

# CI11140-L - It's a Balancing Act: BIM Workflow for Site Design

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An aerial view of a city skyline featuring a river and a bridge. The bridge has a rainbow-colored light strip along its edge. In the background, there are several tall skyscrapers and a large stadium-like building. The foreground shows a green park area with trees and a red car on the bridge.

# Lab Assistants:

**Jen Chavez**

**Joe Hedrick**

**Matt Anderson**

# About Me

- Used AutoCAD® since release 9
- Teaching since 2000
- Writing courseware since 2007
- Books are sold in 67 different countries



# Class summary

Helping the community visualize a project's impact before construction is complete can be very difficult unless you use the right tools for the job. This class explores conceptual site-design options using InfraWorks 360 software to visualize realistic proposed sites. Starting with Model Builder and Revit software models, you will learn how to create realistic and accurate models that support a more informative and productive public-communication model. After clearly demonstrating the conceptual and preliminary design to stakeholders, we take the design into AutoCAD Civil 3D software to run quantity takeoffs and finish the detailed design. The design is then taken back into InfraWorks 360 software to create high-impact visuals to better support public participation and communication. We will perform various types of analysis along the way to validate the design and ensure design parameters are being met.

# Key learning objectives

At the end of this class, you will be able to:

- Create conceptual grading plans and parking lots inside InfraWorks 360.
- Transfer the design to AutoCAD Civil 3D to create the detailed design.
- Compute quantity takeoffs for the earthworks and material volumes.
- Communicate the design visually with InfraWorks 360.

An aerial view of a city skyline with a bridge over a river. The bridge has a rainbow-colored overlay on its surface. In the foreground, there is a parking lot with a rainbow-colored overlay. The city skyline in the background features several tall buildings.

