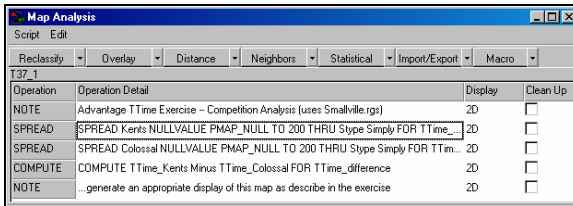# Applying MapCalc Map Analysis Software

Store Competition Analysis: *A local storeowner needs to identify the spatial impact of a new store that is under construction on the other side of town.*

<click here> for a printer friendly version (.pdf)

Note: the application is completed in just three MapCalc command lines. The procedure can be automated through an interactive user interface (e.g., Visual Basic) that accesses the MapCalc program or the two ActiveX controls (Spread and Calculate) used in the technique.

<click here> for a printer friendly version (Competition_scenario.pdf)

Base Maps. Standard vector layers of streets and stores (Kent's Place in the south and the proposed competitor Colossal Mart in the north) form the base layers for travel-time analysis.
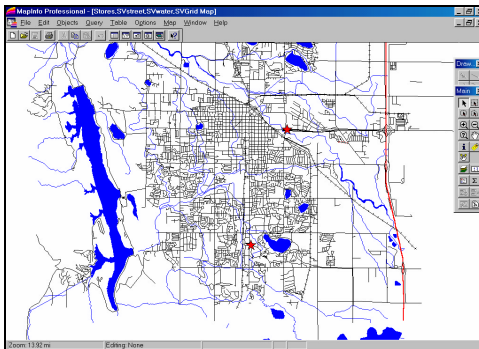
Composite Display. Standard vector layers of streets and stores (Kent's Emporium in the south and their major competitor Colossal Mart in the north… red dots) form the base layers for travel-time analysis. The lines and points are "burned" into an appropriate grid analysis frame (vector to raster conversion).
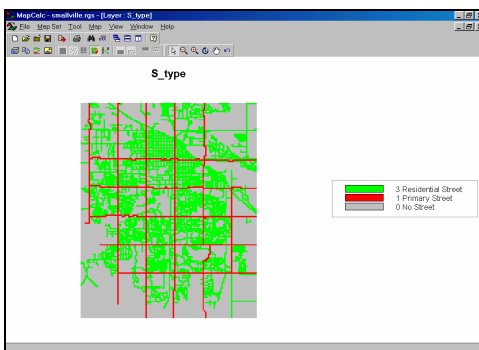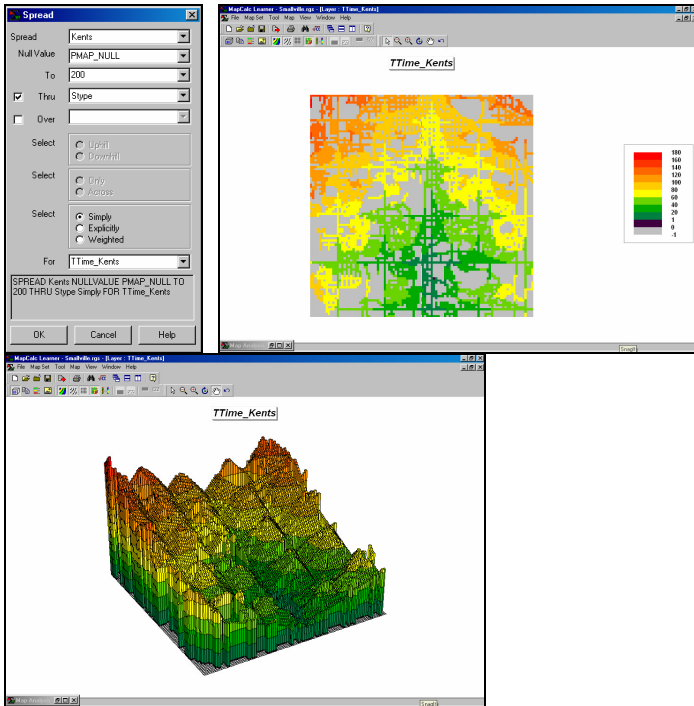

