



Puget Sound Regional Council ***Paint The Region***

Visioning Support System
For ArcEditor 9.1

Quick Reference Guide

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INTRODUCTION

This reference guide has been prepared for the Puget Sound Regional Council (PSRC) custom version of INDEX Paint the Region software to be used for supporting PSRC's regional visioning process.

System Requirements

INDEX Paint the Region requires Windows 2000/XP, Microsoft Office 2000 or greater, and ArcEditor 9.1. The minimum hardware configuration for INDEX is a 2.8 GHz PC with at least 1 GB of ram, a 17-inch or larger monitor capable of a 800x600 resolution with 32 bit color, and at least 2 GB of available hard disk space.

User Skills

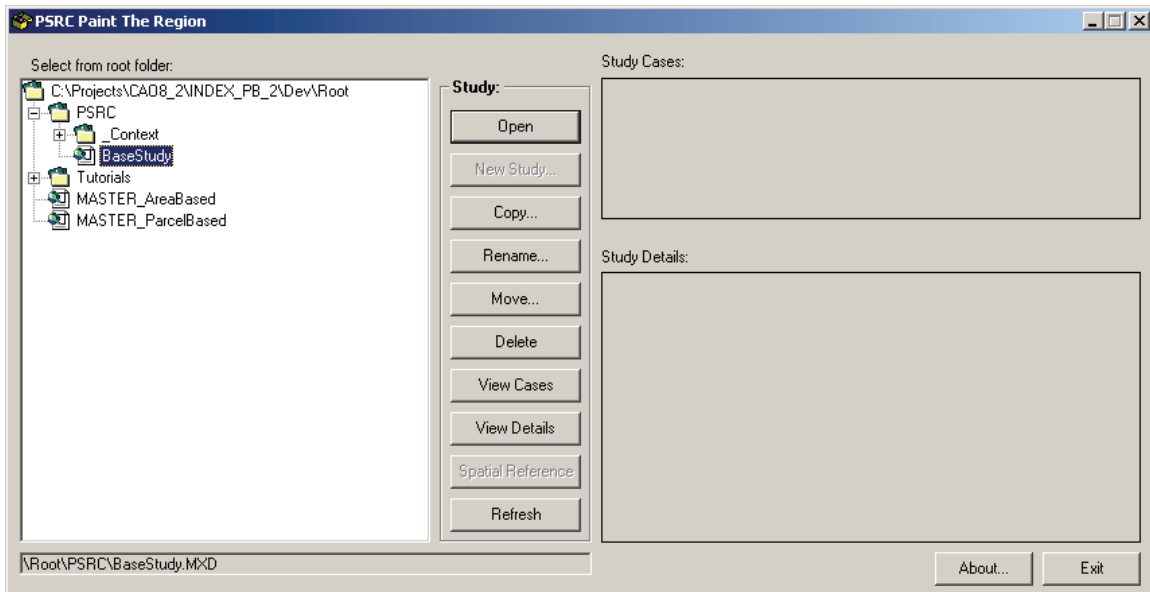
INDEX has two levels of required user skills: 1) a model steward with advanced GIS experience, and 2) general users with basic GIS familiarity. Model stewards should have completed advanced ArcGIS instruction and have at least one year of substantive experience using ArcGIS; general users must have familiarity with ArcGIS. The ESRI ArcGIS User Manual should be used to supplement the INDEX User Notebook. At least one ESRI-certified ArcGIS course is highly recommended for all users.

