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## **PlaceIt.**

We have developed PlaceIT as a simple tool for land use allocation. It is currently an ArcView Project, with scripts, tools, buttons, and dialogs programmed in Avenue scripting language. Eventually it will be compiled into an ArcView extension. It operates at a parcel level, presumably the unit of land use decisions, though it could be easily programmed to operate on a different unit of analysis. Users are prompted to select parcels and “develop” them for residential use at a selected density level. They are provided with immediate (and later, summary) information about the amount and type of land that has been “converted.”

PlaceIT operates through the ArcView user interface. As a component of ArcView, the user is able to use all the standard GIS tools: turn off and on additional layers (e.g., themes depicting opportunities or constraints on development), zoom and pan, search for areas fitting criteria and other routine GIS functions. It assumes that there is a parcel data base, and uses parcel polygons as the unit of allocation.

In addition to ArcView’s standard tools, the interface has a dialog with tools and buttons which run Avenue scripts. A set of icons allows the user to select the types of land uses that will be included in the allocation process. Our version includes four levels of residential density, industrial, parks/open space and a commercial land use category, though whatever categories are desired could be included in the scripts. With these tools, the user can change landuses interactively over an entire jurisdiction, one parcel at a time. There is also a tool that puts the interface into “subdivision” mode, allowing users to add or delete selected parcels interactively. These are then highlighted and temporarily allocated to residential use. These areas can be summarized as to impact, or saved out as individual shapes, for further analysis..

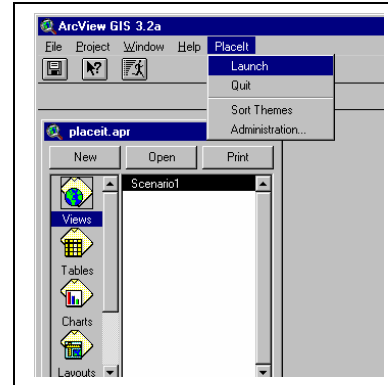
When a user selects a parcel for allocation, the system will provide a warning if that parcel is currently in a restricted-for-development category. In our working version, the user is warned if the selected parcel is already developed or within an environmental corridor or farmland protection area.

After making a series of selections, the user can “commit” these selections as a scenario to a shape file – essentially an ArcView theme depicting their development strategy. Finally, the last tool allows user to analyze their selections. Selected parcels can be fed into ArcView summary tools generating simple statistics on the type and amount of land to be converted from current uses. These data can also be linked to impact assessment models such as water quality models, transportation congestion predictions, fiscal impact reports, and so forth.

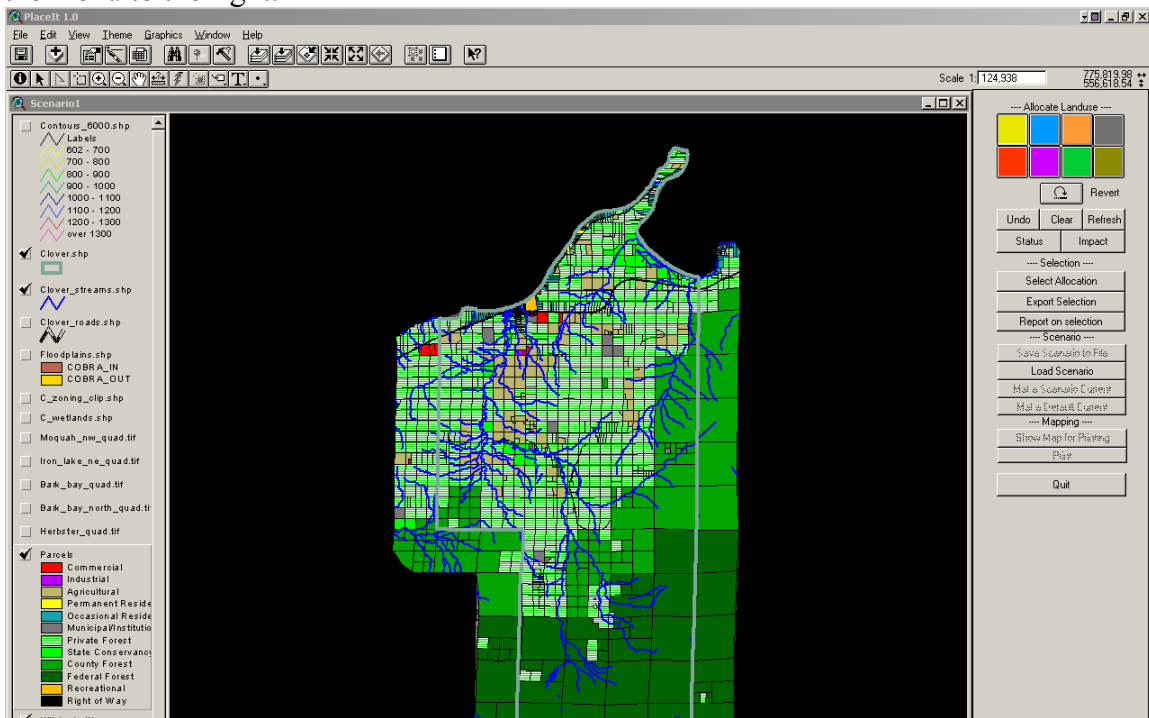
## Opening Screen

When started, Placeit appears as a normal ArcView project, with the addition of one menu at the right end of the menu bar on the Project interface, and a button on the button bar.

