

Simple Architecture for a Living 3D Model of the Metropolis

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Presenter: Paul Cote,  cultivating spatial intelligence®

Metropolitan Scale 3D

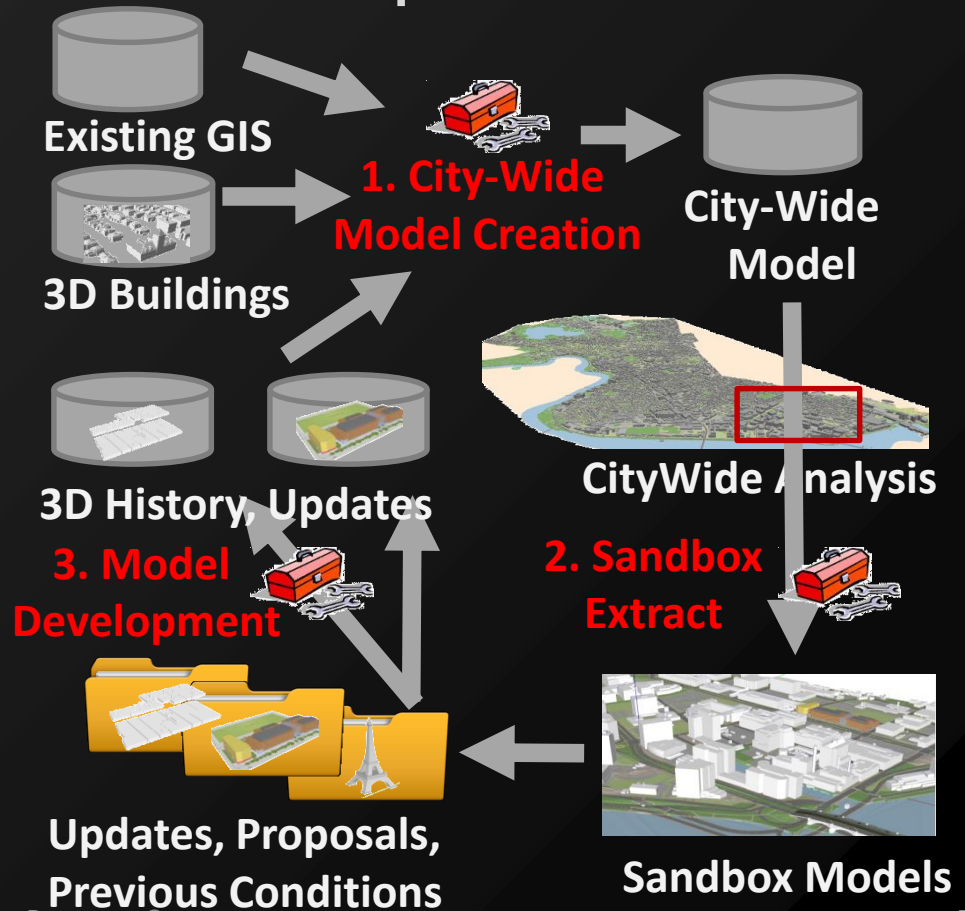


Principles: Information Stewardship

- Integrate 3D with existing planimetric GIS.
- Routine management of updates and improvements to model.
- Exchange 3D models with design applications
- Maintain catalog of proposals & source documents.
- Remember past form of the city
- Keep it simple, easy to maintain and evolve.

Develop 3D as Part of Municipal GIS

- Build optimized data model
- Extract Design Sandbox Models
- Generate design Ideas
- Integrate updates, improvements and design schemes