Launching PSRC Paint The Region

To launch Paint The Region, double-click the Paint The Region icon on the desktop:

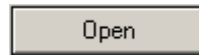


The Study Manager appears:

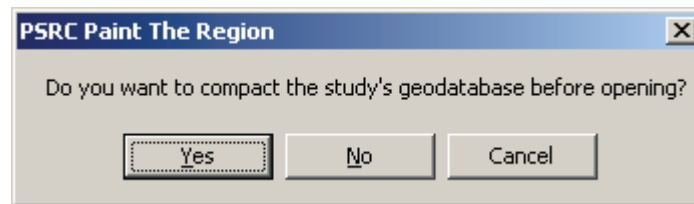


Opening the Base Study

PSRC Paint The Region comes with a working study (BaseStudy) containing the 2000 base year data and indicator results. To review "BaseStudy", select it in Study Manager and click the Open button:

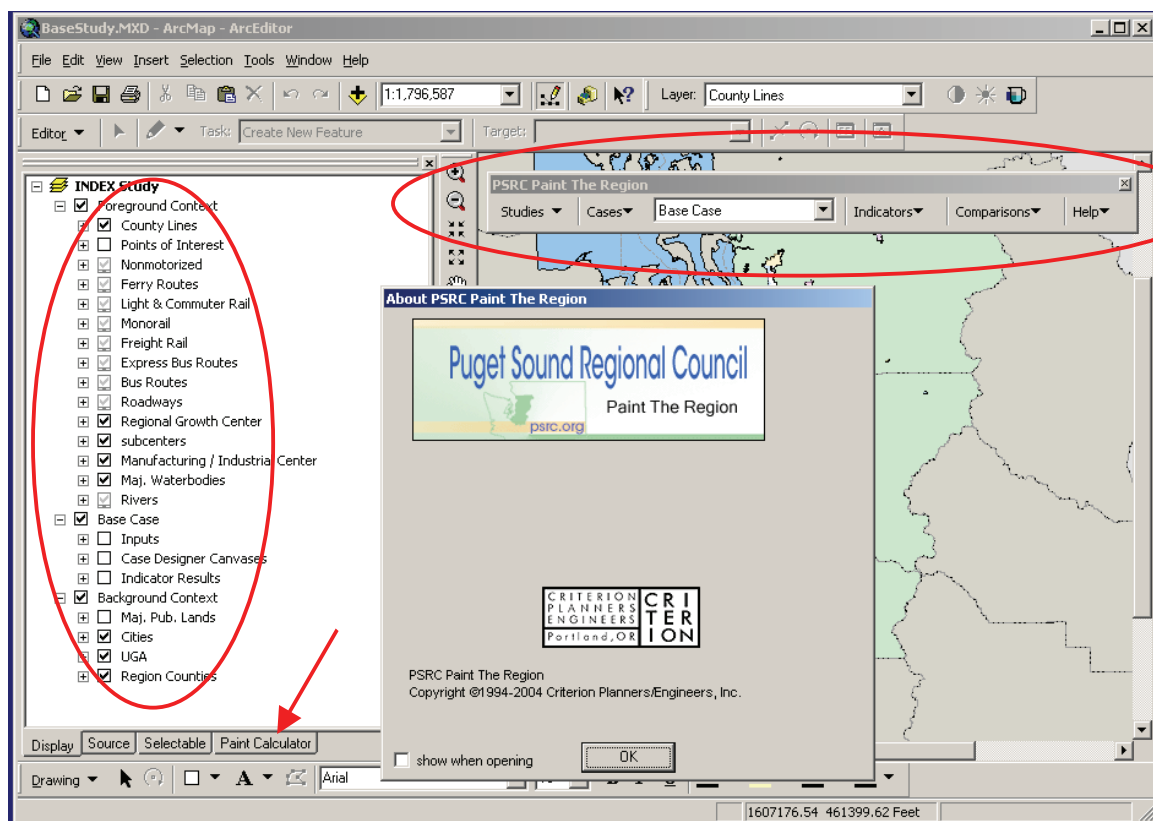


The following option dialog appears:



Geodatabase compacts can save a lot of disk space and are recommended following significant editing or indicator runs. Since they take a minute or two to complete, you have the option to skip the process. Click No to skip the compact process.

