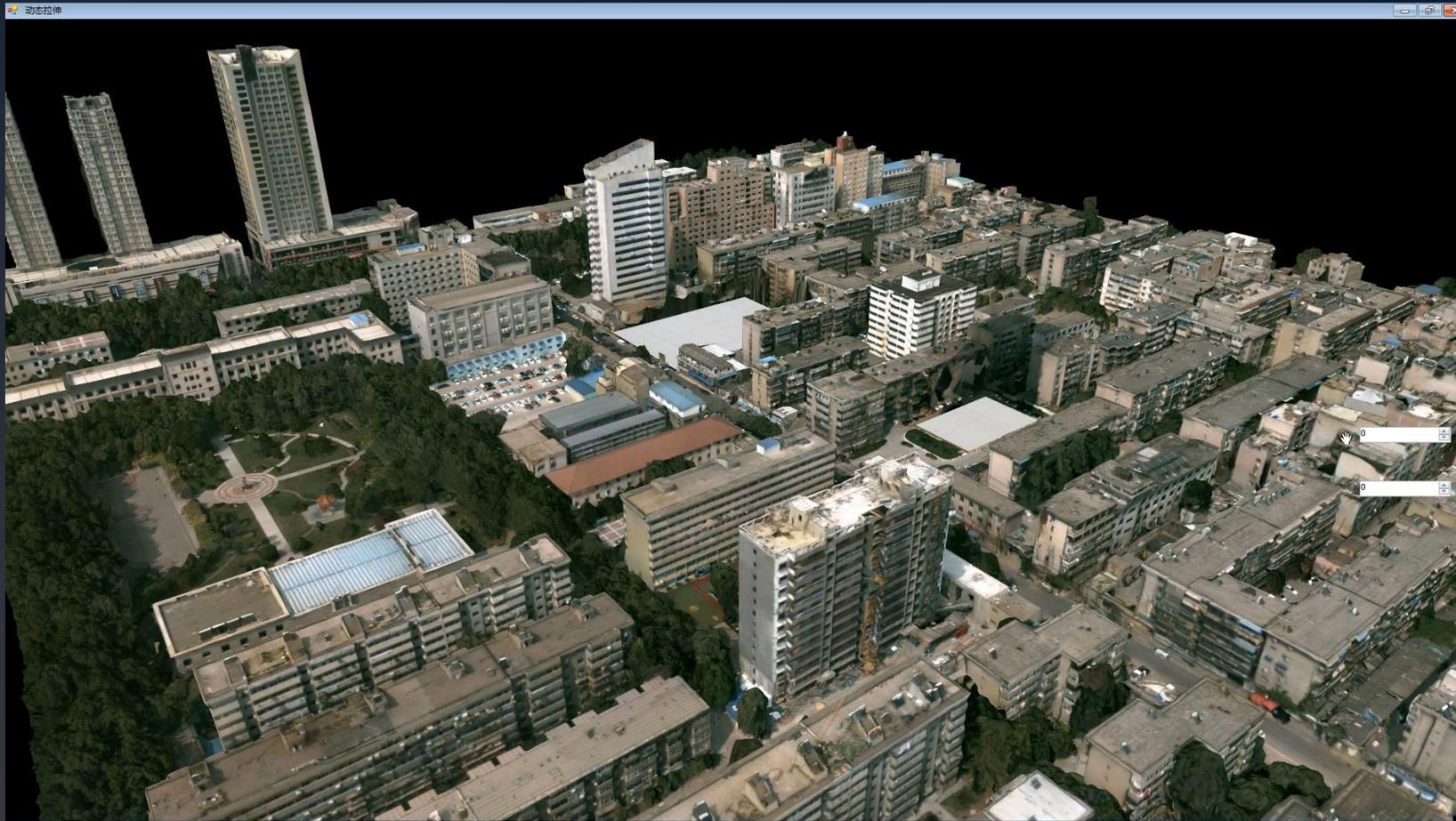
## Connection to Urban Design Data





# PART 1 3D GIS for Urban Planning

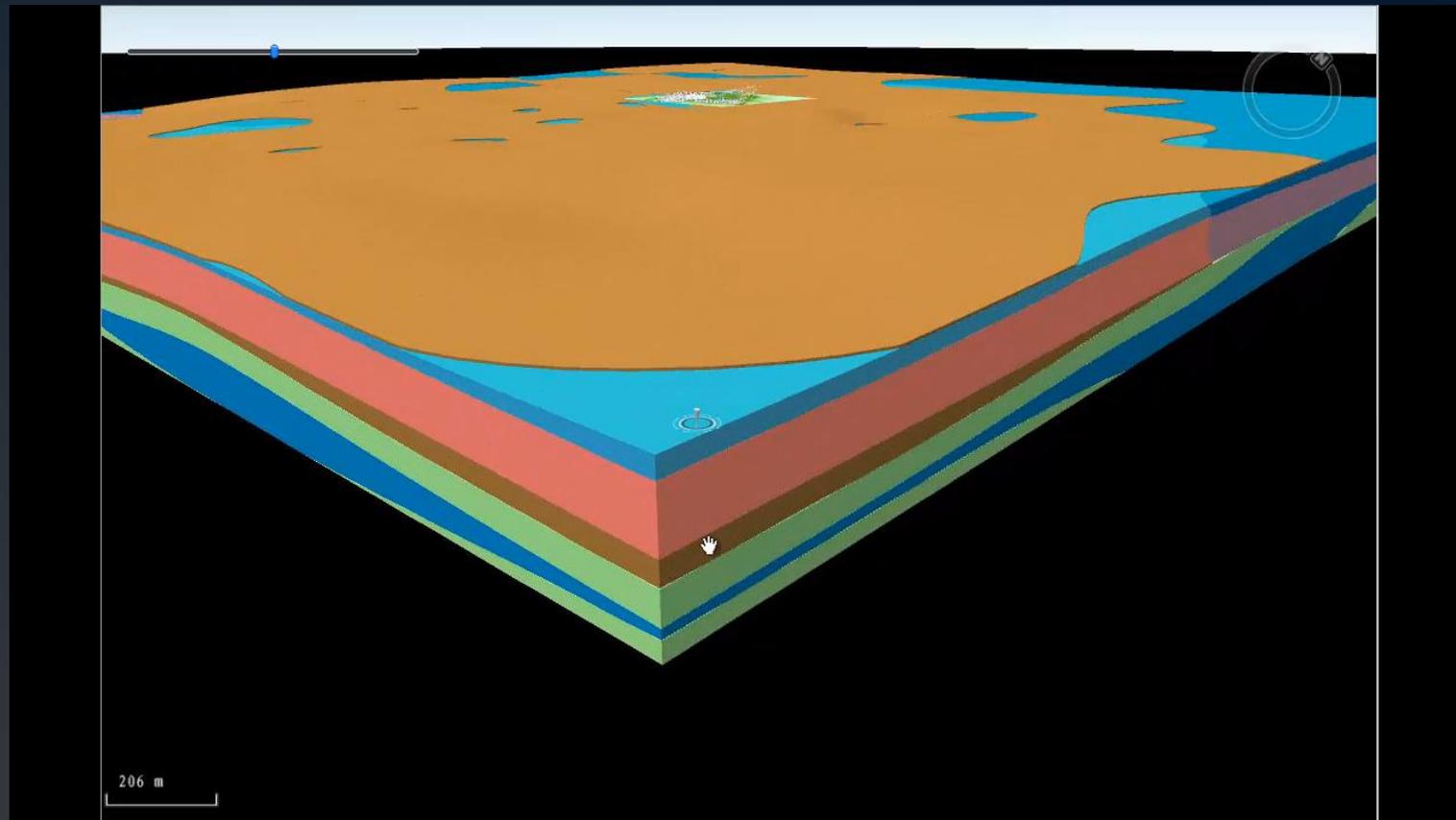
## Quick Modeling Based on 2D Data





# PART 