# Create conceptual grading plans and parking lots inside InfraWorks 360

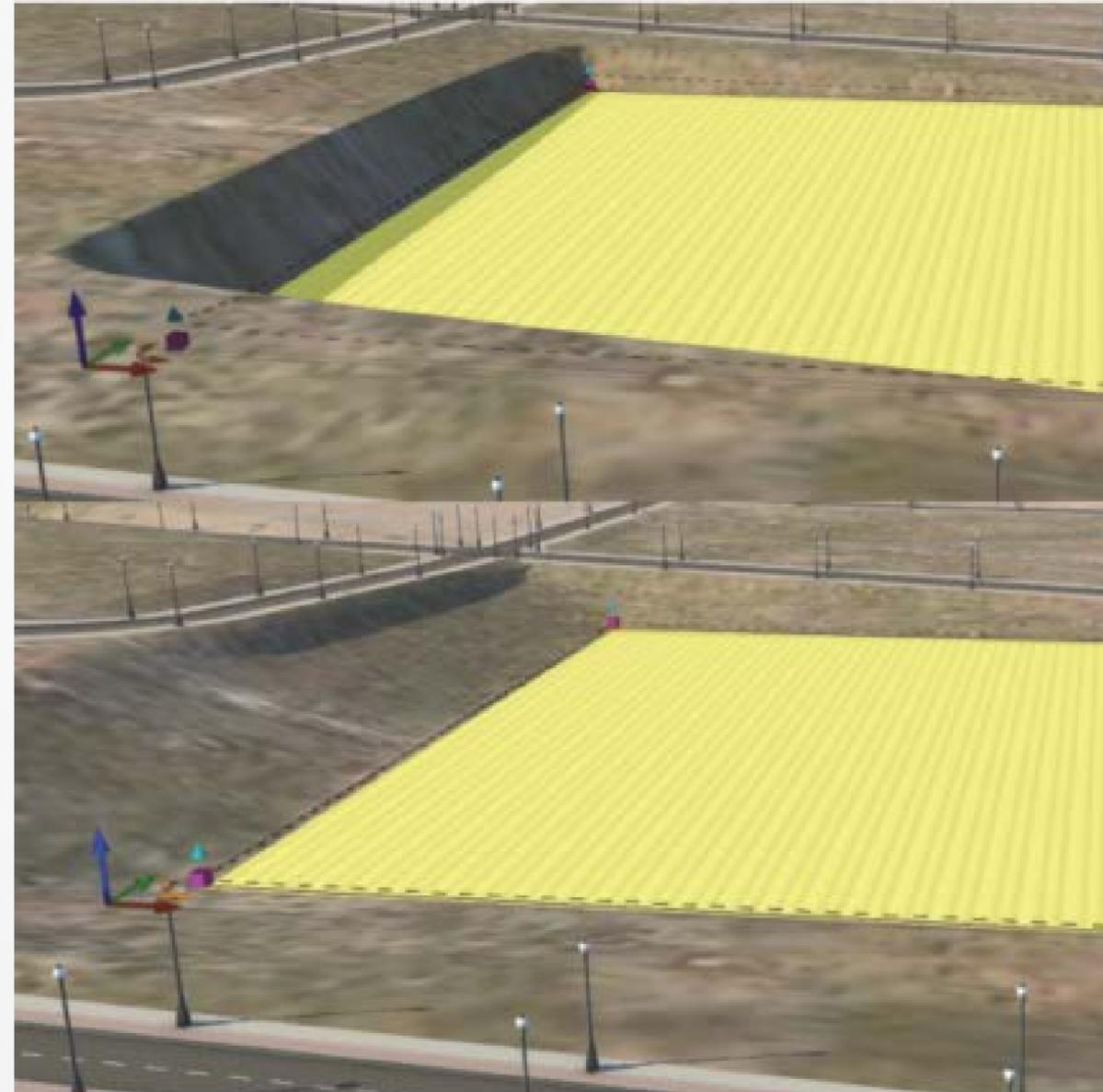
# Create Coverages

- Surface Display
  - Asphalt
  - Grass
- Surface Shape
  - Building Pad
  - Terrain Hole



# Edit Coverages

- Gizmos
- Shape Terrain
- Properties
  - Smooth Radius



PROPERTIES	
Coverage Areas (1) <input type="checkbox"/> Auto Update <input type="button" value="Update"/>	
Property	Value
Tooltip	
Link	
▼ Stylization	
Manual Style	Coverage/Asphalt