ArcMap opens the study with a custom table of contents and a special Paint The Region toolbar:

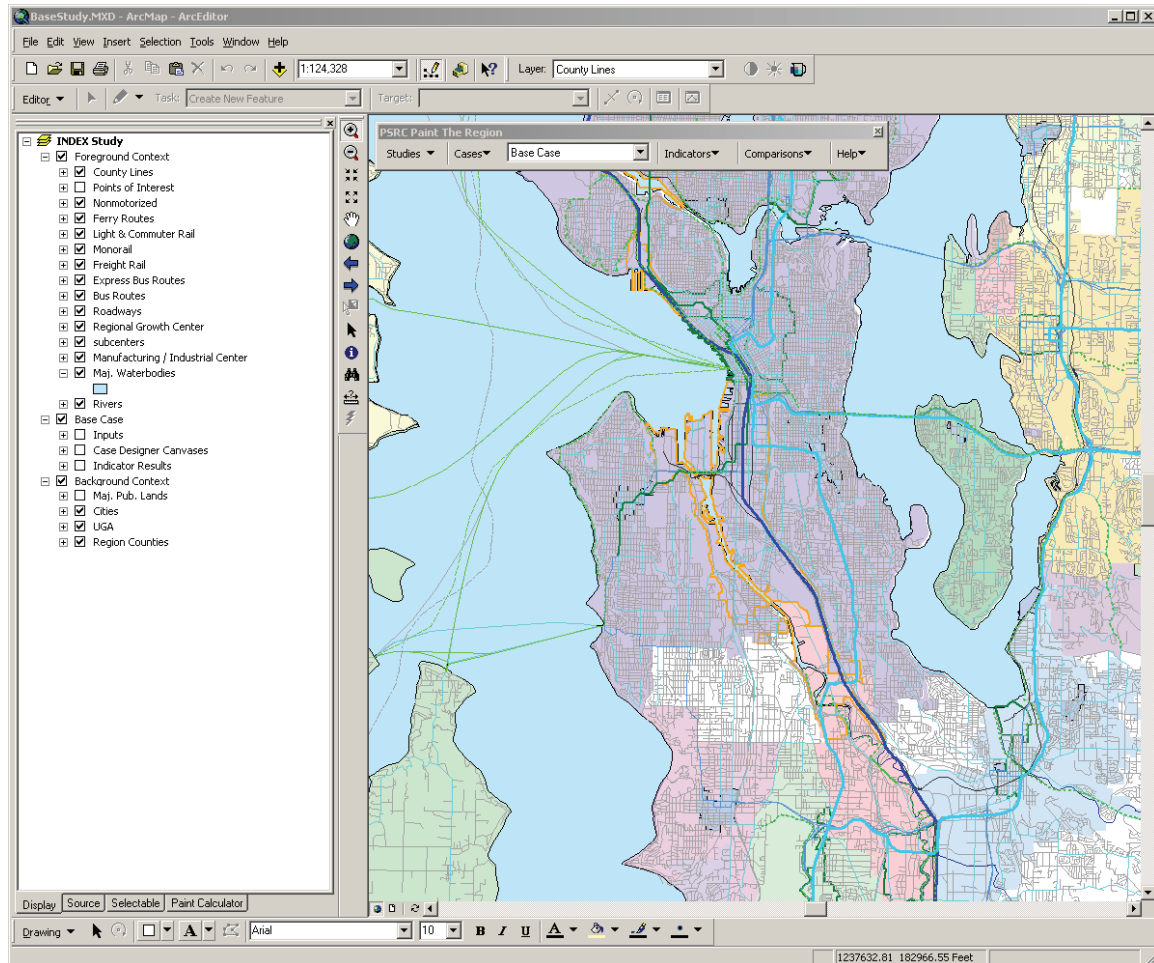


Reviewing Land Use Data Using Case Designer

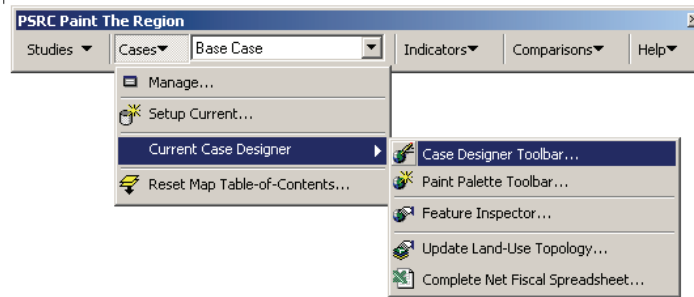
The customized ArcMap TOC contains front and back reference layers that give context to the actual land use geodata. Use the ArcMap zoom tool to zoom in on a section of downtown Seattle:



