GEOG 564 Win 2016 Lab 1 – Values Table for Lower green River levee setbacks study

Deliverable: Values Table in a spreadsheet with at least 6 values characterized

Due – Mon Jan 11th 11:59PM

The overall lab project

This is the first lab for GEOG 564: GIS and Decision Support. All the labs together provide a complete, though simplified, approach to selecting where best to move the current artificial boundaries of the river back – to offset the levees – to provide a better functioning river. To this end, you will develop all models in the GeoDesign Framework. The ultimate product (Lab 6) is to develop a decision model that will support the decision makers in deciding which proposed levee offset project they would choose to invest in.

How the structure of the labs relates to the Decision Framework:

Lab	Decision Framework Iteration	Decision Framework Model	
Lab 1 – Values Tree	1st Iteration – Why?	All, but mainly Decision	
Lab 2 – Value Tress to DB	2nd Iteration – How?	All, but mainly Representation	
Lab 3 - Process Models	3rd Iteration – Execute	Process	
L4 (Parcels) Evaluation Model	3rd Iteration – Execute	Evaluation	
L5 Design (Change) and Impacts models	3rd Iteration – Execute	Design (Change) and Impacts	
L6 (Actions) Decision Model	3rd Iteration – Execute	Decision model	
L7 Action Portfolios	Portfolio variation of 3rd	Portfolio variation of Decision model	

Lab 1 - 1st iteration of the model- Why?

In Lab 1, we are bundling you through the first pass of the GeoDesign Framework (Ch 5 in AFGD). For a real project, you would immerse yourself in the literature and interview many stakeholders, managers (city, county etc) and domain experts to progress through this pass. But here, Gene and I have answered some questions by fiat already.

Table of findings from 1st pass:

Model	Finding	
Representation	The scope is the 500yr floodplain in the Lower Green River There are existing King County data layers, flood maps and DEMs. We take the river boundaries as is, but have some history layers – historic channels	

Process	The driving process is flooding within the study area	
Evaluation	Flood damage to farming, built infrastructure, natural ecosystems are serious problems that affect diverse constituents	
Design/Change models	We will only consider levee setbacks, defined as pushing back the present boundaries, destroying all structures in the chosen area and grading them to store water, and reconnecting it to the river.	
Impacts model	The impacts are, in the main, the flood protection provided by the new water storage capabilities and destruction of infrastructure in the creation of the levee setback	
Decision Model	This is lab 1	

The above table is neither complete nor satisfactory. . As we detail the actual modeling tools to use, you will see even more simplification. While proceeding with our decisions, you should document the limitations and issues with our choices/assumptions. These will help you later.

Lab 1 – your mission – develop a Values Table to represent the decision model

A Values Structure table is an excellent text approach to documenting a decision model. A Values Tree is introduced in RUGIS in Section 3.2, and a Tabular representation of the more complete Values Structure is provided in Chapter 5.3 – see specifically Table 5.5. We call the tabular representation of the Values Structure a Values table. The Values Table – with value statements, goals, objectives and criteria - provides a 2nd iteration overview representation of a decision model. For instance, with a few extra steps, which you will do in Lab 6, it can be transformed into a functional multi-criterion decision (MCD) model.

Your mission in this lab is to develop a Values Table for the LGR Levee Offset project. We have provided you with the following literature that you need to mine to develop your values table. These resources are available on Canvas under Lab 1 – Value Table assignment description.

Title	Source	Comments
Green River Projects	City of Kent	Many examples of Actual setbacks
Expert Engineering Independent Third-Party Review Briscoe-Desimone Levee Design Green River Basin State of Washington	Prepared for King County Flood Control District	Good description of two proposed setbacks – don't get lost in engineering details or Appendices
The importance of floodplains to functioning river ecosystems	Tim Abbe	General introduction to benefits of river function
A flood of benefits – using green infrastructure to reduce flood risks	The Nature Conservancy	General description of benefits of restoration

Deliverables

Your Values table should be uploaded as spreadsheet to Canvas, and must include columns for Values, Goals, Objectives and Criteria. Optional additional columns might include high level values (which help you organize your values) and Stakeholders, where you would identify the sort of stakeholder(s) who place most importance on that particular value, e.g. environmental NGOs.

You should develop about 10 values (i.e. 10 rows in your values table), but no less than six. Values, Goals, Objectives and Criteria should be seen to follow their definitions in RUGIS Sec 3.2.2

Role of outputs in Next Lab

You will trace back from the Values Tables (Decision Model) to the required data for the Labs (Representation Model).

Things to ponder:

What comes first – the decisions or the data?

In this Lab, it is important not to obsess about exactly what data will be able available to you for the rest of the labs. You can assume that you will have flood zone layers, and parcel layers with attributes such as land use. Gene will provide a simple but serviceable flood model. Other relevant thematic layers will also be made available, e.g. salmon habitat. It may transpire that in this Lab you may have identified very important values for which, in Lab 2, you discover there is no available data – that is perfectly acceptable in Lab 1. In fact it is the value of a decision-driven approach that is GeoDesign. Discovering data shortfalls is a normal part of the assessment process. We'll talk more about what your options are when it happens in Lab 2.