

MEMORANDUM

TO: File

FROM: Jameson Paine

DATE: November 20, 2000

RE: Vermont Agency of Transportation
Pittsford and Brandon Bypass Studies
CLD Reference No. 00-0215/00-0216

SUBJECT: CommunityViz/GIS Presentation

ATTENDEES: Approximately 25 people, including representatives from Brandon, Rutland Regional Planning Commission, and the Orton Family Foundation.

LOCATION: Brandon Senior Center, Brandon, VT

This meeting was a presentation by the Rutland Regional Planning Commission (RRPC) (primarily Steve Schild, GIS Specialist) to demonstrate the capabilities of a suite of extensions or add-ons to the ArcView GIS software application called CommunityViz.

What is CommunityViz?

The software is intended to help planners, decision makers and the general public make informed decisions by using spatial data to help view, analyze, and understand the potential changes that might occur due to various conditions set by the software user.

The software allows the user to view a project area in a 3-dimensional setting. It also allows the user to change various settings or conditions to consider "what if" scenarios (e.g., what if we change the zoning in one area from single family to commercial, how would that affect the distribution of development?).

The software is intended to be a regional forecast tool for planners.

History of RRPC's Use of CommunityViz

CommunityViz is a software application being developed by the Orton Family Foundation. The Orton Family Foundation is a non-profit organization, based out of Rutland, VT, that is trying to assist rural communities with planning and managing initiatives that will allow them to prosper, but maintain their rural character. A detailed explanation of CommunityViz and the Orton Family Foundation may be found at www.orton.org.

April 2000

Brandon was chosen as one of eight communities in the United States to receive a beta test version of the CommunityViz software. RRPC staff received a three-day training session on how to use the software at Middlebury College.

July/August 2000

RRPC used the CommunityViz software to simulate the effects a bypass would have around the Town of Brandon. The model forecasted what type of development might occur around the bypass if no restrictions were placed in the software (e.g., zoning regulations, natural resources, etc.). This test series gave the RRPC a chance to work some of the bugs out of the program and communicate these findings to the software developers.

Data and Resource Weighting System Entered into CommunityViz

Tabular Data

In order to provide the model with accurate information, the RRPC needed to compile a large amount of data for each parcel within the Town of Brandon. Information entered into the CommunityViz software included:

- Town of Brandon Grand List
- ES202 (employment data)
- 1990 Census – This enabled RRPC to forecast 1980 and 2000 data.
- Equivalency Tables – Town Zoning/Roads

RRPC had to match Brandon's approximate 13 zoning districts into 50 different zoning districts that were available for CommunityViz (e.g., match Brandon's Commercial Zone into three or four different Commercial Zones in software). The same effort was needed for classification of roads within the town.

Weighting System

A weighting system is used in CommunityViz to rate various "natural" and "administrative" constraints to determine whether development might occur where a particular constraint exists. The rating system is from 0 (severe development restrictions) to 100 (mild restrictions).

Examples given: Natural Resources: Floodway = 0; 100-Year Floodplain = 0; Wetlands = 50; Roads = 0; Surface Water = 0

Administrative Resources: Zoning = 0-100, depending on zone; Historic District = 50

Model Results

Once the base data was entered, the model was run using ArcView GIS. The model developed "splats" (RRPC term- on plan, areas of potential development look like paint spills or "splats" – see Orton Foundation website for images) or areas of potential new growth based on the data that was entered. The development forecasts that CommunityViz creates are random. If the same information is entered into the model and it is run several times, the results will be at least slightly different each time. The "splats" have attributes, such as year built and type of project structure, which can be combined with parcel data. This data can then be used in ArcView to rate all parcels in the town by the year they are forecasted to be developed (e.g., 2000-2010) or the type of development that is projected to occur in each parcel.

The model is only one forecast, the RRPC recommended that the user run at least 10 or more models and then take an average of the information compiled.

Memorandum to Files
CLD Reference No. 00-0215/00-0216
November 20, 2000
Page - 3

CommunityViz Graphics

A software company that develops flight simulators for a major airline developed graphics for the application. The software uses TIN files (3D points) and drapes orthophotos (RRPC manually colored black and white orthophotos to create a more realistic image) over them to create the 3D image. The TIN files allow for a true reflection of the area. When using the software, the user is given the impression of flying over the area in a small plane or helicopter (writer's comment).

A majority of the buildings shown in the software are available from a library of 3D buildings that comes with the application. The user can take digital photos of actual existing buildings and create a 3D image; however, this is extremely time consuming. Other 3D resources, such as trees, are available to insert into the application.

Other Uses

Besides bypass projects, the software package has been tested by other groups for subdivision projects and various build-out scenarios.

Writer's Comments

The CommunityViz software package appears as though it could be a very useful planning tool. The biggest constraints that appear evident are: initial start-up monies for software purchase, lack of initial community based data, and needed start-up time to enter data and calibrate model. It should also be stated that the model is a planning or projection tool. CommunityViz is intended to assist area planners in forecasting where development might occur. Results of the model are not a final determination of where development will occur.

JRP:cww

cc: Lynn Saunders	Dennis Benjamin
Peg Flory	John Narowski
Hank Pelkey	Mark Germanowski
Richard Baker	Susie Leonard
James O'Gorman	Chris Borstel
Mike Balch	Kathleen Ryan
Dan Peterson	Gary A. Klinefelter
Alan Neveau	Roy Newton
Scott Newman	Ed Barna
Duncan Wilkie	Frank Farnsworth
Greg Riley	