Existing Planimetrics Optimized for City-Wide 3D Model

**Tree Heights
from LIDAR**

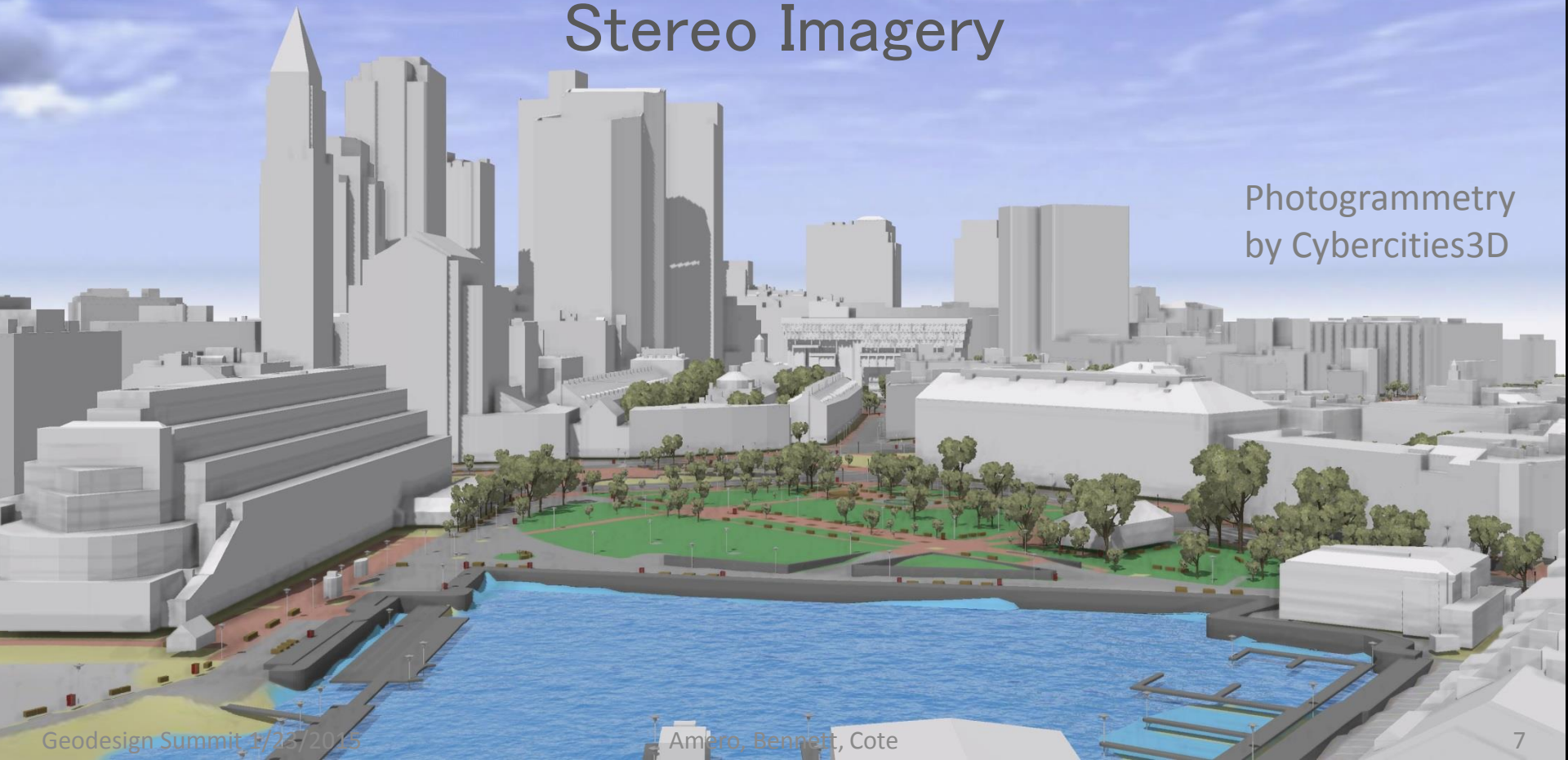
**Benches and
Street Furniture**

Photogrammetry
by InfoTech 2010

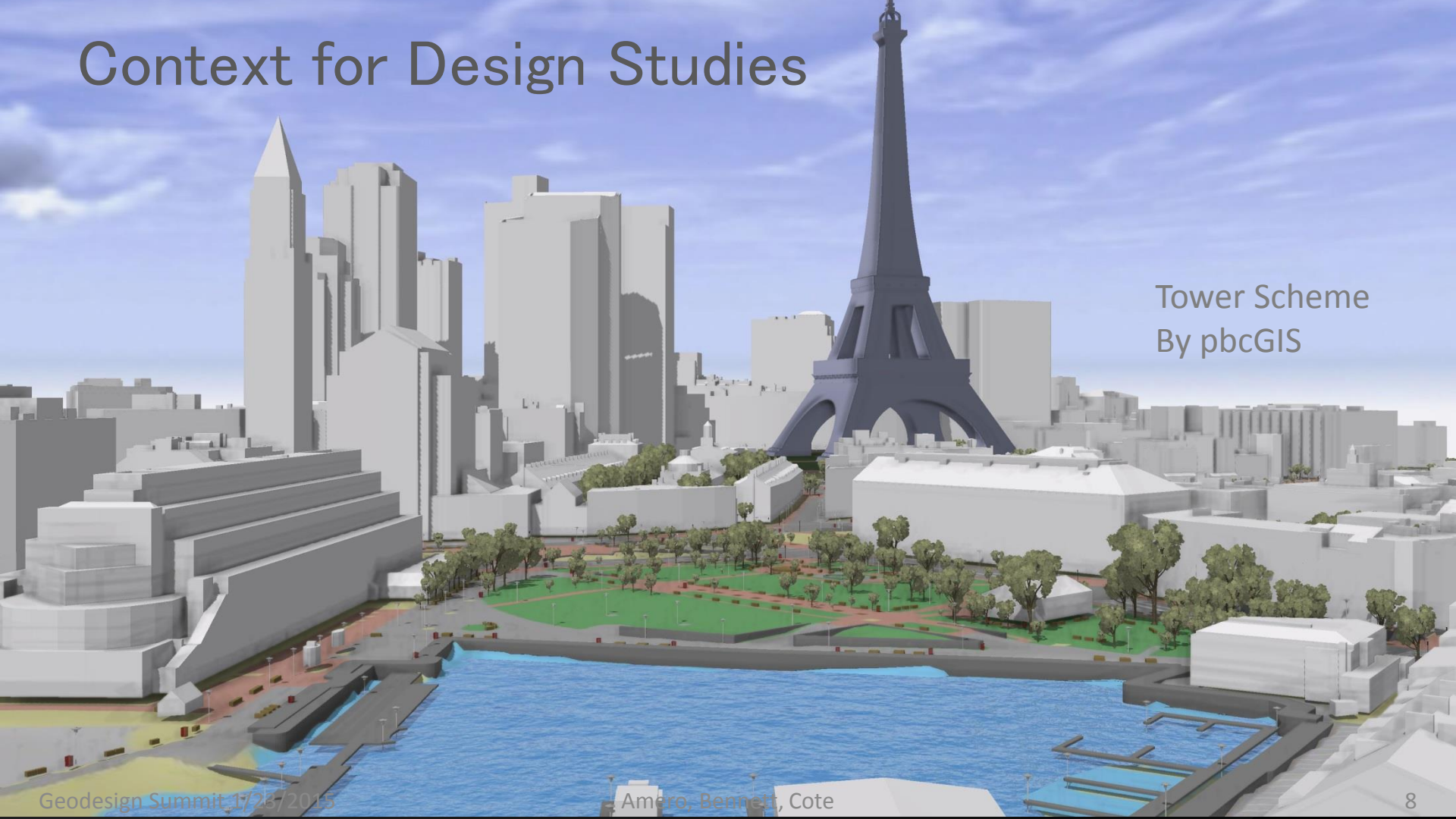
**Detailed Terrain
and Ground Plan**