1 3D GIS for Urban Planning

Integration of Geology Data and Building Model





# PART 1 3D GIS for Urban Planning

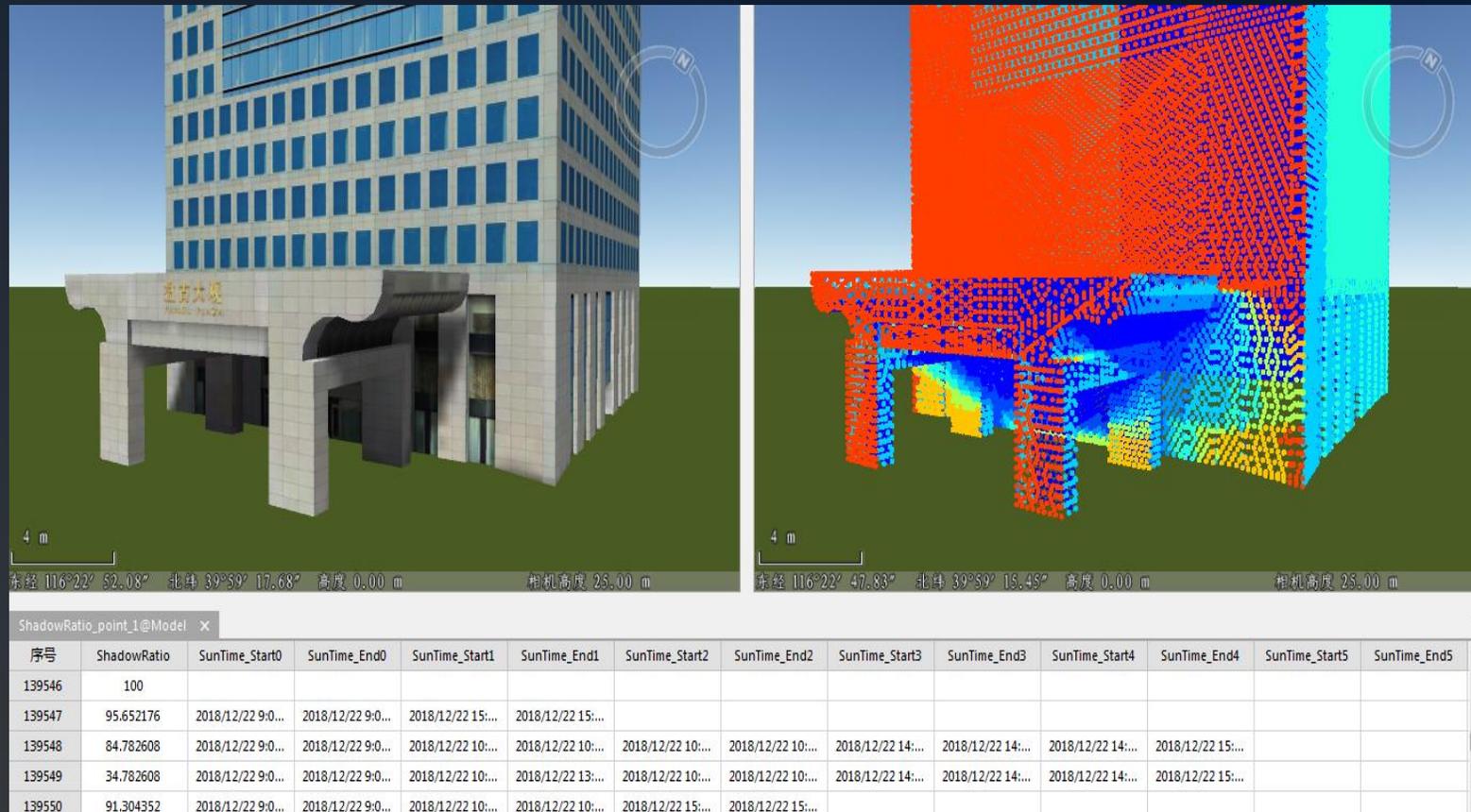
## Dimension Reduction - Building Section





