Geog 464 Learning Objective Outline

LOO 14 GIS Data Analysis in Improvement Programming Decision Support
14.1 What does establishing a priority among projects have to do with improvement programming?
RUGIS Chapter 10 Section 10.1

- Establish funding mechanism
- Prepare criteria (to include funding constraints)
- Enumerate alternatives based on relevant criteria
- Perform evaluation

New Jersey is completely covered by three Metropolitan Planning Organizations (MPOs):
Delaware Valley Regional Planning Commission
South Jersey Transportation Planning Organization
North Jersey Transportation Planning Authority Inc.

New Jersey STIP includes the three MPO Transportation Improvement Programs (TIPs) without modification. Aggregating the MPO TIPs is a matter of convenience to allocate federal funding. The US DOT allocates transportation funds to fifty states rather than the hundreds of MPOs spread across the states, leaving the states to pass the money on to the MPOs that conform to federal regulations.

The New Jersey STIP conforms to — and in many cases exceeds as their web site contends — the specific requirements of the federal regulations that include the following.

1. It lists the priority projects programmed for the first three years of the planning period.
2. It is fiscally constrained for the first three years. A detailed discussion is often provided within the TIP
3. It contains all regionally significant projects regardless of funding source.
4. It contains all projects programmed for federal funds.
5. It contains the state-funded projects.
6. It contains expanded descriptive information—considerably more than required by the federal regulations.

14.2 How do improvement programming-level analysis processes compare and contrast?
RUGIS Chapter 10 Section 10.2

A wide-variety of land use development programs exist. So many, that it is fair to say that the differences are more plentiful than the similarities among organizations and jurisdictions. Much of this difference has to do with what people, organizations and jurisdictions do with land.

Transportation improvement programming is one of the most visible, but at the same time invisible, decision situations in an urban context.

- It is visible in a sense that more people know about the process within organizations because of its impact on society.
- It is invisible because few people of the general public know how it occurs.

Everyone is affected by transportation change. Improvement programming occurs at a number of scales.

The article about Group-based GIS for Transportation Improvement Site Selection involved a needs analysis of three organizations in the central Puget Sound region – Duwamish Coalition, Puget Sound Regional Council, and King County DOT – to better understand how GIS could be used in transportation improvement programming. The basic decision problem involves ranking transportation projects, constrained by a limited budget such that many projects would not get into the program. A task model was created based on an early version of EAST. The Table 10.1 phase description is a generalization across three cases.

Table 10.1 Phases in a Decision Process for TIP Improvement Site Selection

What kinds of GIS-oriented capabilities could be used to support such a process?

Table 10.2 Decision-aiding Techniques for a Group-based GIS-T.

Each of the software capabilities needed for each task were enumerated making use of a system capabilities framework. An application of a prototype system was then conducted using the GeoChoicePerspectives software.

A few years later, that task model, and the prototype implementation, lead to a specification of the system requirements for a participatory GIS for transportation (PGIST) and articulated in terms of a sequence of decision process tasks. Talk about that case study in next session. If you want to have a look go to www.letsimprovetransportation.org login as “guest”, password is “guest”.