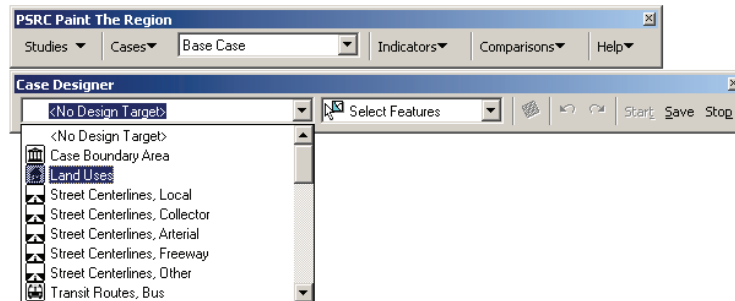
Zooming in close enough reveals other more detailed context layers:



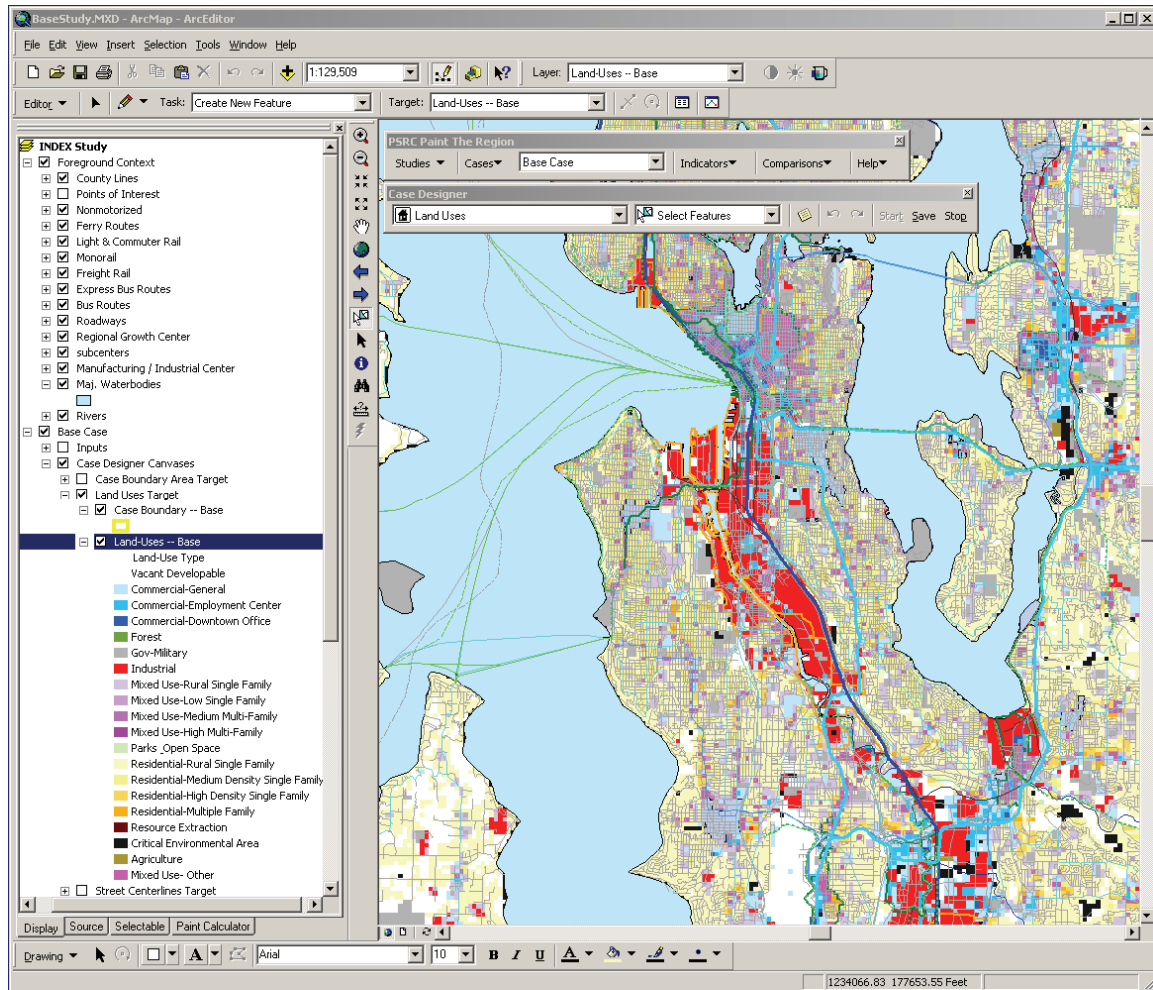
To review the actual study data, use the PSRC Paint The Region toolbar's Case Designer menu option:



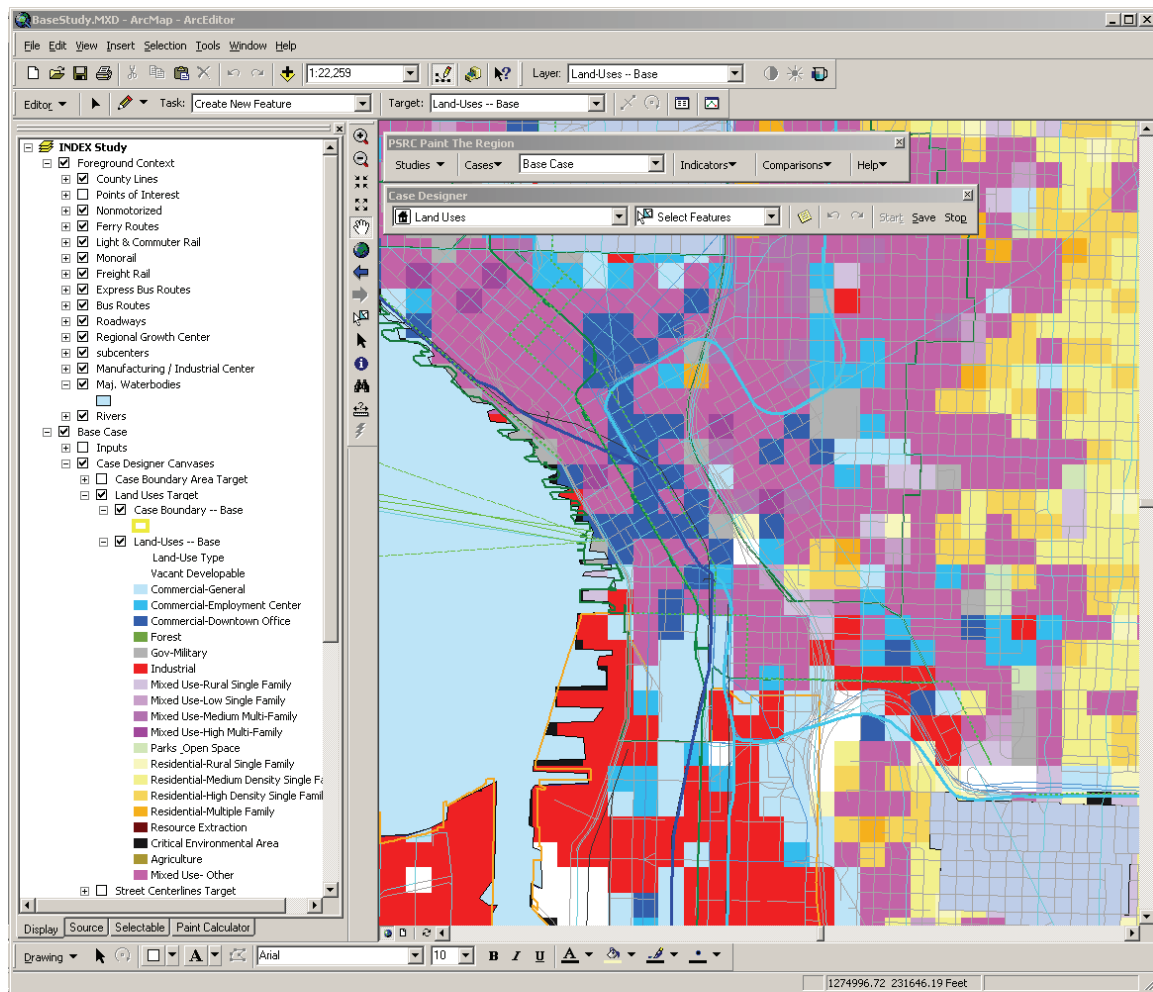
The Case Designer toolbar appears. Choose the Land Use target from the Case Designer target combo:



The TOC automatically changes and you are put in view/edit mode of the Land Uses feature class:

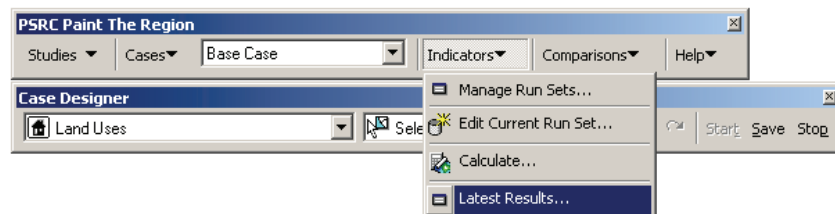


Zoom in even closer and see how the 5.5 acre land use cells are rendered in the TOC:

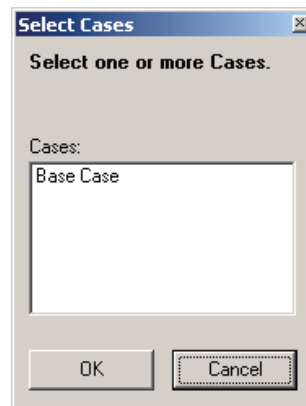


Viewing Indicator Results

BaseStudy's indicators have already been run. To view the results, first click the PSRC Paint The Region toolbar's Indicators > Latest Results option:



On the following dialog, select Base Case and click OK:



The results table is displayed:

