3D GIS Analysis for Redevelopment
Land Use Planning

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Mesa, Arizona
Valley Metro Light Rail

- Opened initial 20 Mile Light Rail starter line in Dec 2008

- 3.1 mile extension through Downtown Mesa approved in 2009

- Construction beginning 2013 and operational in 2016

- Since opening, the Light Rail system has been a catalyst for Transit Oriented Development
Valley Metro Light Rail
Mesa’s Light Rail Priorities

1. Preserve the historic character of downtown during light rail redevelopment
   • 7 of Mesa’s 35 National Register of Historic Places are within the 1 square mile downtown area

2. Facilitate development of property along the extension of the light rail line into a mixed-use, higher intensity, transit-oriented development pattern.
   • Create a 3D building inventory within the 1 Sq Mile Downtown to better understand how upcoming redevelopment and current buildings will interact
Building Inventory

ArcMap

ArcGlobe
3D Building Entry

Data for building elevations was collected from:

- Building Plans
- Oblique Aerial Photos

Buildings digitized in Google SketchUp
Downtown 3D Model
Central Main Area Plan

This plan is to establish city policies regarding development along the light rail route

- Facilitate development of property along the extension of the light rail line into a mixed-use, higher intensity, transit-oriented development pattern.

- Creating a greater sense of place for current and future residents, achieving greater energy efficiency, and improving sustainability.
Planning Advisory Committee

Committee assembled to aid Planning Staff in the plan document.

Composed of:

- City Planners
- Local Property Owners
- Local Business Owners
- Local Organizations
  - (Historic Neighborhoods, Business Alliances, etc)
Reality Check Exercise

1. Where should infill and redevelopment occur?

2. What areas are “off-limits” to redevelopment?

3. What will be the intensity of the development / redevelopment that is envisioned?

4. Is this achievable? That is the reality check.

Each group had to place 4,000 dwelling units and 1.8 million square feet of non-residential floor area.
Reality Check Exercise

- Yellow square = Residential
- Red square = Commercial
Potential Redevelopment Areas
Potential Redevelopment Areas in 3D

To calculate heights:

• **Residential**
  - 1500 SF x # of Dwelling Units = Residential SF
  - Residential SF x Lot Coverage = Required Area
  - Required Area / Building Area = Stories
  - Stories x 12’ = Building Height

• **Commercial**
  - Commercial SF x Lot Coverage = Required Area
  - Required Area / Building Area = Stories
  - Stories x 12’ = Building Height

• **Mixed-Use**
  - Combination of Commercial and Residential
3D Redevelopment Areas
Alhambra Hotel

- Built in 1893
- Added to National Register of Historic Places in 1993
Alhambra Hotel in 3D
Alhambra & Redevelopment
Video
Questions??
Thank you!

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