This menu starts and stops the PlaceIt interface, and provides for some (as yet not implemented) Administration tasks). The Button also launches PlaceIt.



When launched, Placeit calculates the size of the screen, then maximizes the display with the menu to the right:



It is best to leave the widows in this configuration, rather than resize, due to the effect of resizing on the dialog box with the tools and buttons.

The Placeit toolbars and dialog:

The dialog as shown at right is divided into 4 parts:

### Allocate Landuse

Designed as a method for creating alternative landuse plans, changes the current landuse of a parcel to the one indicated by the icons. Each tool has a tool tip that describes it, as well as a short description in the status area at the bottom of the application window.)

The user zooms to an area of interest, chooses a tool, and clicks on a parcel to change its current land use to that of the tool. The tool may be changed to allocate many parcels to different uses.

### Other buttons:

**Revert:** allows individual parcels to be changed back to their original use by clicking on them.

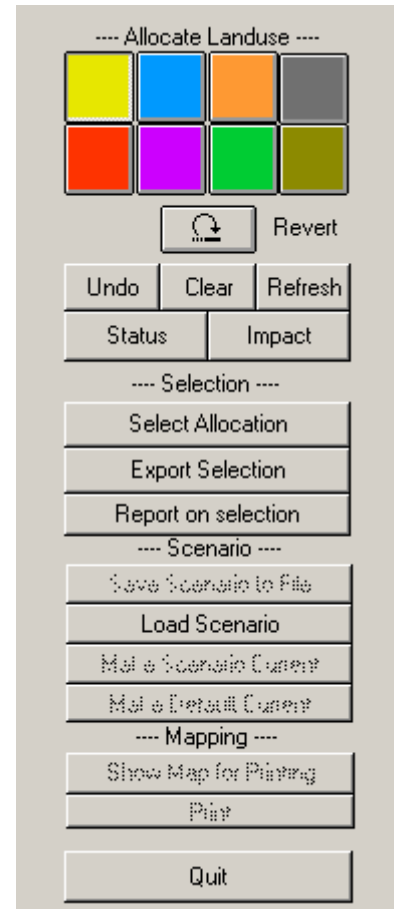
**Undo:** Steps back through allocation, undoing as many changes as desired, one at a time.

**Clear:** Clears all allocations

**Refresh:** Redraws the screen

**Status:** produces a simple report (see below)

**Impact:** Produces a more detailed report of changes made (See below)



### Selection

For selecting the changed landuses, to allow further analysis, or saving of only changed parcels into a new shape file.. (figure 3 & figure 4)

**Select Allocation:** Selects the parcels allocated with the tools above, to allow export as a separate shape file.

**Export Selection:** Exports parcels selected into a new shape file.

**Report on selection:** Repeats the popup with summary info (see below)

### Scenario

Allows saving and loading alternative scenarios created by the “Allocate Landuse” tools, essentially copies of the parcel database with the new landuses in them.

**Save Scenario to File:** Saves copy of Parcel database to “Scenarios” folder, for further processing/analysis.

**Load Scenario:** Opens scenarios folder, loads a previously saved scenario into the project.

**Make a Scenario Current:** Makes the selected scenario “current”, so allocations made with the allocation tools, or selections made with the selection tool apply to it, rather than the default parcel data.

**Make Default Current:** Makes the original parcel map the current one for allocations/selection

## Mapping

Not yet implemented.

## Popups

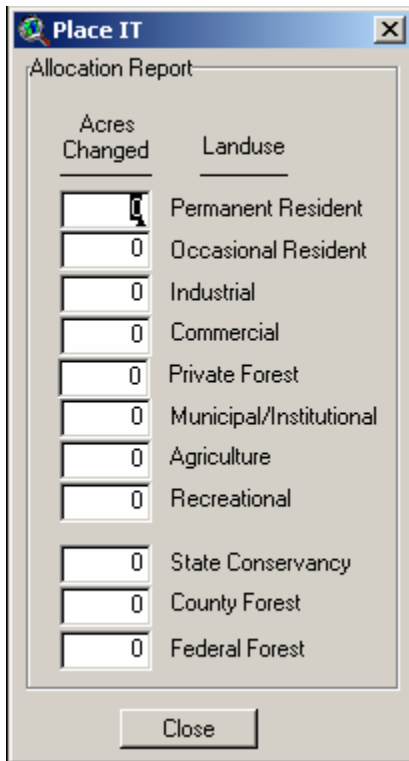
In addition to the tools, there are a set of Popup menus, accessed by right-clicking the mouse, that will also run some of the same commands as the buttons in the menu. Note that identify will also work here, eliminating the need for switching tools. Undo will step back through the things that you have done, just as the button will, and revert will revert the parcel under the tool to its original.