Rule Style	
▼ Geometry	
Generalization	
Tessellation	
▼ Coverage	
Category	Markup
Buffer	
Smooth Radius	20.0 ft
Hard Cost	

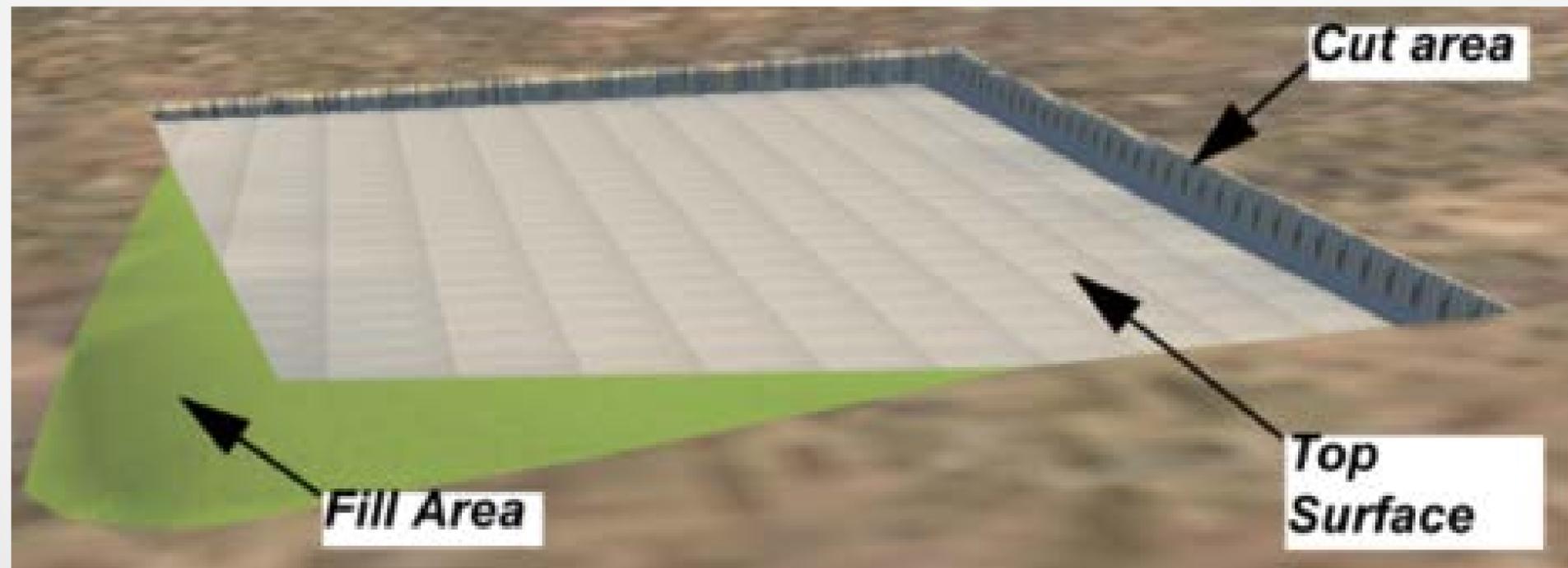
PROPERTIES	
Coverage Areas (1) <input type="checkbox"/> Auto Update <input type="button" value="Update"/>	
Property	Value
Tooltip	
Link	
▼ Stylization	
Manual Style	Coverage/Asphalt
Rule Style	
▼ Geometry	
Generalization	
Tessellation	
▼ Coverage	
Category	Markup
Buffer	
Smooth Radius	100.0 ft
Hard Cost	