# PART 1 3D GIS for Urban Planning

## Shadow Analysis





# PART 1 3D GIS for Urban Planning

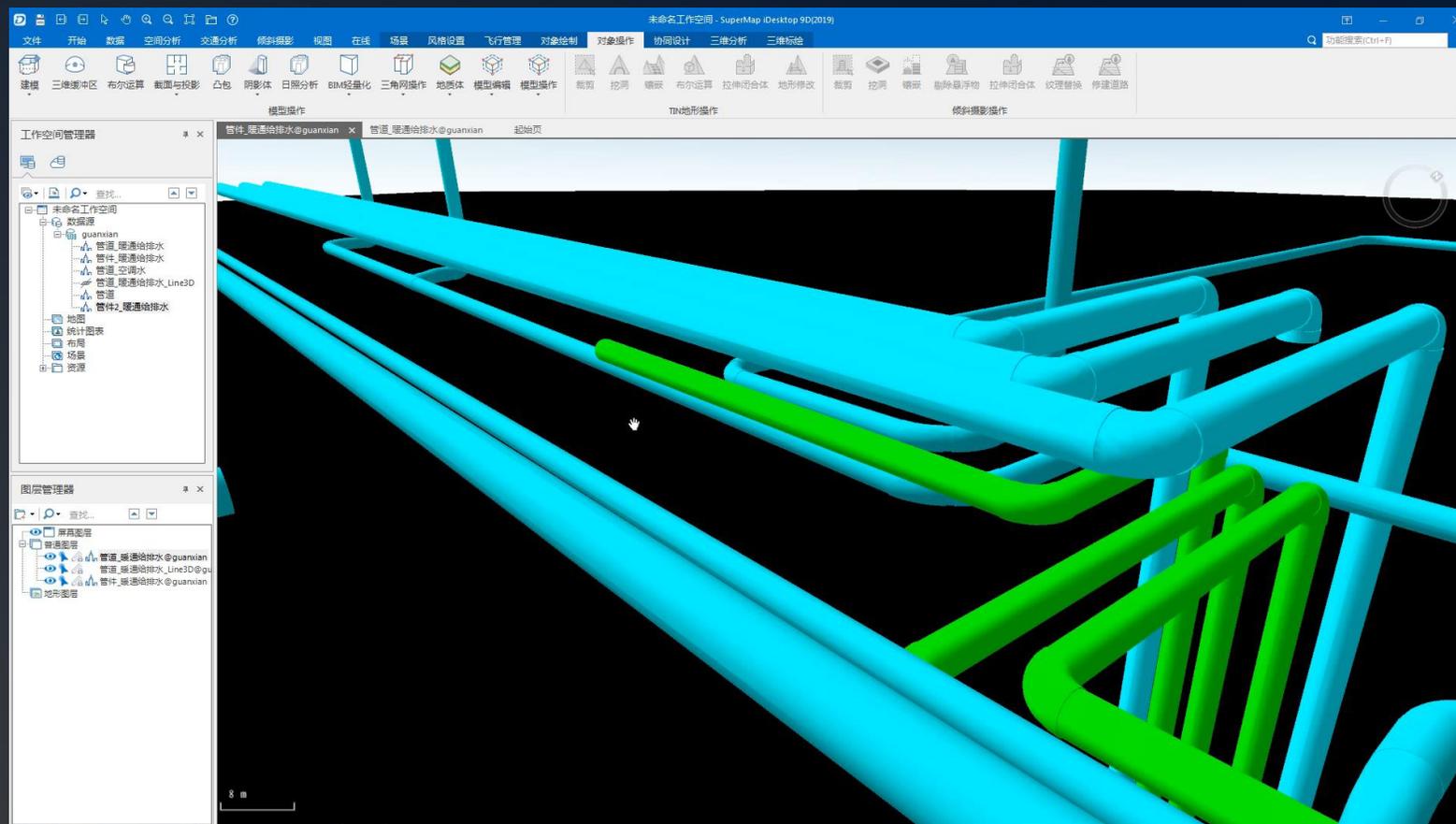
## Openness Analysis





# PART 1 3D GIS for Urban Planning

## Analysis on Underground Pipeline Network





**PART 2**  
**Demolition**  
**Case**





## PART 2 Demolition Case

# Introduction

- As the traffic worsened in recent years, the proposal for road expansion is approved by the community committee. Buildings within 10 meters to the road center line need to be demolished.

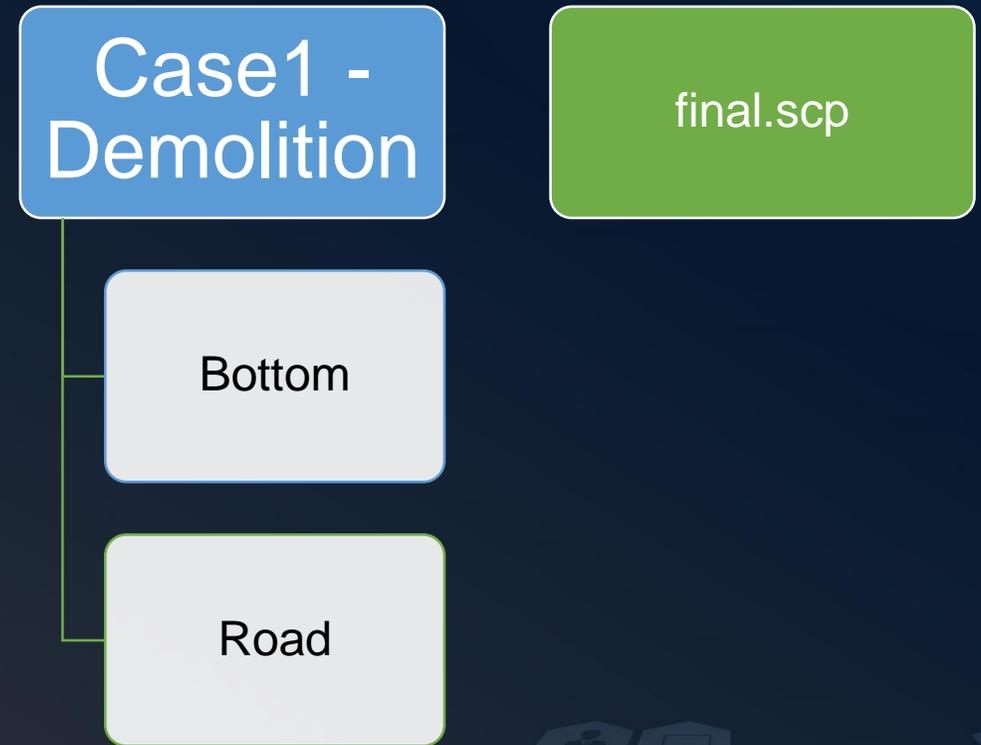




# PART 2 Demolition Case

## Data & Steps

- Add Bottom and Road into the scene
- Create expansion area
- Create building models based on Bottom
- Find out buildings to be demolished using 3D Query