Undo
Revert
Clear All Allocations
Refresh View
Show Status Report
Show Impact Report
Identify
Clear Selection
Select Allocations

Table 1. Allocated land uses

Land-use	Icon/ Color
Permanent Resident	Yellow
Occasional Resident	Blue
Recreational	Orange
Municipa or Institutional	Gray
Commercial	Red
Industrial/ Manufacturing	Purple
State Conservancy	Green
Agriculture	Brown

Figure 1: Status Report on Allocation



This report pops up when the user presses the “Status” button. It lists changes number of acres in each category. Note that there are more categories here than there are buttons for in the allocation tools.

In this example, several parcels, totaling 118 acres, were converted from Agriculture to Low Density Urban

This is a quick report to help see how you are approaching goals for allocation.

Figure 2: Impact Report on Allocation

Acres			Landuse Type
Current	Change	Future	
61	0	61	Permanent Resident
508	0	508	Occasional Resident
20	0	20	Industrial
166	0	166	Commercial
19759	0	19759	Private Forest
366	0	366	Municipal/Institutional
2682	0	2682	Agriculture
52	0	52	Recreational
922	0	922	State Conservancy
10735	0	10735	County Forest
21294	0	21294	Federal Forest

This report pops up in response to pressing the Impact button. In addition to the “Change” field, which is identical to the one above (Figure 1), There are columns for Current (existing) acres in each land use, and Future (after allocation).

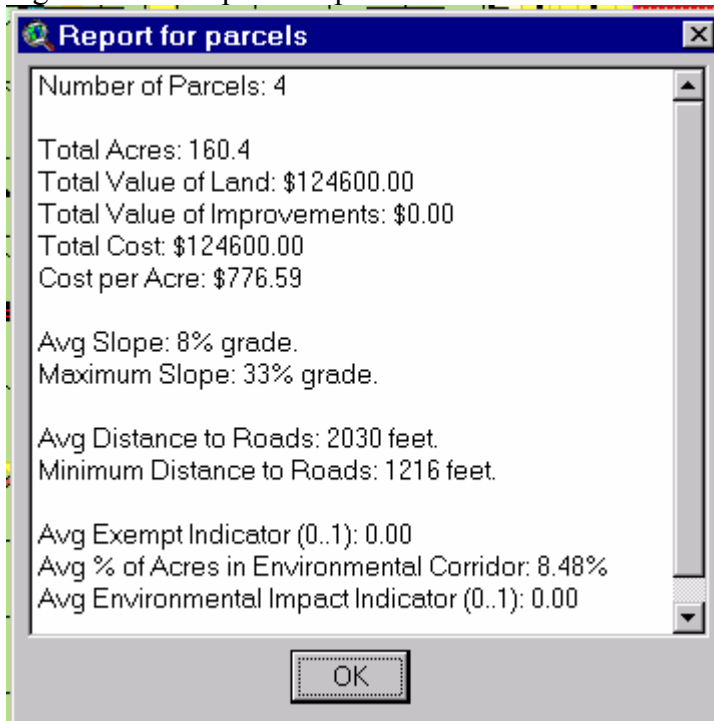
Given number of people per acre in each landuse, a Population Change is also calculated, for each residential class, as well as for the whole allocation.

Figure 3. Selection tool instructions

1. Zoom in to area of interest
2. Click to define polygon to select.
3. Double-click to end.
4. To select a single polygon, double-click within the polygon.
5. To Add to the selection, hold down shift key while defining polygon or point.

Don't Remind Me Again


Figure 4. Development report.



Example sessions:

Open the PlaceIt.apr project.

Click on the Launch Icon: 

Zoom to full extent of study area by pressing the zoom to active themes button: 

Select an area of interest, zoom in to a more appropriate scale (suggest 20-50,000 scale)

Turn layers on/off as you explore existing factors.

Select an allocation type by clicking on one of the 8 tools (hold mouse over the tools for a description in the status bar at the bottom of the ArcView screen)

Start Allocating landuses.

Explore!

This project is still in development, you will probably be able to find bugs, generate error messages, etc. Please feel free to send an email with details to [wheinzel@facstaff.wisc.edu](mailto:wheinzel@facstaff.wisc.edu).