About the speaker

Raquel Bascones Recio
Architect and Landscape Architect with a passion for Generative Design and BIM.
Originally from Madrid, she has spent the last few years in London and Barcelona where she moved to join Autodesk in 2017.
As a Designated Support Specialist, Raquel helps our Premium Customers in their BIM workflows.
Introduction
What is InfraWorks?
InfraWorks

- Cloud and Desktop Product
- Visual 3D Design and Communication tool
- Supports BIM (Building Information Modelling) processes
- Combines aspects of…
  - Geographic Information Systems (GIS)
  - 3D Visualization
  - Civil Engineering Design
INFRAWORKS “FILE TYPE”

- Resources folder
- Sqlite file

SUPPORTED FILE TYPE FOR IMPORT

- 3D Model (.3DS, .DAE, .DXF, .FBX, .OBJ)
- Civil 3D (.DWG)
- AutoCAD DWG 3D and 2D objects (.DWG,.DXF)
- Autodesk IMX (.IMX)
- Autodesk Revit (.RVT,.RFA)
- CityGML Files (.CITYGML, .GML, .XML)
- DGN 3D Model (.DGN)
- IFC Files (.IFC)
- LandXML Files (.XML, .LANDXML)
- Point Cloud (.RCS, .RCP)
- Raster Files (Various)
- Spatial Data Format (.SDF)
- Shape Definition Files (.SHP)
- SketchUp Files (.SKP)
- SQLite Files (.SDX, .SQLITE, .DB)
Why InfraWorks for Landscape and Masterplanning?
Landscape & Masterplanning Workflow

- ARCHITECTURE
- CIVIL
- STRUCTURES
- MEP
- OTHER CONSULTANTS:
  - Irrigation
  - Environmental
  - Sustainability
  - Fire
  - Security
Stages & Toolset

SURVEY

PLANNING & CONCEPT DESIGN

AUTODESK® INFRAWORKS®

AUTODESK® CIVIL 3D®

AUTODESK® RECAP®

DETAILED DESIGN

AUTODESK® REVIT®

AUTODESK® BIM 360®

VIRTUAL DESIGN & CONSTRUCTION

AUTODESK® NAVISWORKS®
Best tool for the job

InfraWorks
- Preliminary design
- Visual
- Full-time 3D
- Context
- Easy to learn

Civil 3D / Revit
- Completion of detailed design
- Full user control
- Plan production
- 3D & 2D
- Adherence to graphical standards
Dataset

- Urban Square competition
- Collado Villalba, Madrid
- Documentation: DWG with existing conditions
Starting a Model
Data sources

1. PREPARE

2. IMPORT
- Cloud import
- Local import (Navisworks required)

3. CONFIGURE
- Data Type
- Geolocation
- Style
- Tooltip
Data Sources
Point Cloud Information

1. CAPTURE

2. COMPUTE

3. EXTRACT

AUTODESK® RECAP™

AUTODESK® INFRAWORKS®
Model Authoring
HARD LANDSCAPE
Component Roads for Hardscape
Hardscape elements with Components Roads

PARAMETRIC DESIGN
Component roads allow editing parameters to customize design

LINEAR FEATURES
Ideal for landscape linear elements like footpaths, cycle lanes or street design

FLEXIBILITY
Each component is individually editable. Change material, size and shape.

CUSTOMIZABLE
Use the library materials or import your own. Add in or remove components to adjust your design.
Adding Components to a Road
Replacing Materials
Hardscape with Core Tools

**COVERAGE**
- Drapes on terrain
- Grips on perimeter to adjust extent and elevation
- Edits on grips will shape terrain
- Can flatten terrain at certain elevation

**LAND AREAS**
- Flattens the area
- Grading styles can be adjusted
Hardscape using Coverages
Hardscape from file
Add a Material Style

1. Create New in Style Palette
2. Select between Texture (JPG or PNG) or Color
3. Configure settings
   - Width and Height
   - Anchor Point
Model Authoring