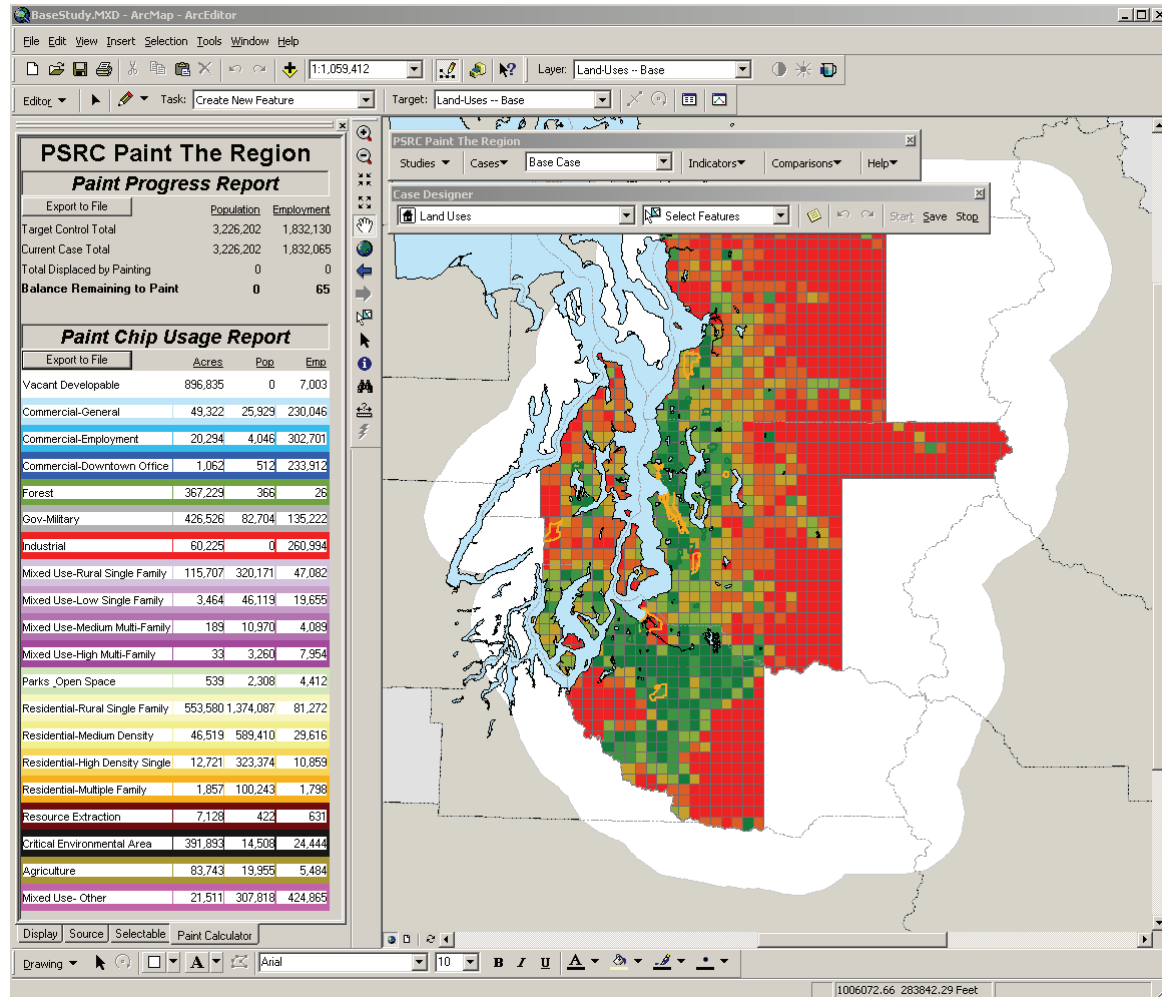
Indicator Results					
Collapse the nodes to hide Elements. Use the map column (e.g., M0) button to show indicator maps.					
Definition				Base	
IID	Indicator	Units	Objective	Score0	M0
[-] Element : [0] Demographics					
2	Population	residents	none	3,226,202	
3	Employment	employees	none	1,832,130	
4	Population Density	res/gross ac	8.00 or more	1.06	
[-] Element : [1] Land-Use					
7	Use Mix	0-1 scale	0.50 or more	0.16	
[-] Element : [2] Housing					
75	Dwelling Density	DU/net ac	12.00 or more	0.37	
19	Amenities Adjacency	%	100.0 or more	39.8	
22	Transit Adjacency to Housing	%	100.0 or more	5.1	
76	Wastewater Generation	gal/day	none	193,572,120	
77	Solid Waste Generation	lbs/day	none	8,033,243	
78	Structural Energy Use	MMBtu/capita	15 or less	10	
[-] Element : [3] Employment					
24	Jobs to Housing Balance	jobs/DU	0.80 to 1.20	1.64	
25	Employment Density	emps/gross ac	10.00 to 20.00	0.60	
27	Transit Adjacency to Employment	%	100.0 or more	25.0	
[-] Element : [5] Environment					
32	NOx Pollutant Emissions	lbs/capita/yr	25 or less	32	
57	HC Pollutant Emissions	lbs/capita/yr	50 or less	62	
58	CO Pollutant Emissions	lbs/capita/yr	400 or less	482	
33	Greenhouse Gas Emissions	lbs/capita/yr	7,000 or less	8,580	
35	Open Space Connectivity	0-1 scale	0.75 or more	0.55	
36	Stormwater Runoff	cubic ft per acre per year	10,000 or less	17,227	
37	Nonpoint Pollution	kilograms per acre per year	3.0 or less	30.5	
38	Imperviousness	%	10.00 or less	10.21	
[-] Element : [6] Travel					
69	Home Based Vehicle Miles Traveled	mi/day/capita	15.0 or less	14.3	
70	Non-Home Based Vehicle Miles Traveled	mi/capita/day	5.0 or less	7.1	
71	Home Based Vehicle Trips	trip/day/cap	4.0 or less	1.6	
72	Non-Home Based Vehicle Trips	trip/day/cap	2.0 or less	1.1	
79	Personal Vehicle Energy Use	MMBtu/capita	30 or less	201	