S_type Map. Identifies whether a street is present within each analysis grid cell with a separate value for the type of street (1= Primary Street…**red**; 3= Residential Street…**green**; 0= no street… **gray**).
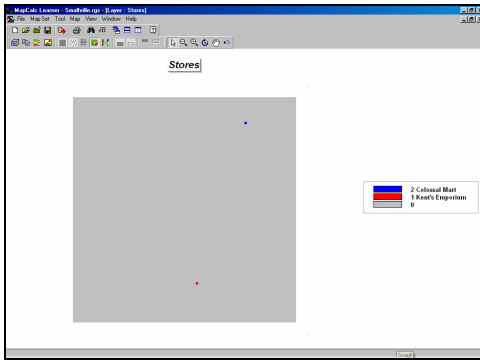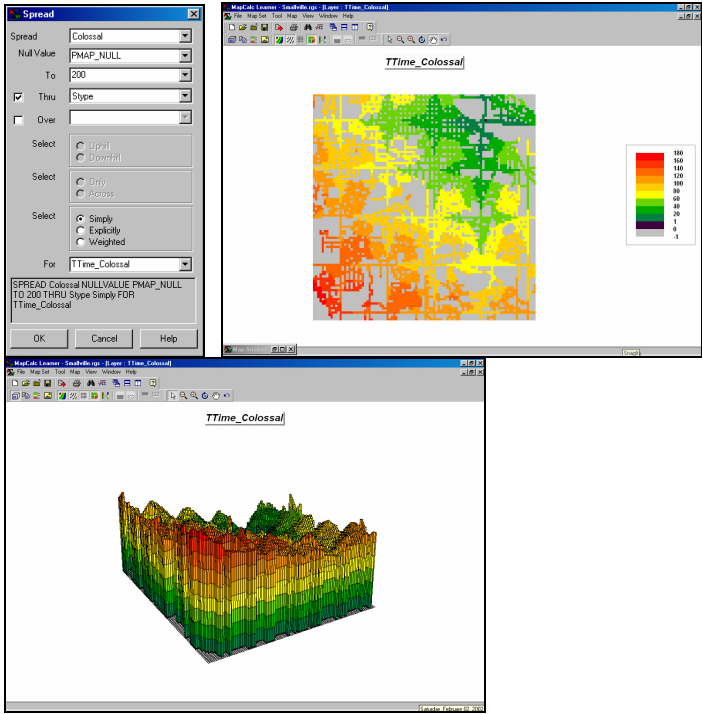
 Stores Map. Identifies the location of the stores (1= Kent's Emporium…**red**; Colossal mart…**blue**).
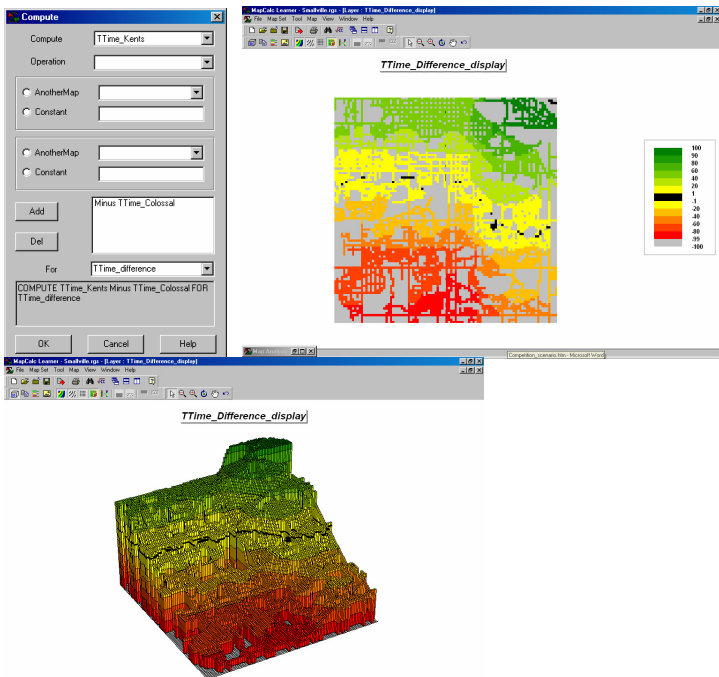
Step 1. Using the ***Spread*** command calculate a *Travel-Time* surface along the streets from Kent's Emporium to all other locations in the project area.

Step 2. The procedure is repeated to generate a *Travel-Time* surface for Colossal Mart.

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From the online *Example Applications* materials supporting the book <u>Map Analysis</u> by Joseph K. Berry, www.innovativegis.com/basis/. All rights reserved. Permission to copy for educational use is granted.

Step 3. The difference between the two Travel-Time surfaces is calculated.

Locations that are the same travel-distance from both stores result in zero (black). The **green** tones on the difference surface identify positive values where Kent's travel-time is larger than its competitor's—advantage to Colossal mart. Negative values (**red** tones) indicate the opposite—advantage to Kent's

Emporium. The yellow locations identify the *Combat Zone* where potential customers are about the same distance from both stores—advantage no one.

<u>Summary</u>. Competition analysis enables merchants to visualize the lay of the competitive landscape. However, the information is in quantitative form and can be readily integrated with other customer data. Knowing the relative travel-time advantage (or disadvantage) of every street address in a city can be a valuable piece of the marketing puzzle. Like age, gender, education, and income, relative travel-time advantage is part of the soup that determines where we shop… it's just we never had a tool for measuring it.

Note: see topic 17 of the online book Map Analysis for more discussion…
  http://www.innovativegis.com/basis/MapAnalysis/Topic17/Topic17.htm