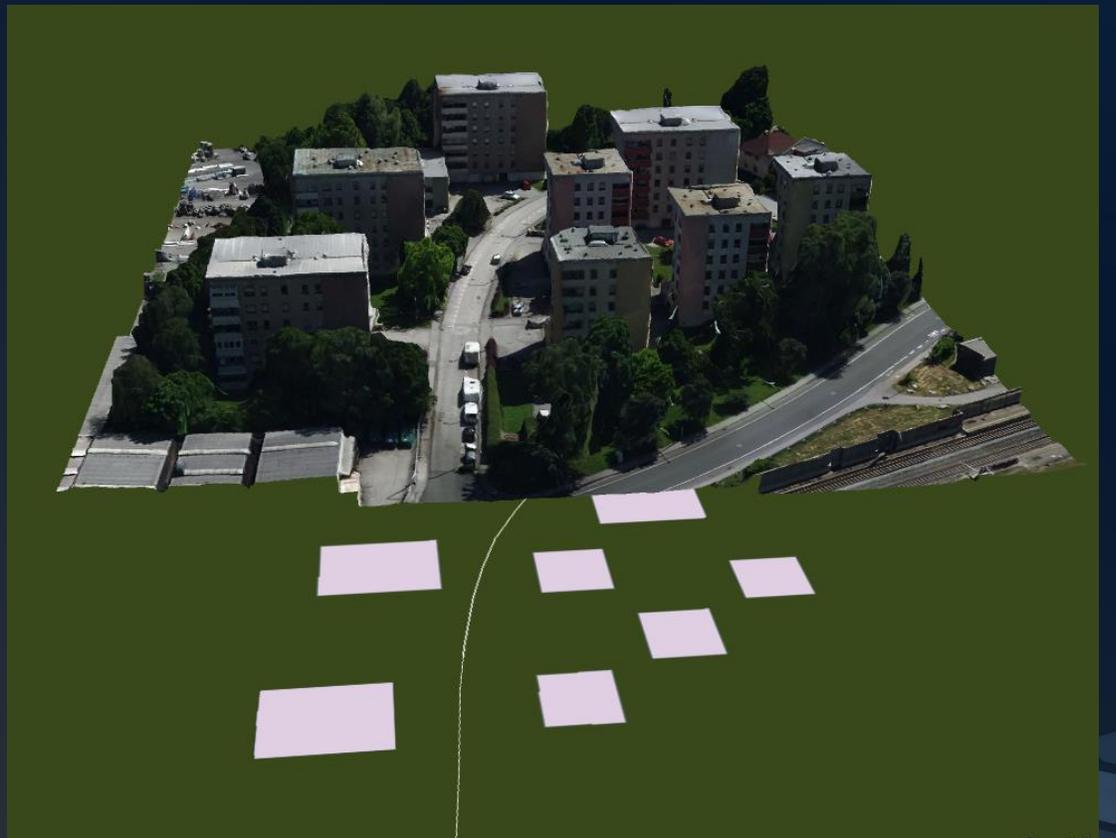
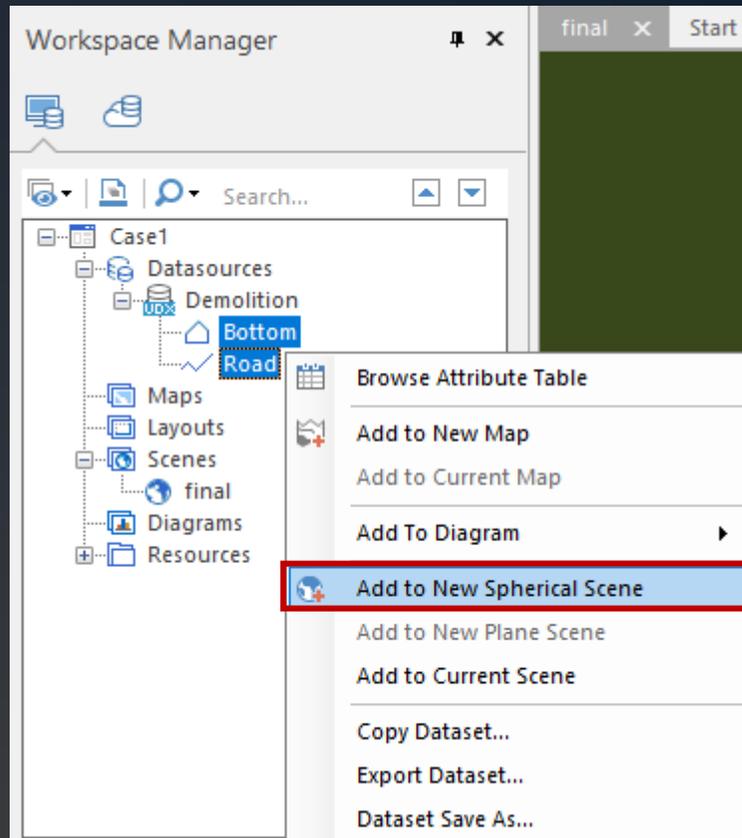




# PART 2 Demolition Case

## Add Data into Scene

- Dataset -> Right Click -> Add to Current Scene

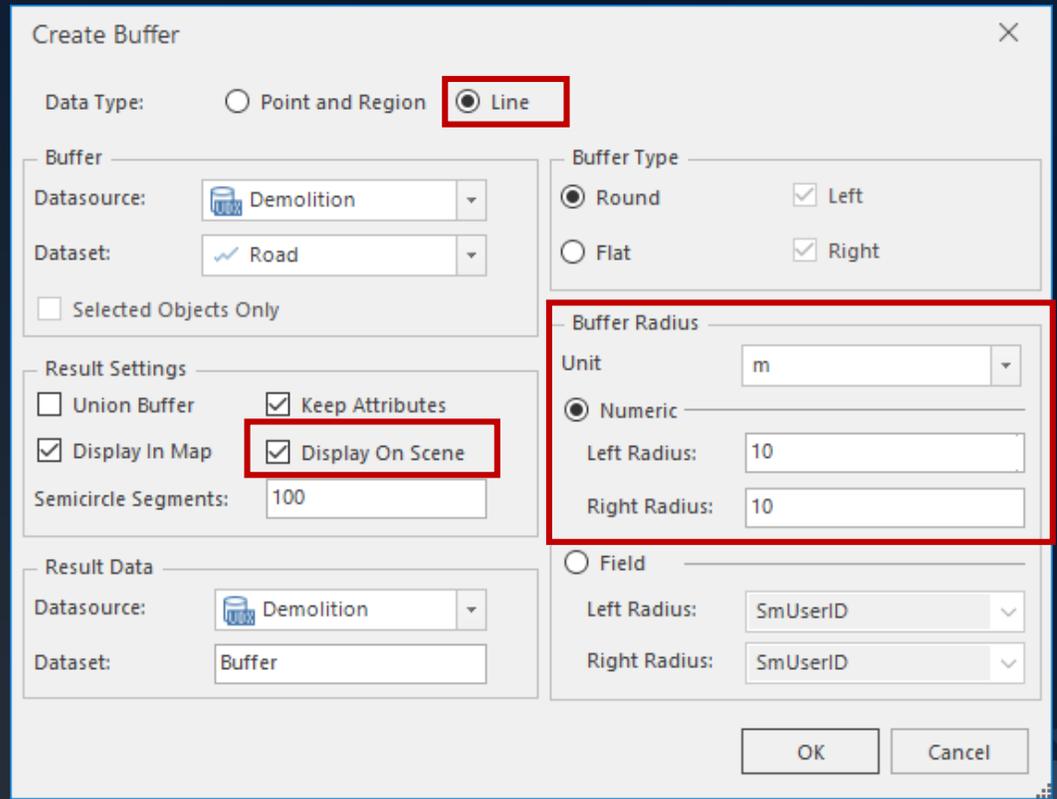
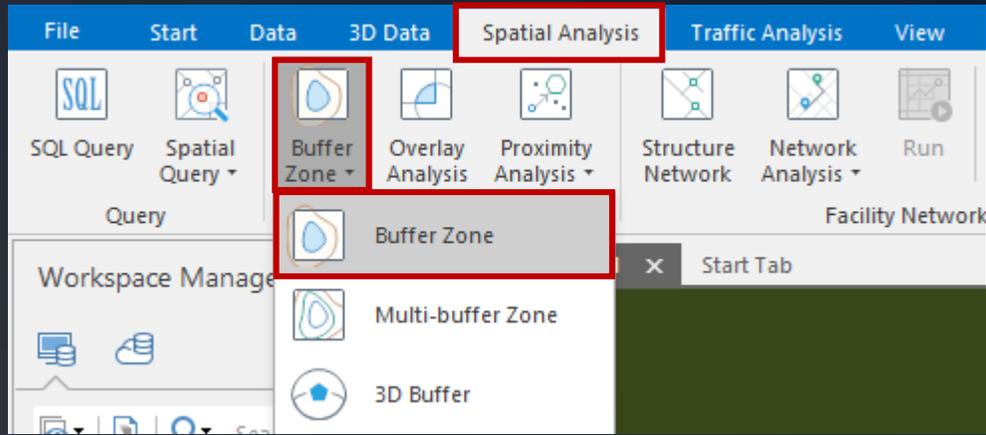