Inexpensive 3D Building Models from Existing Stereo Imagery

Photogrammetry
by Cybercities3D

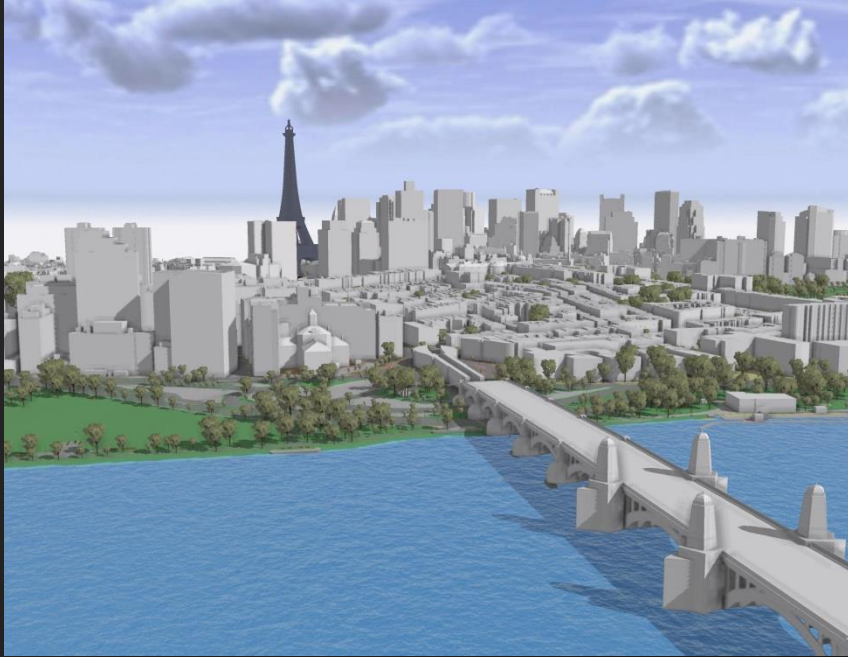


Context for Design Studies



Tower Scheme
By pbcGIS

Metropolitan-Scale Visual Studies

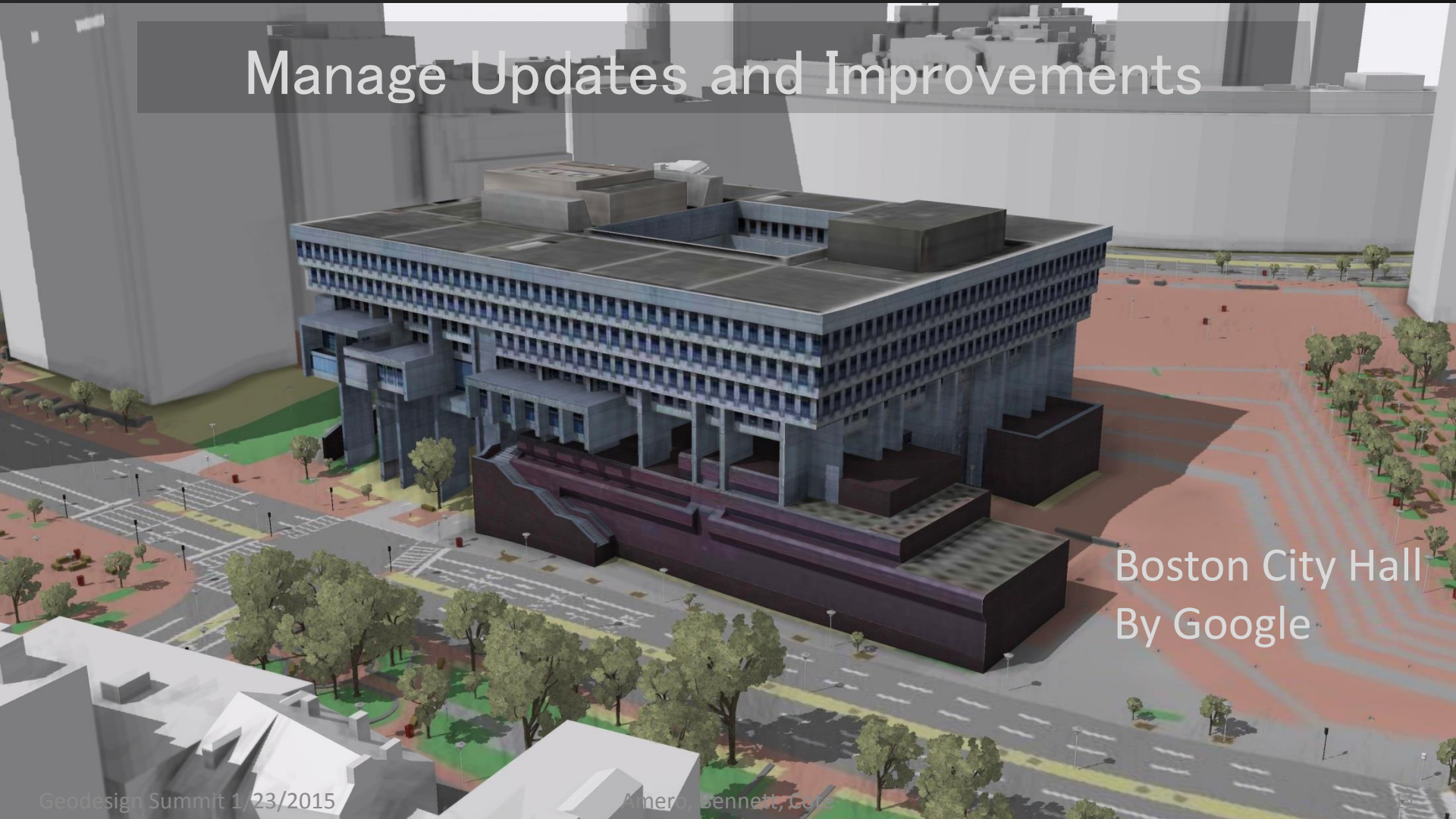


Manage Updates and Improvements



Boston City Hall
By Cybercity3D

Manage Updates and Improvements



Boston City Hall
By Google

Manage Updates and Improvements



Boston City Hall By
Parsons Brinckerhoff

Simple Schema for Managing Updates and Improvements

Never delete buildings from Snapshot!!!