# Let's Try It

- Pages 3-4 of your handouts

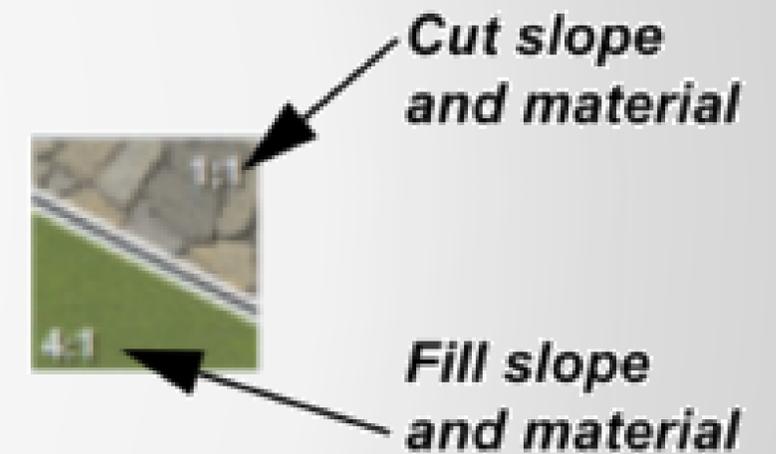
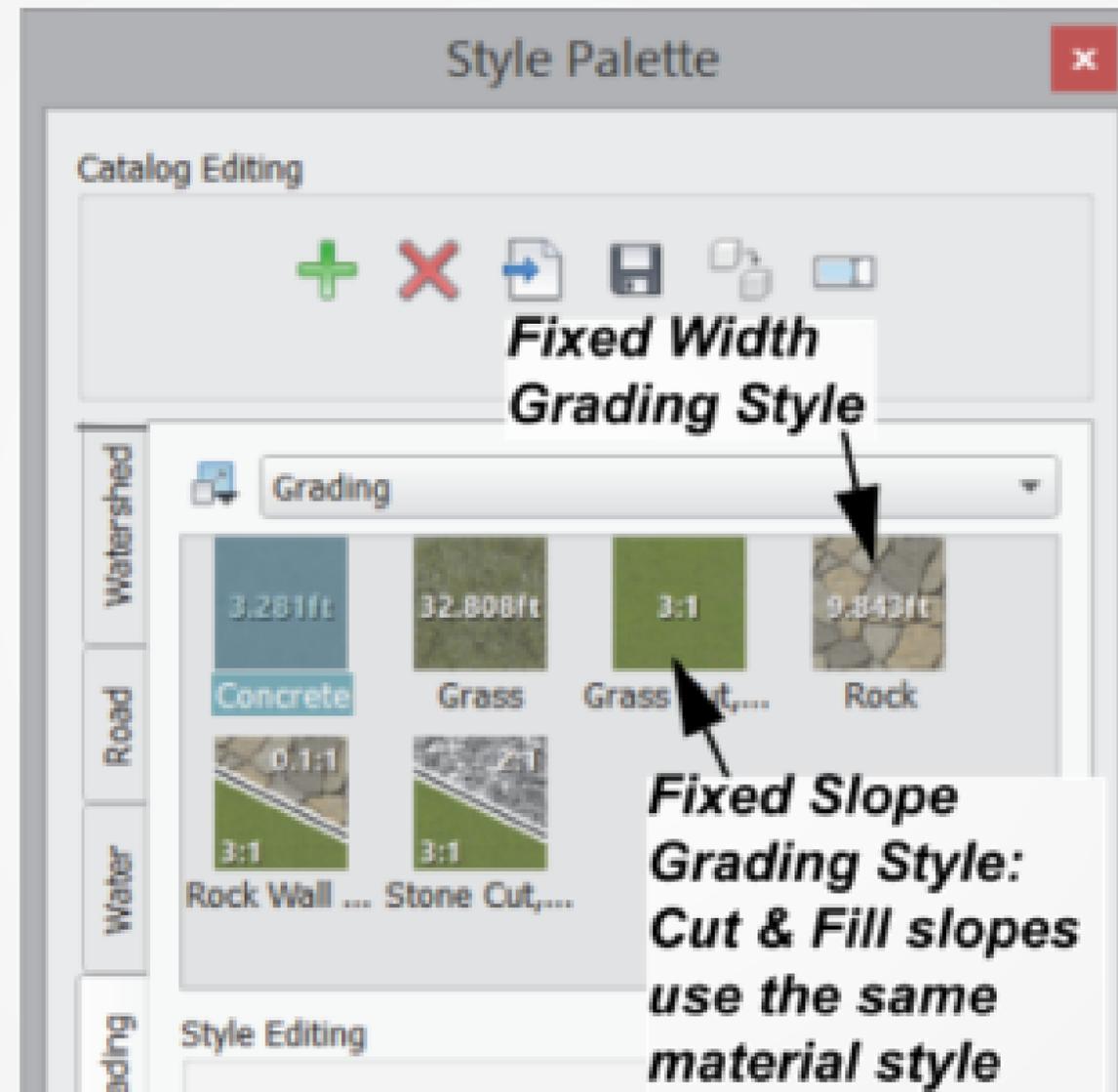
# Create Land Areas

- Flat Top
- Control Top, Cut, and Fill Materials Separately.