# PART 2 Demolition Case

## Expansion Area

- Spatial Analysis -> Vector Analysis -> Buffer Zone -> Buffer Zone

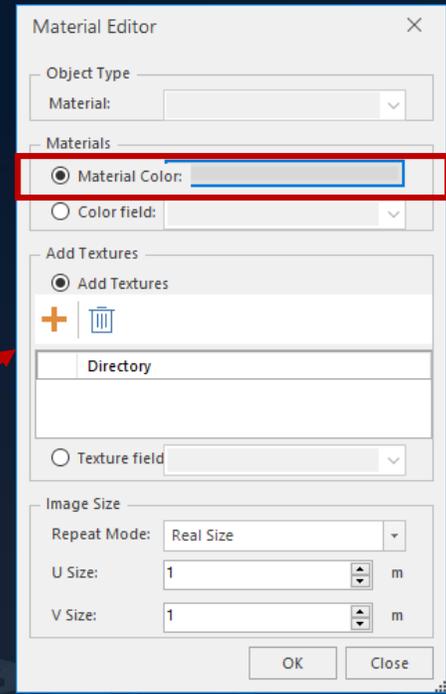
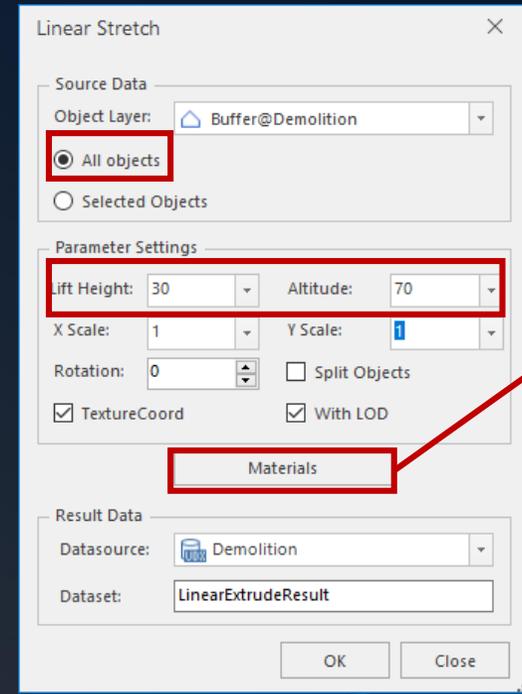
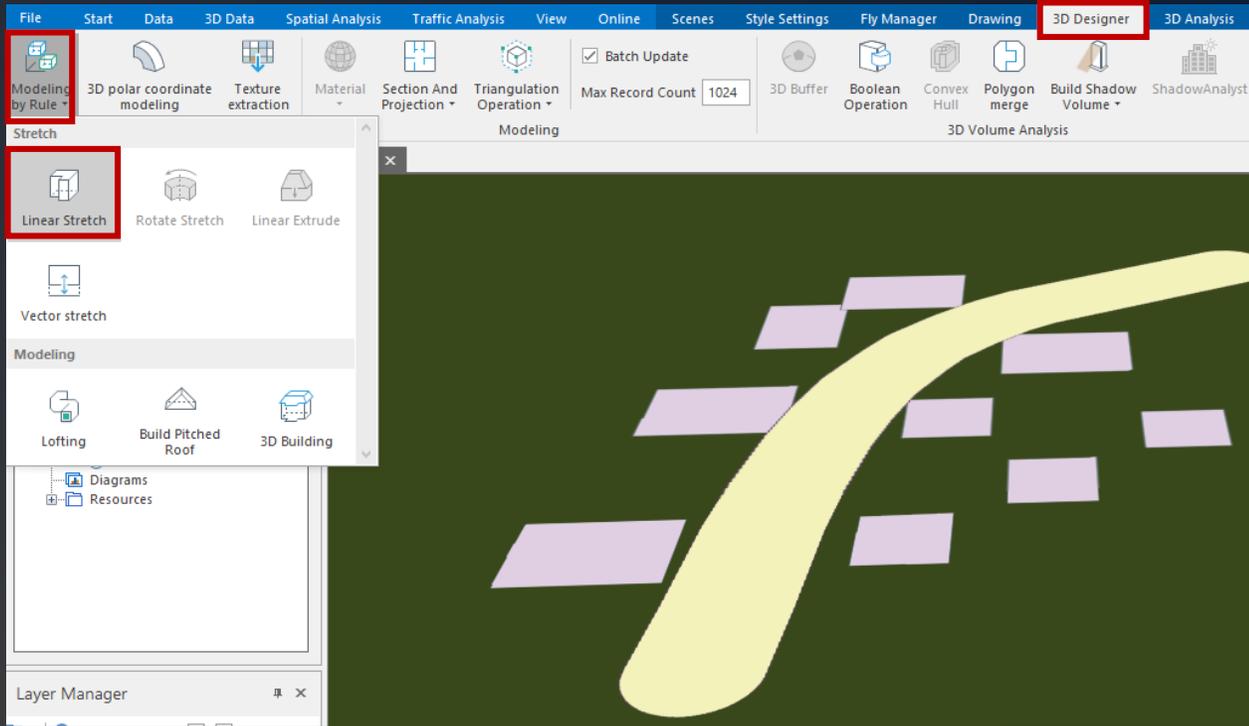