OBJECTID	Shape	Name	Appear	EGID	Disappear	Render
8001	MultiPatch	<Null>	<Null>	<Null>	<Null>	current
8002	MultiPatch	<Null>	<Null>	<Null>	<Null>	current
8003	MultiPatch	<Null>	<Null>	<Null>	<Null>	current
8004	MultiPatch	<Null>	<Null>	<Null>	<Null>	current
2418	MultiPatch	City Hall	<Null>	Boston_00009222	<Null>	supress

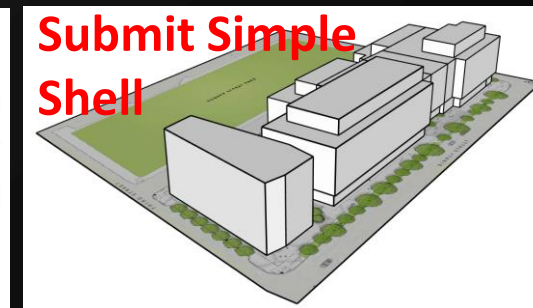
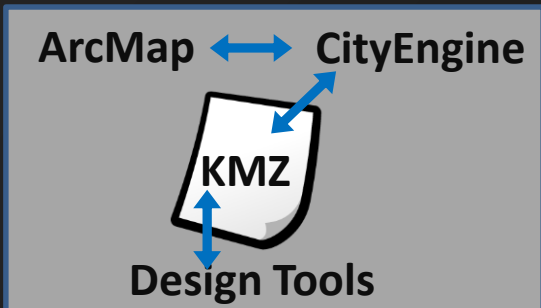
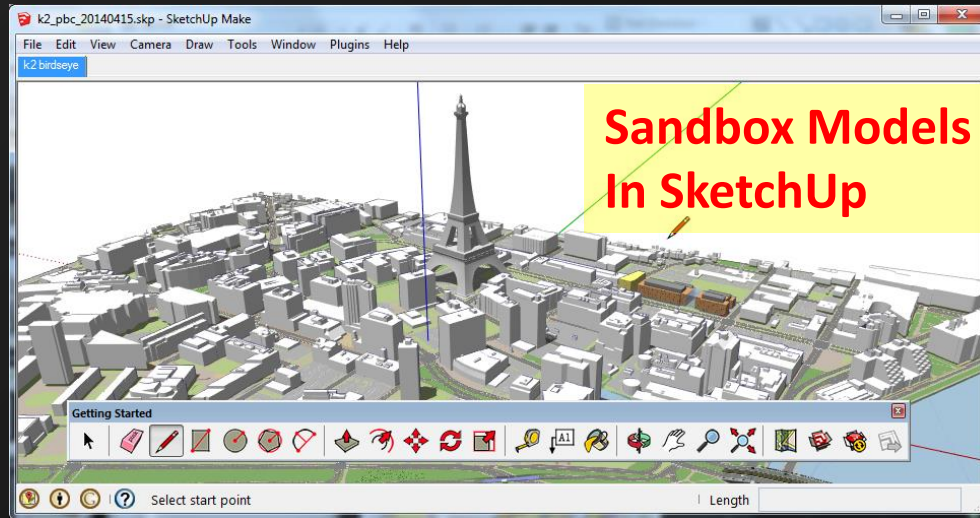
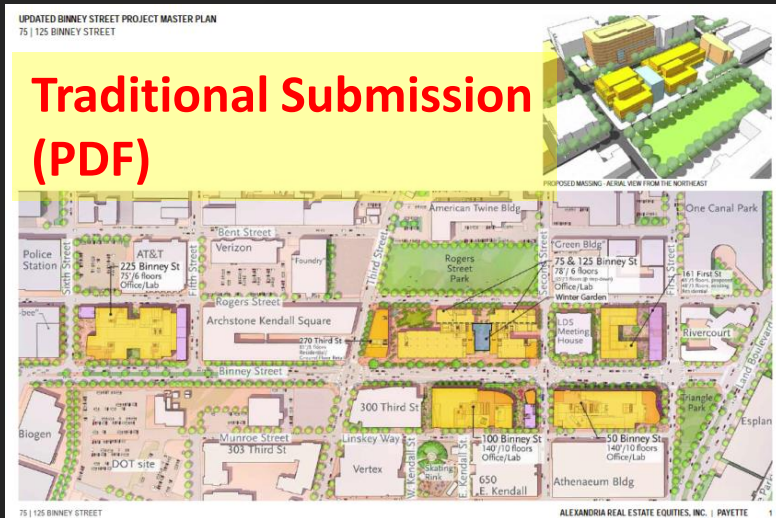
1 of 8004 selected