# Grading Styles

- Fixed Width
- Fixed Slope



**Fixed Slope Grading Style:**  
Cut & Fill slopes use different material styles

# Let's Try It

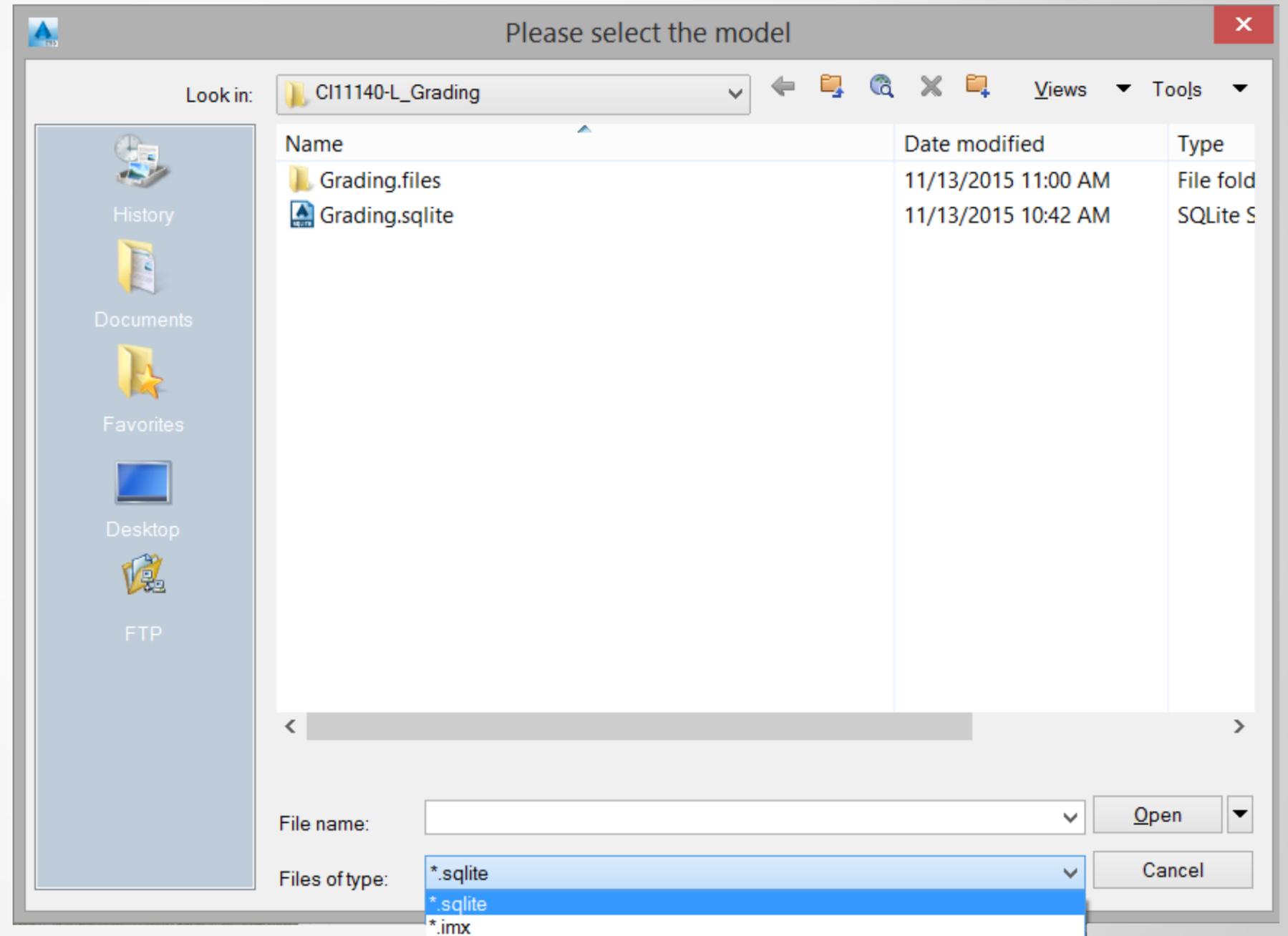
- Pages 6-8 of your handouts

An aerial view of a city skyline with a bridge over a river and a stadium in the foreground. The bridge has a rainbow-colored line along its edge. The stadium is a large, circular structure with a white roof. The city skyline features several tall skyscrapers. The sky is a clear blue.