# PART 2 Demolition Case

## Expansion Area

- 3D Designer -> Modeling by Rule -> Linear Stretch

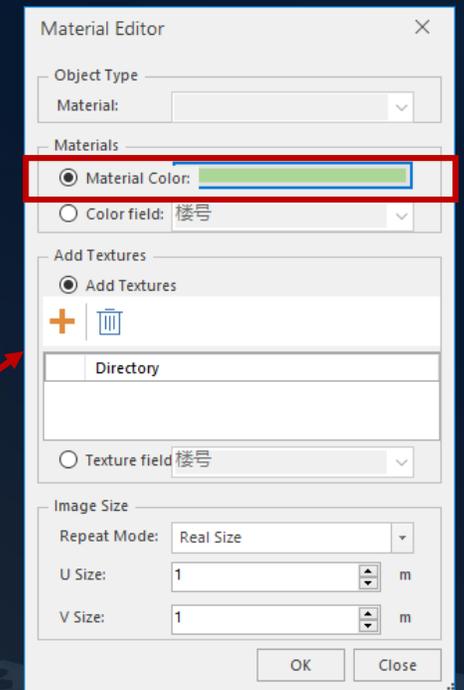
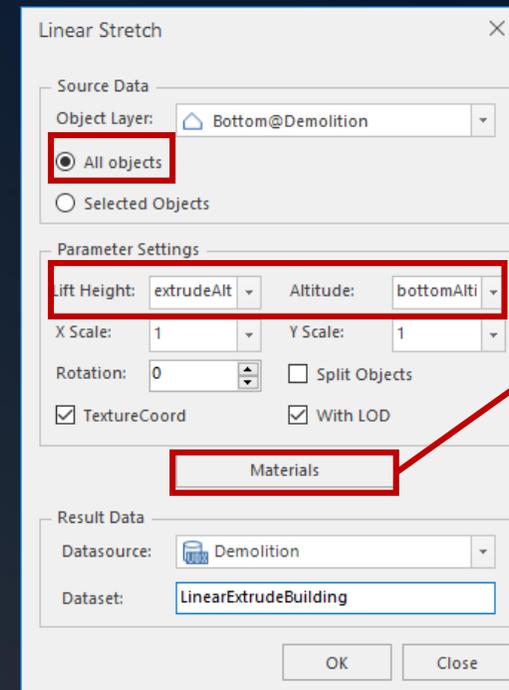
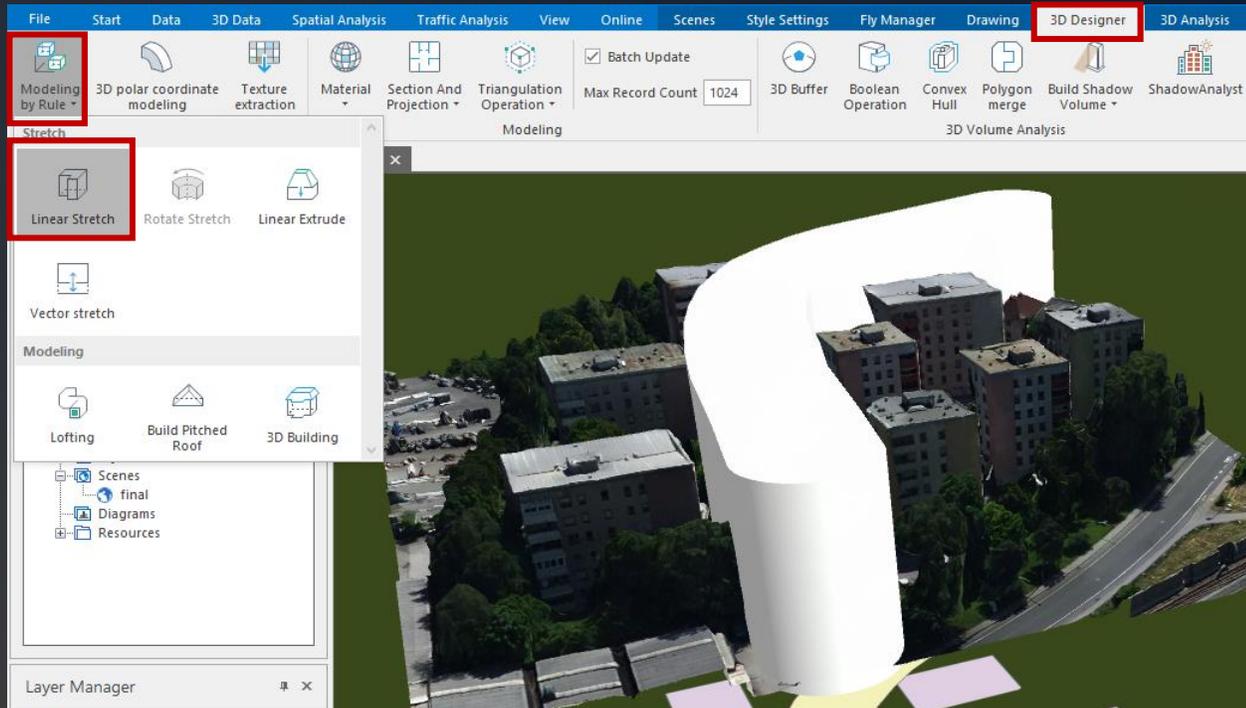