OBJECTID	SHAPE	Name	Appears	Disappears	Render
3	MultiPatch	Boston City Hall by Google	1/1/1968	1/1/2099	alternate
7	MultiPatch	Boston City Hall by Parsons Brinckerhc	1/1/1968	1/1/2099	current

Click to add new row.

Table for Updates and Alternative Models

Specification for Submitting Design Schemes



Save History of City Including Design Proposals

1. Annotate Model

Appear Date
#2014-01-01#

DisappearDate
#2009-01-01#

AppearNote
"What is the source of the appearance info?"

Disappear Note
"What is the source of the disappearance info?"

Render Flag
"current"

Name
"Enter Name"

Input Layer
125 Binney\New Buildings Textured

OK Cancel Environments... Show Help >>

**Model Ingest
Form**



BuildingChange_MP

	OBJECTID *	SHAPE *	Name	Appear	Disappear	status	Render
▶	2	MultiPatch	125 Binney Block	1/1/2014	<Null>	Built	Current
	3	MultiPatch	125 Binney Cleared Buildings	<Null>	1/1/2014	Demolished	Historic

**Data-Driven
Model Views**

Save History of City Including Design Proposals

1. Annotate Model

Appear Date
#2014-01-01#

DisappearDate
#2099-01-01#

AppearNote
"What is the source of the appearance info?"

Disappear Note
"What is the source of the disappearance info?"

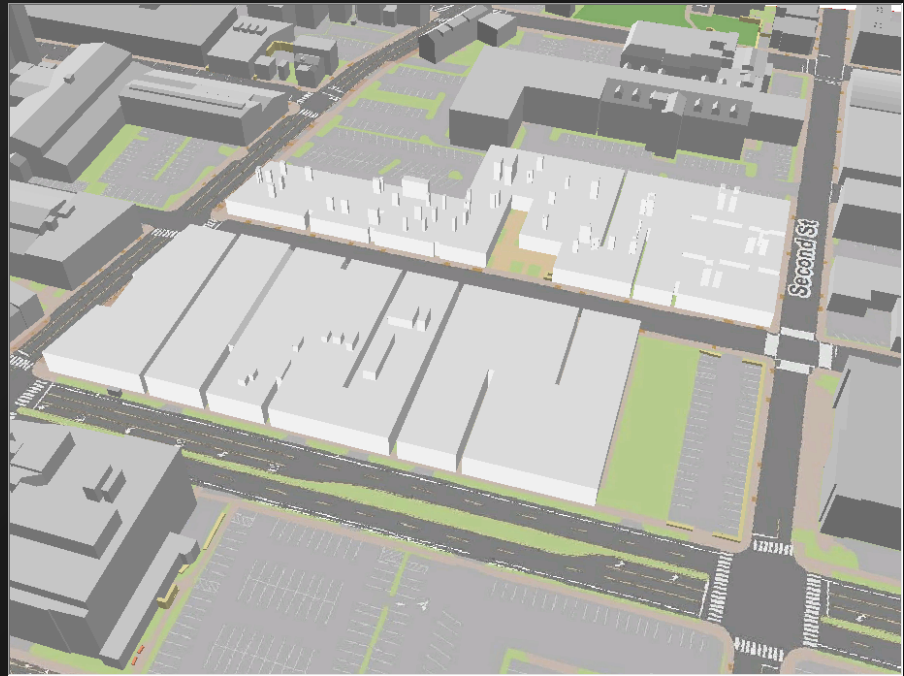
Render Flag
"current"

Name
"Enter Name"