**Transfer the design to AutoCAD Civil 3D  
to create the detailed design**

# Open or Import

- Open .sqlite
- Import .imx



# Let's Try It

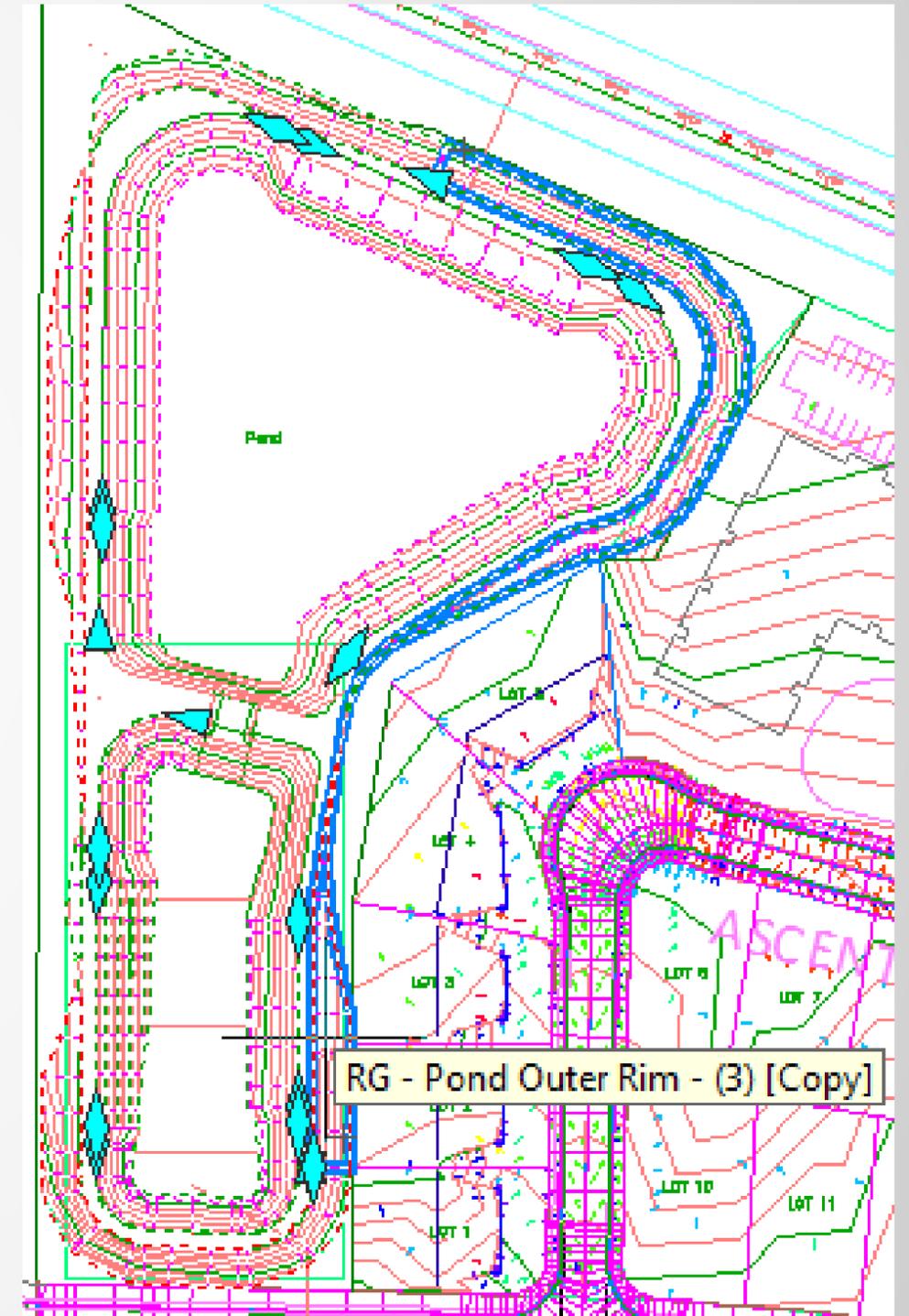
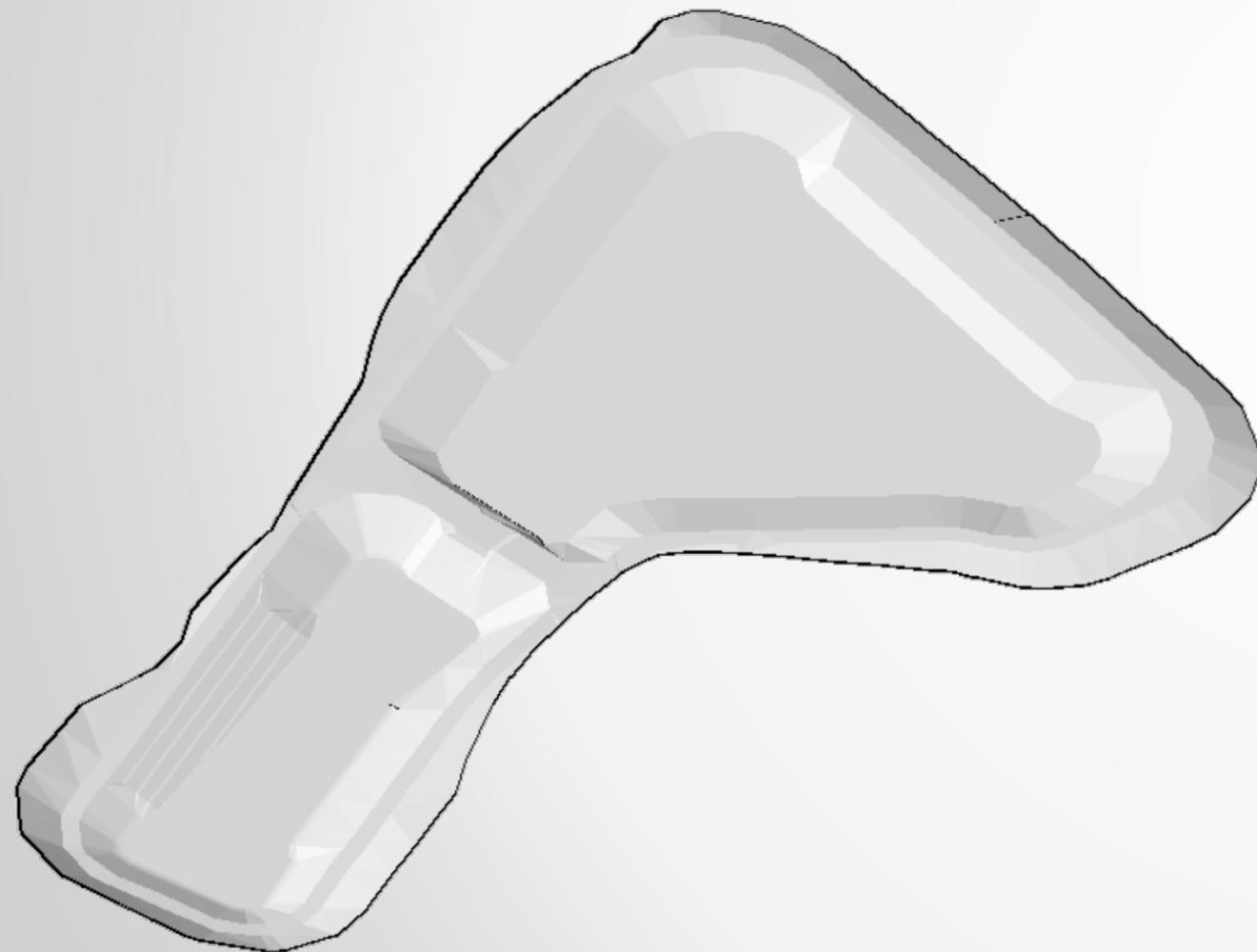
- Pages 9-10 of your handouts