# PART 2 Demolition Case

## Building Models from Bottom

- 3D Designer -> Modeling by Rule -> Linear Stretch

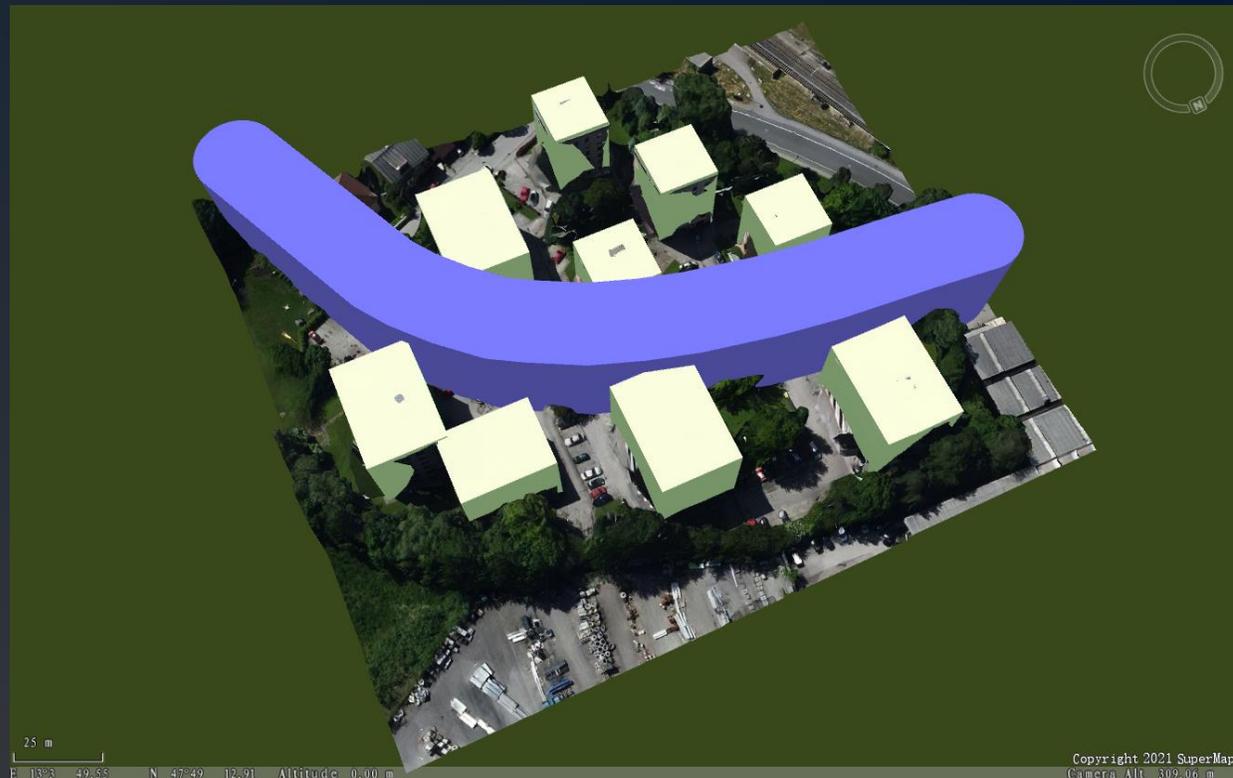




## PART 2 Demolition Case

# Building Models from Bottom

- Select expansion area in the scene
- Buildings intersecting with the expansion area should be demolished.

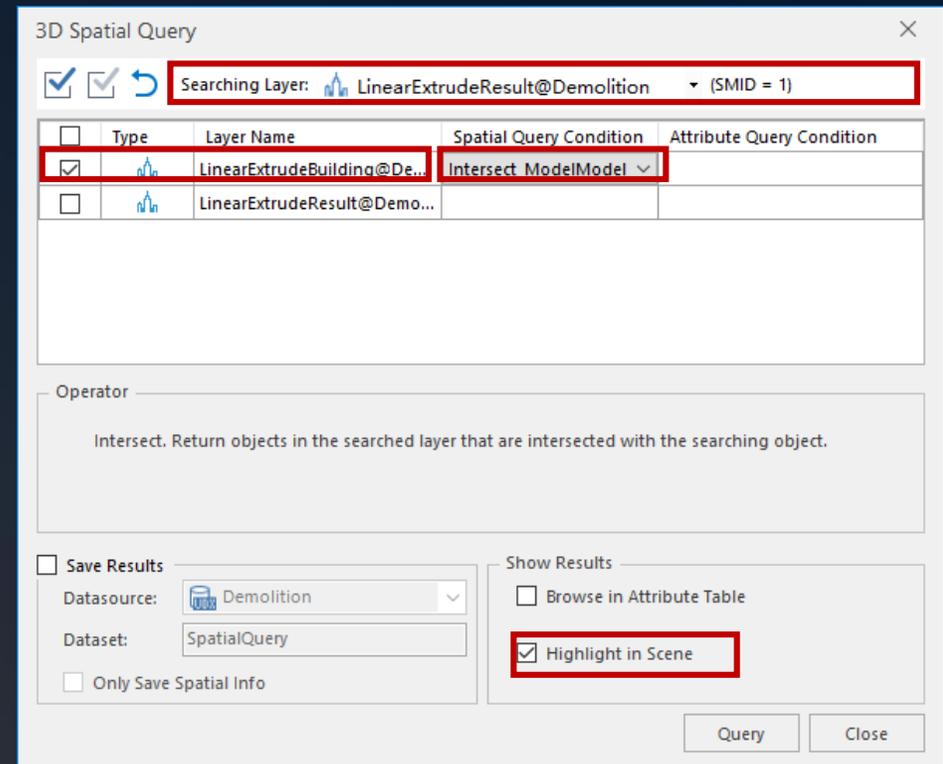
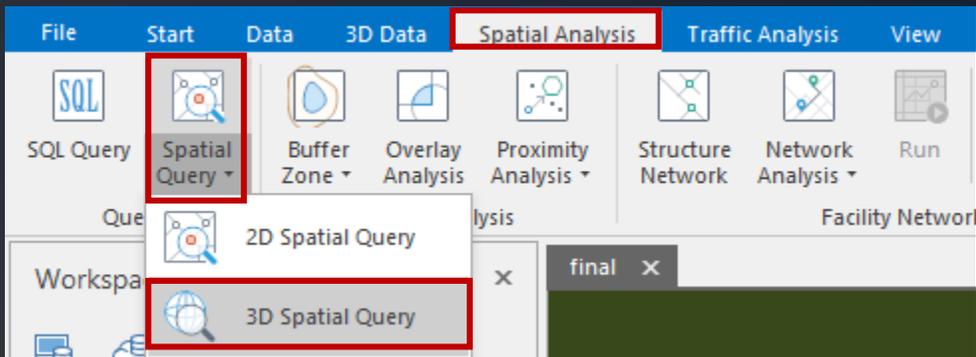




# PART 2 Demolition Case

## Buildings to Be Demolished

- Select expansion area in the scene
- Spatial Analysis -> Query -> Spatial Query -> 3D Spatial Query





# PART 2 Demolition Case

## Buildings to Be Demolished





## PART 3

# Scheme Comparison Case





# PART 3 Scheme Comparison Case

## Introduction

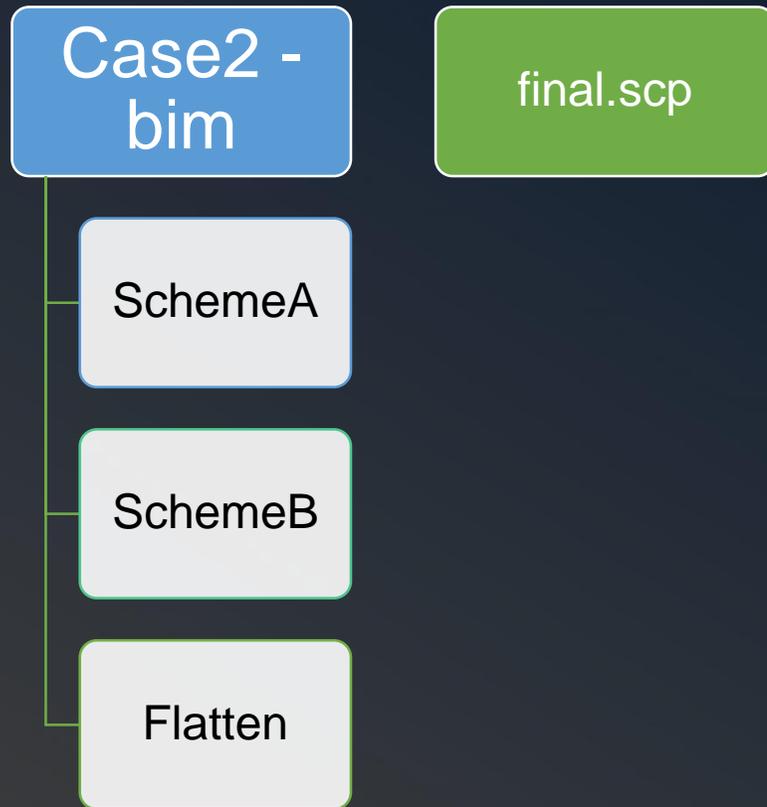
- An old building is going to be replaced by a new service center
- There are two design schemes for the service center. The community committee wants to compare them in the scene based on oblique photography 3D model before making the decision.