Input Layer
125 Binney\New Buildings Textured

OK Cancel Environments... Show Help >>

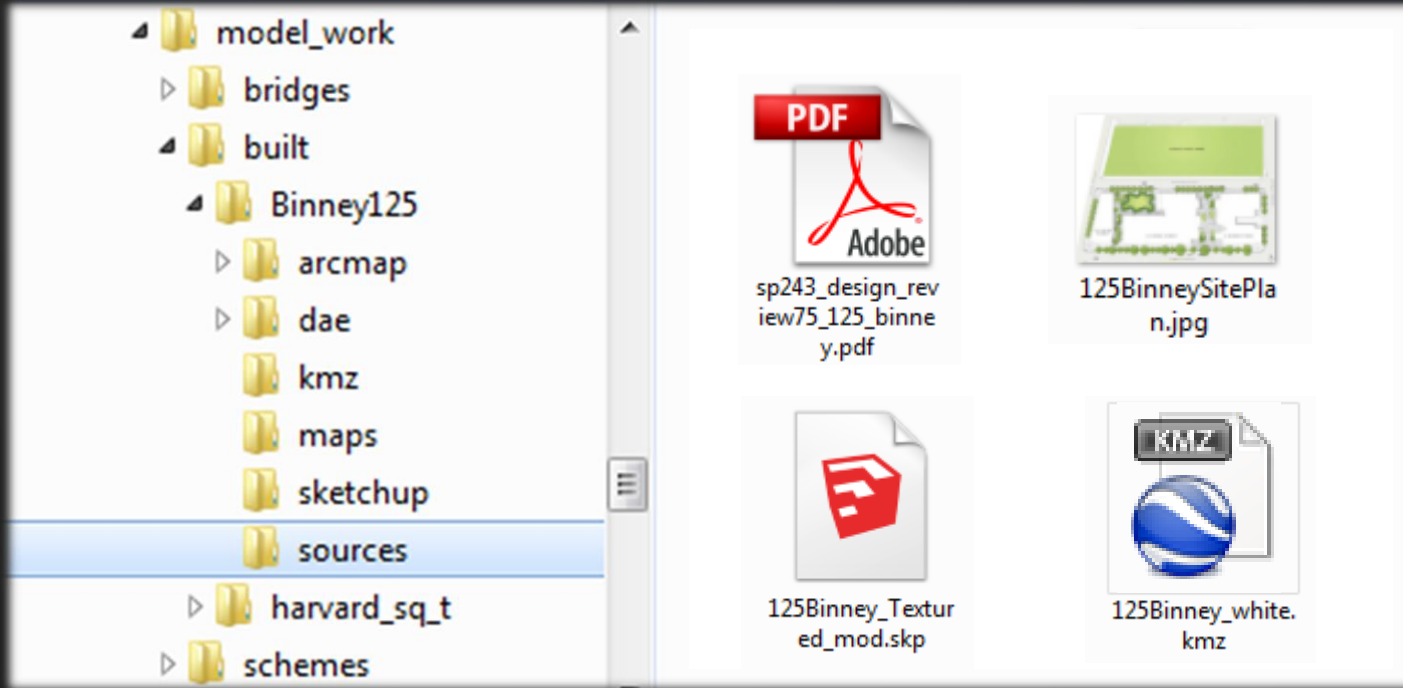
**Model Ingest
Form**



BuildingChange_MP						
OBJECTID *	SHAPE *	Name	Appear	Disappear	status	Render
2	MultiPatch	125 Binney Block	1/1/2014	<Null>	Built	Current
3	MultiPatch	125 Binney Cleared Buildings	<Null>	1/1/2014	Demolished	Historic

**Data-Driven
Model Views**

Archive Source Documents for Updates and Schemes



Challenges

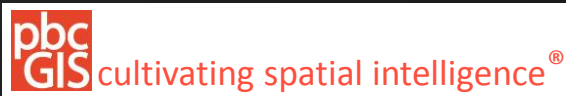
- Developers share information only when required
- Designers must be sold on new information sources and new tools.
- Learning Curve for GIS Staff:
 - Data management requirements are simple.
 - 3D model QA and transformations requires training.

Next Steps

- Reach out to municipal planners and authorities.
- Reach out to design community.
- Prepare & share sandbox models for master-plan areas. Olympics sites???
- Create bridge models & improve viaducts.
- Improve models of distinctive buildings.
- Model projects in approval pipeline.

Thank You

- For more information: www.pbcGIS.com/boston3d



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