Geodesign: Design for a Complex World

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GIS is a System of Record
For managing the geographic context of your assets and resources

Integrating, displaying and analyzing information from many sources
Geodesign combines geography with design by providing designers with robust tools that support rapid evaluation of design alternatives against the resulting impacts.
Why use Geodesign?

A new perspective

• Geodesign is a new way of thinking about the planning and design processes

• It's an approach to problem solving

• Fully supported by geospatial technology
Geodesign overview

Integrating GIS into the planning and design process

Data → Analysis → Design (Sketch) → Evaluate → Decision

Feedback
Geodesign overview

Integrating GIS into the planning and design process

Data → Analysis → Design (Sketch) → Evaluate → Decision

→ Feedback

Map current conditions
Design and visualize scenarios
Engage key stakeholders and the public
Geodesign Step 1: Map Current Conditions
Bringing data into the process

- Enable easy access to critical information
- Build smart data-rich 3D city models
- Bring together existing trends and challenges
- Understand how to propose change
Geodesign Step 1: Map Current Conditions
Transformation to a smart 3D city model

- Leverage LiDAR and existing GIS data
- Combine 2D & 3D data to tell a story
- Increase operational awareness from all angles
Geodesign Step 1: Map Current Conditions
Understand trends and growth projections

• 3D enable zoning laws to see relationships
• Effectively communicate what can change
• Allocate resources for greatest community impact
Geodesign Step 2: Design and Visualize Scenarios

Instant comparison of design scenarios

- Visualize new development proposals
- Build flexible scenarios faster
- Compare design alternatives
Geodesign Step 2: Design and Visualize Scenarios
Integrate BIM design data

Data Interoperability Extension

Autodesk Revit

Esri ArcGIS Pro
Geodesign Step 2: Design and Visualize Scenarios
Integrate BIM design data

Data
Interoperability
Extension

Autodesk Revit

Esri 3D Web Scene
Geodesign Step 2: Design and Visualize Scenarios
Understand how an existing site performs

- Advanced analysis to drive decision making
- Assess and improve the quality of life for residents
- Manage and mitigate risk
Geodesign Step 3: Engage with Stakeholders and the Public
Using apps for engagement

- Publish focused web and mobile applications to the cloud
- Effectively and proactively engage citizens
- Increase transparency and spur innovation

Web app templates

3D web scenes

Story maps
A Mapping Platform for Planning and Design
Integrating GIS into the planning and design process

Platform Components

- **ArcGIS Online / Portal**: ArcGIS solution templates
- **ArcGIS Pro**: Data management, analysis, and publishing of 2D and 3D scenarios
- **GeoPlanner**: Conceptual planning and analysis in a single collaborative web application
- **CityEngine**: Improving urban planning and design with efficient 3D scenario authoring

Capabilities

- **3D Scene Services**: View, create, and share 3D scenes in your browser
- **Procedural Rules**: Leverage GIS attributes to quickly generate 3D models from 2D data
- **Spatial Analysis**: Understand and measure impact on natural and man-made systems

ArcGIS Platform
• Implemented 3D design process that embeds planning laws and constraints into planning tools
• Evaluation of multiple scenarios and spatial analytics of future impacts
• Faster and more efficient process

Enabling Singapore to secure its future sustainability
Thank you.

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