An aerial view of a city skyline with a bridge over a river and a construction site. The bridge has a rainbow-colored line along its edge. The construction site shows various structures and materials. The text "Compute quantity takeoffs for the earthworks and material volumes" is overlaid in blue on a semi-transparent white background.

# Compute quantity takeoffs for the earthworks and material volumes

# Compute Quantity Takeoffs

- Create a volume surface
- Create sections



# Let's Try It

- Page 11 of your handouts

An aerial rendering of a city skyline featuring a large stadium, a multi-lane bridge over a river, and a park area with trees and a pond. The scene is set against a clear blue sky.

# Communicate the Design Visually With InfraWorks 360

# Storyboard Interface

**Caption**

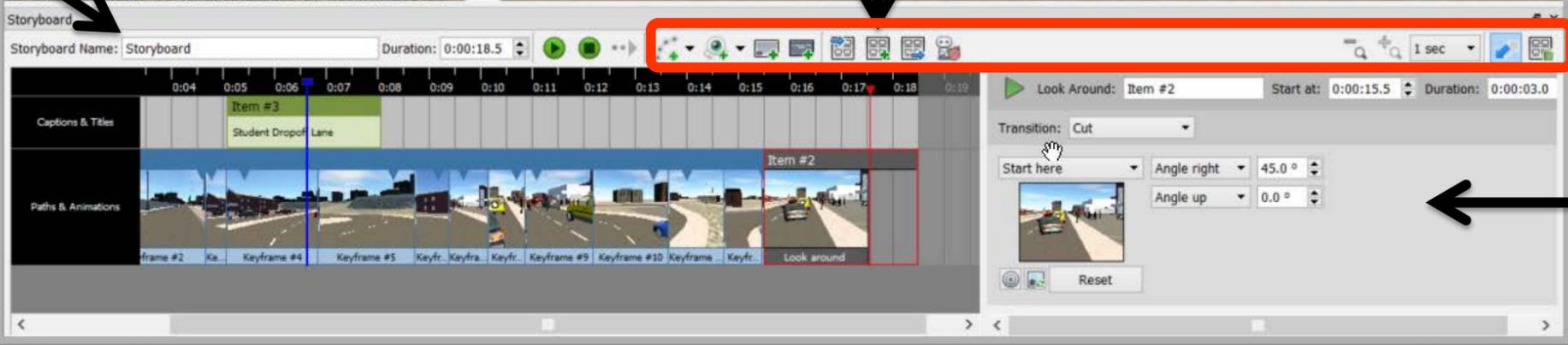
Student Dropoff Lane

**Storyboard Name**



**Current Model View**

**Timeline**



**Keyframe Settings**

# Working with the Timeline

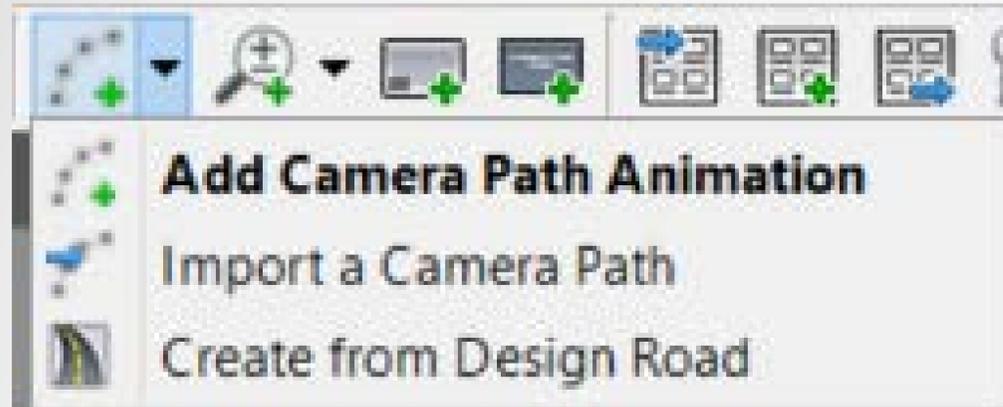
Play Head (blue line)      Duration      Playback Controls      Insertion Marker (red arrow)