# PART 3 Scheme Comparison Case

## Data & Steps



- Flatten the model of old building
- Add the models of Scheme A and Scheme B into the scene and set their attitudes
- Compare the two schemes in the scene

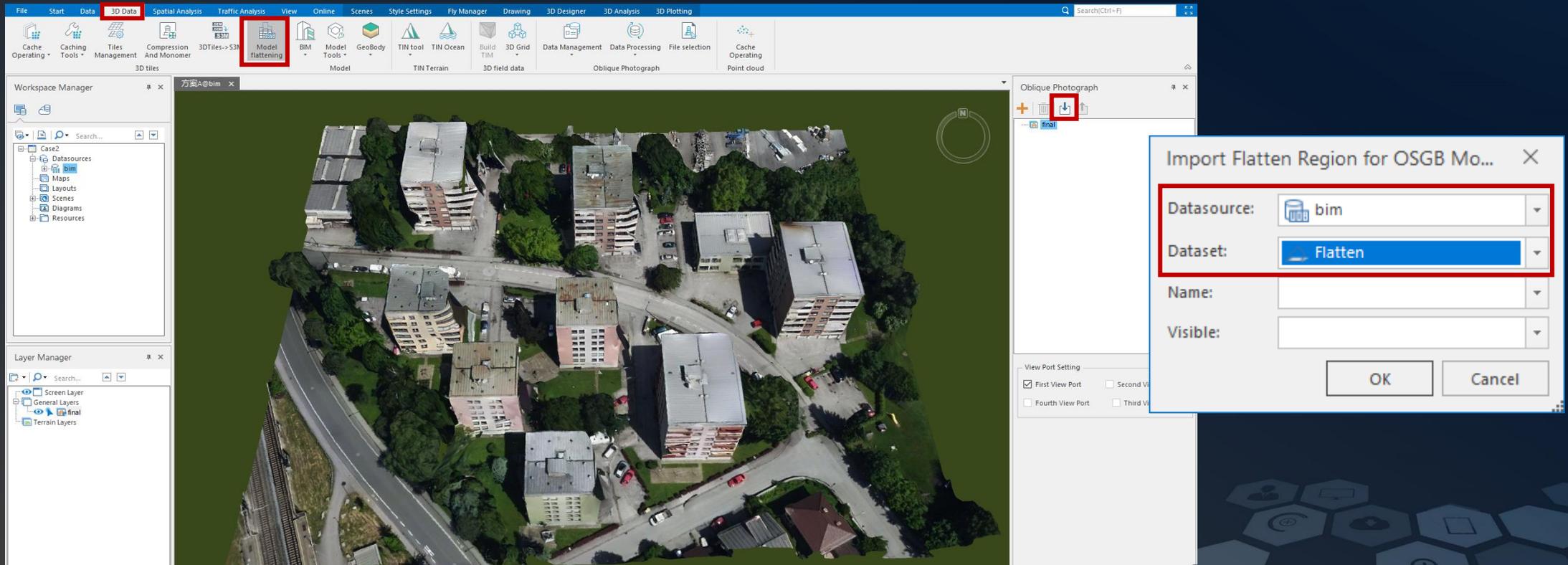




# PART 3 Scheme Comparison Case

## Flatten the Model

- 3D Data -> 3D Tiles -> Model Flatten
- Import Flatten Surface: Flatten@bim





# PART 3 Scheme Comparison Case

## Flatten the Model



Before



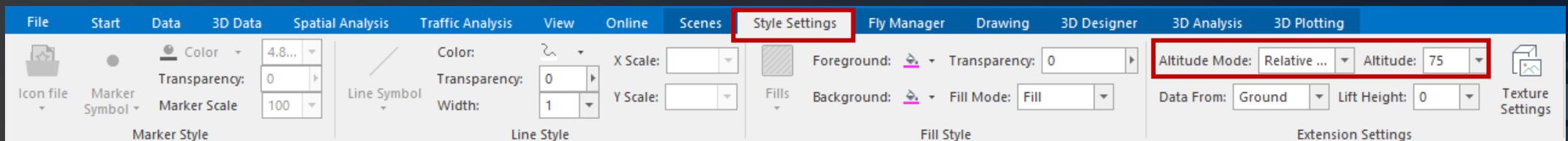
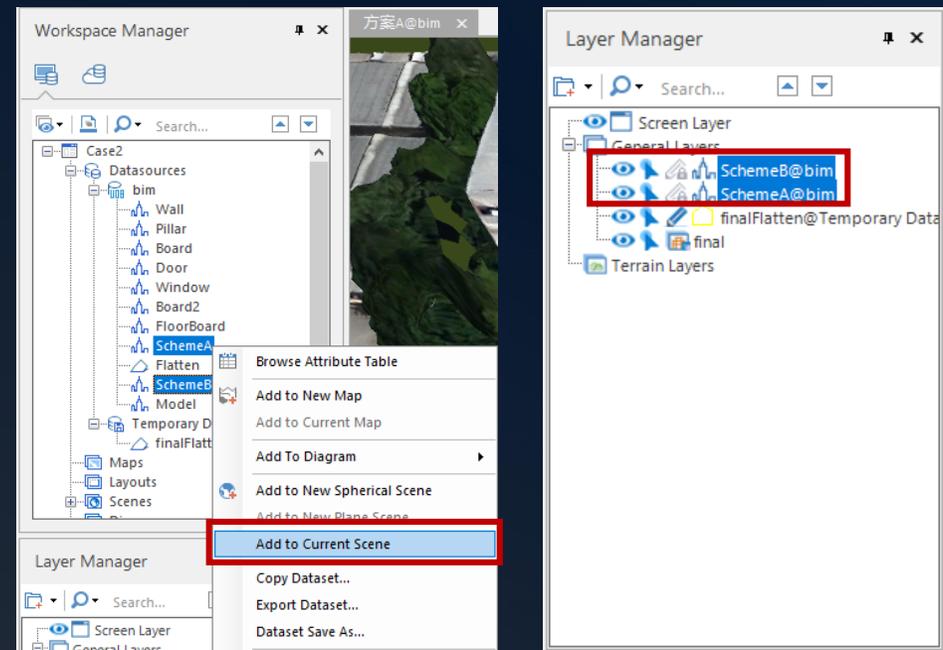
After



# PART 3 Scheme Comparison Case

## Add Scheme Models into the Scene

- Dataset -> Right Click -> Add to Current Scene
- Select scheme layers in Layer Manager
- Style Settings -> Extension Settings
  - Attitude Mode: Relative to Ground
  - Attitude: 75





# PART 3 Scheme Comparison Case

## Compare Schemes



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**THANK YOU**

