Enhance your career + address vexing land use issues = try Geodesign

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Geodesign.psu.edu
Introduction

- 2-degrees of separation …
Introduction

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Introduction

- How many degrees of separation do you have from either of these gentlemen?
The “design” side ...

Vijay Kumar
101 Design Methods, 2012
Design is:
• a problem-based process bounded by specific constraints,
• an iterative, non-sequential process,
• requires the input and efforts of many; it is a “team sport”
• solutions-driven

Vijay Kumar
101 Design Methods, 2012
Our most challenging issues can not “be solved without integrating knowledge from the natural sciences with that of social sciences and humanities (creative arts).”
~ E. O. Wilson
What is Geodesign?

- Geodesign is a process that fills gap between design and science
- Geodesign is aimed at creative change for a place

Geodesign - A Process

Vijay Kumar, 101 Design Methods

Geodesign Framework
(Derived from Carl Steinitz’s Framework for Geodesign)
ADD my analysis – just Kumar and Carl // rework chart !!
Geodesign - A Process

Geodesign Process

• Scales of Design
  - Urban Planning
  - Infrastructure Planning
  - Regional Planning

• Scenarios
  - Suitability Mapping
  - Development Opportunities
  - Impact Assessment
  - Growth Forecasting
What is Geodesign?

Data Data Everywhere!

Environment
- Sustainability Water
- Climate Pollution
- Biodiversity Atmosphere

Economy
- Business Debt
- Employment GDP
- Taxes Commerce

Health
- Food Healthcare
- Alcohol Drugs
- Heart Disease Cancer

Energy
- Renewable Energy Solar Power
- Coal Electricity
- Oil and Petroleum Nuclear Power

Society
- Education Technology
- Social Media Internet
- Politics Sports

Race
- White -2.5%
- Black +7.1%
- Asian +4.4%
- Latino -5.2%
- Native American +2.3%
- More than one -4.7%

Overview
- Demographics
- Income
- Vulnerable Populations
- Flooding
- Housing
- Transportation
- Flooding and Race
- Voting
- Parks and Flooding

Race and Population Density
- Education
  - a very low percentage of residents have Graduate Degrees.

Esri, Community Analyst

www.visualizing.org/data/browse
Spain Example: 3D Geodesign to plan for new electric infrastructure in Spain
GeoRED: geographic polygon information representing different types of impacts

Example – Country-wide Scale
Spain Example: 3D Geodesign to plan for new electric infrastructure in Spain
Example - Regional Scale

Transit oriented development (TOD):

TOD ALTERNATIVE PROPOSAL FOR BELLE GLADE

ACTUAL BUFFER

PROPOSED BUFFERS

ACTUAL LAND USE

PROPOSED TOD DESIGN
Transit oriented development (TOD):

Analyses Included Proximities to...

Express Bus

Higher Ed

Malls

Stations
Transit oriented development (TOD):

Scenario A and B Comparison

GEOZ 842, S. McElvaney
Working to reduce carbon emissions in small towns in British Columbia

Example – Town Scale

‘land use massing’ of proposal

Courtesy of © elementsLab, School of Architecture and Landscape Architecture, University of British Columbia, Canada
Example - Town Scale

Working to reduce carbon emissions in small towns in British Columbia

Courtesy of © elementsLab, School of Architecture and Landscape Architecture, University of British Columbia, Canada
Example - Town Scale

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Courtesy of © elementsLab, School of Architecture and Landscape Architecture, University of British Columbia, Canada
Penn State: Online Geodesign Graduate Programs

- Graduate Certificate
- Master in Professional Studies in Geodesign (MPS)

MPS Capstone Project topics

- Koala habitat and corridors (Australia)
- Historic avenue revitalization (Mexico)
- BMPs for watershed (Wisconsin)
- Sustainable golf course (Florida)
- Hazard mitigation for historic town (Colorado)
Try Geodesign

www.coursera.org/learn/geodesign

open now!

Online Graduate Programs in Geodesign

worldcampus.psu.edu/geodesign