Captions and Titles →

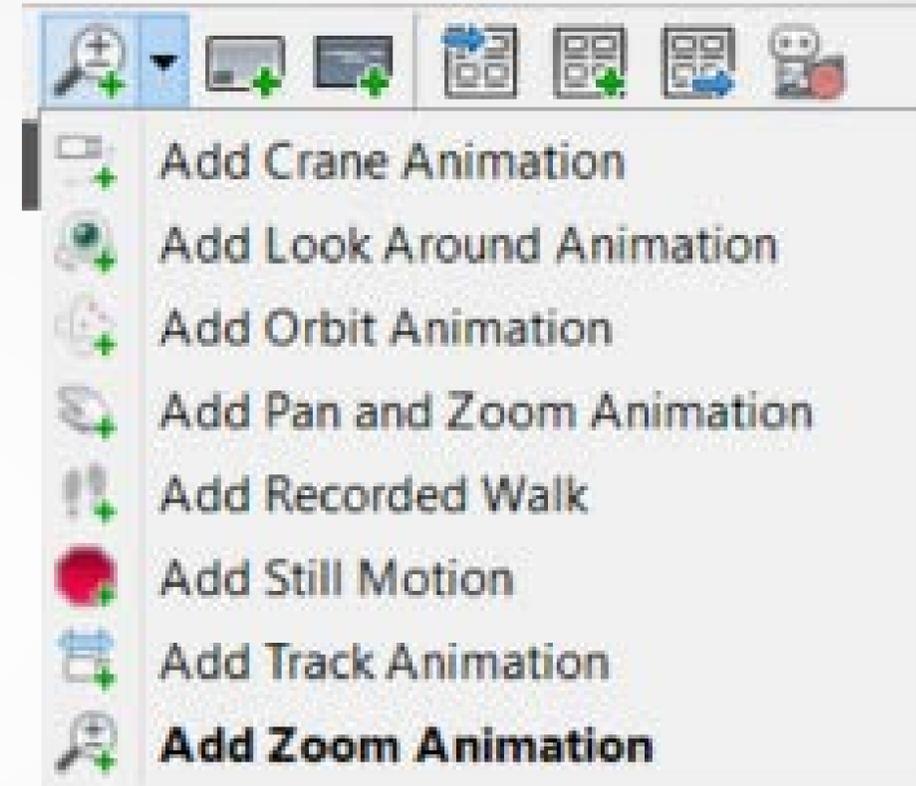
Camera Path and Animation Keyframes →

The screenshot shows a software timeline interface. At the top, there is a 'Storyboard Name' field containing 'Storyboard' and a 'Duration' field showing '0:00:18.5'. Below these are playback controls: a play button, a stop button, and a next button, all enclosed in a red box. A blue vertical line, the play head, is positioned at approximately 0:06. A red vertical arrow, the insertion marker, is at approximately 0:17. The timeline itself is divided into two main tracks: 'Captions & Titles' and 'Paths & Animations'. The 'Captions & Titles' track shows a green bar for 'Item #3' with the text 'Student Dropoff Lane' spanning from 0:05 to 0:07. The 'Paths & Animations' track shows a sequence of camera keyframes from 'frame #2' to 'Keyframe #10', followed by a red box around 'Item #2' with the text 'Look around'.

# Adding Keyframes



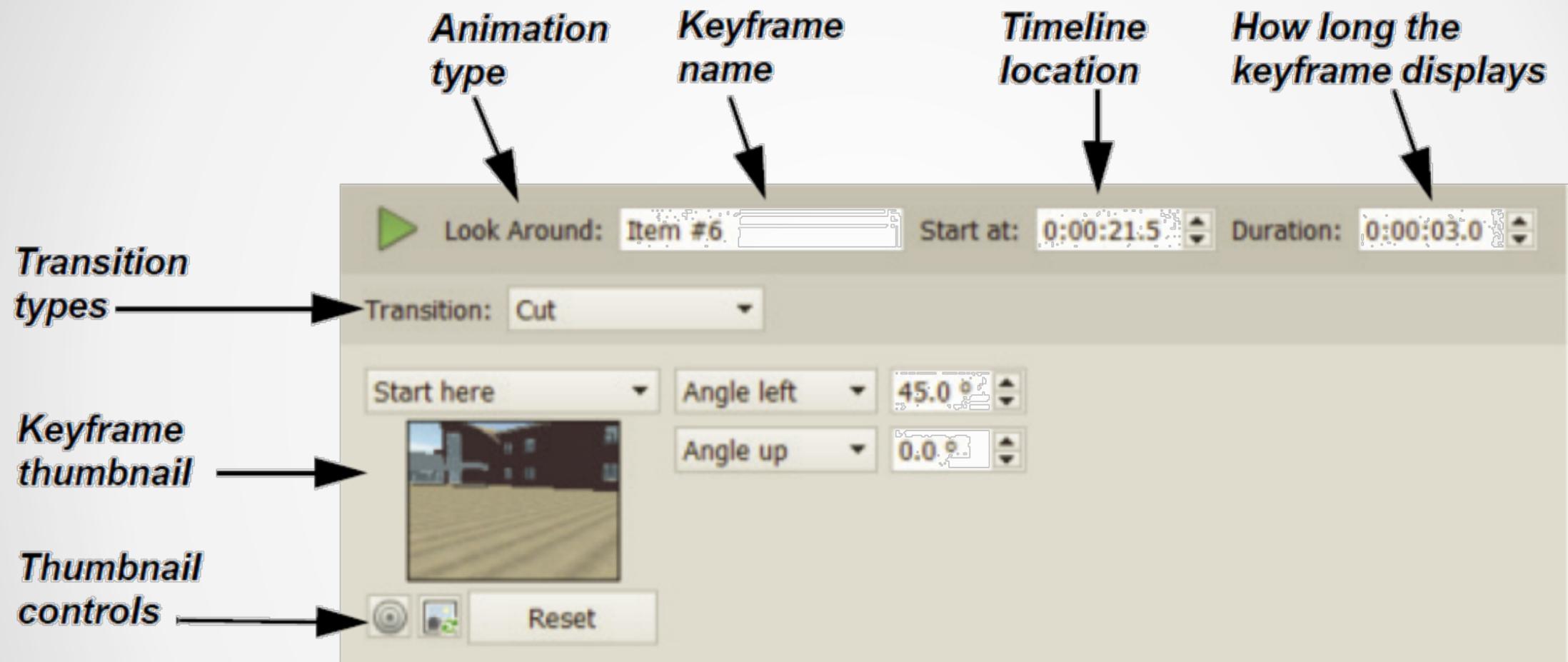
## Path Animations



## Camera Animations

- Note: The **Create from Design Road** path animation type is only available using the Roadway Design Module of the software.

# Keyframe Settings



## ■ Thumbnail controls

 (Go To Location)

 (Refresh Thumbnail)

# Let's Try It

- Pages 14-16 of your handouts

# Bonus Material

- Working with IMX files

# Thank You

- Please fill out the survey and let me know how I did.

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