SOFT LANDSCAPE
Tree & Understory Modeling

UNIQUE ELEMENT
- Place a unique tree on click
- Parametric and editable
- Any style from palette

STAND
- Place trees inside sketched area
- Random placement and heights
- Control density and scale
- Individually editable

ROWS
- Place trees along a sketched line
- Control density and scale
- Individually editable

COMPONENT ROAD DECORATION
- Place along a seam in the road
- Parametric or 3D Model
- Control spacing, scale, offsets, rotation and tilting
- No individual edits
Adaptive or LOD Trees

SCALE 1

SCALE 2

SCALE 3
Row of Trees
Stand of Trees
Trees as Road Decoration
Groundcover Modeling

**COVERAGE**
- Drapes on terrain
- Grips on perimeter to adjust extent and elevation
- Edits on grips will shape terrain
- Can flatten terrain at certain elevation

**LAND AREAS**
- Flattens the area
- Grading styles can be adjusted
Groundcover
Model Authoring

FURNITURE & OTHERS
3D Elements Modeling

**UNIQUE ELEMENT**
- Place a unique element on click
- Parametric and editable
- Any style from palette

**COMPONENT ROAD DECORATION**
- Place along a seam in the road
- Parametric or 3D Model
- Control spacing, scale, offsets, rotation and tilting
- No individual edits

**ROWS/STAND**
- Place elements along a sketched line
- Control density and scale
- Individually editable

**FROM FILE**
- Configure data source to City Furniture
- Select desire style
- Individually editable
Add New 3D Model

- Style Palette
- 3DS, DAE, DXF, FBX, OBJ, SFF, SVF
- Render options
- Edit in import
- Preview of the model
Collaboration
Civil 3D Interoperability

IMX
OPEN IW DIRECTLY IN C3D

IMPORT & CONFIGURE
IN DATA SOURCES
Revit Interoperability

1. PREPARE
2. IMPORT & CONFIGURE
3. CONFIGURE

"SEND TO REVIT"

IMPORT & CONFIGURE IN DATA SOURCES
Revit Import Configuration

- Set Coordinate System as XY-IFT
- Select the target CS in Position
- Type the Project Base Point coordinates into the Offset
BIM360

COLLABORATE IN THE CLOUD
• Several users working on a model
• InfraWorks & BIM360 entitlement needed

CONTROL RIGHTS
• Viewer, uploader & editor roles
• Assign by role or folder

BROWSER VIEWER
• Allow review of the model without InfraWorks desktop

MANAGE MARK UPS & COMMENTS
• Viewers can mark up and comment the model in a browser
• Add attachments to comments
• Check as solved
BIM360 Workflow

1. Select Cloud when creating new model or upload existing local model
2. Synchronise regularly to get cloud changes and apply your changes
3. Use the browser to view model, manage comments and mark ups
**Shared Views**

**COLLABORATE ONLINE**
- No editable, just visual representation
- No InfraWorks or BIM360 entitlement needed
- Current proposal only

**MANAGED FROM INFRAWORKS**
- Generate links
- Delete shared views
- Extend expiration date (default 30 days)

**AUTODESK VIEWER**
- Allow review of the model without InfraWorks desktop

**MANAGE COMMENTS**
- Viewers can mark up and comment the model in a browser
Shared View Creation

1. Go to Shared Views Dialog
2. Define area
3. Select whether bookmarks and properties are shared
Communication
## Communication Tools

### STORYBOARD
- Create videos from the model
- Edition tools
- Add titles and captions

### SNAPSHOTS
- Render views from the model

### WATERMARKS
- Include logos and images

### SUN & SKY
- Control the date, time and weather conditions for your model
Illustrative Plan
Advanced Workflows
Advanced Workflows

CUSTOM SCHEMA
Customize the Schema JSON file to create custom categories, attributes and display

STYLE RULES
Use expressions to specify criteria that determine which styles will be applied to individual features

SCRIPTING
InfraWorks supports Java scripting to automate processes

ANALYSIS TOOLS
• Traffic and pedestrian simulation
• Corridor optimization
• Flood analysis (RiverFlow2D)
Q&A