Viewing Indicator Map Detail

Many indicators have detail maps that break down an indicator score by Sub Area. To view a map, click the map button at the right of an indicator result row:



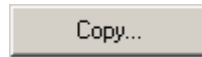
The map is displayed, such as this one for use mix:



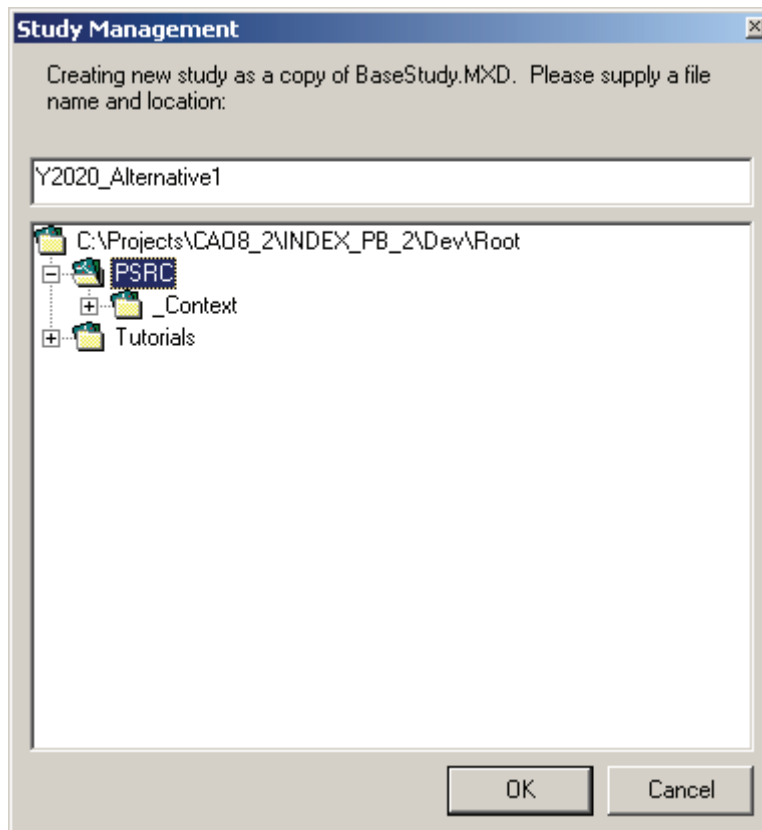
After reviewing BaseStudy, close it by choosing the File > Exit menu option. Click No if it asks you to save.

Creating an Alternative Study and Opening It Into ArcMap

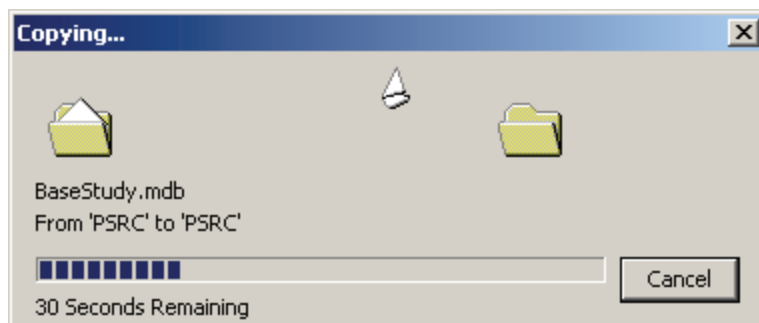
Paint The Region comes with a working study (BaseStudy) containing the 2000 base year data and indicator results. Alternative studies are to be created from this BaseStudy. In Study Manager, select the "BaseStudy" study and click the Copy button:



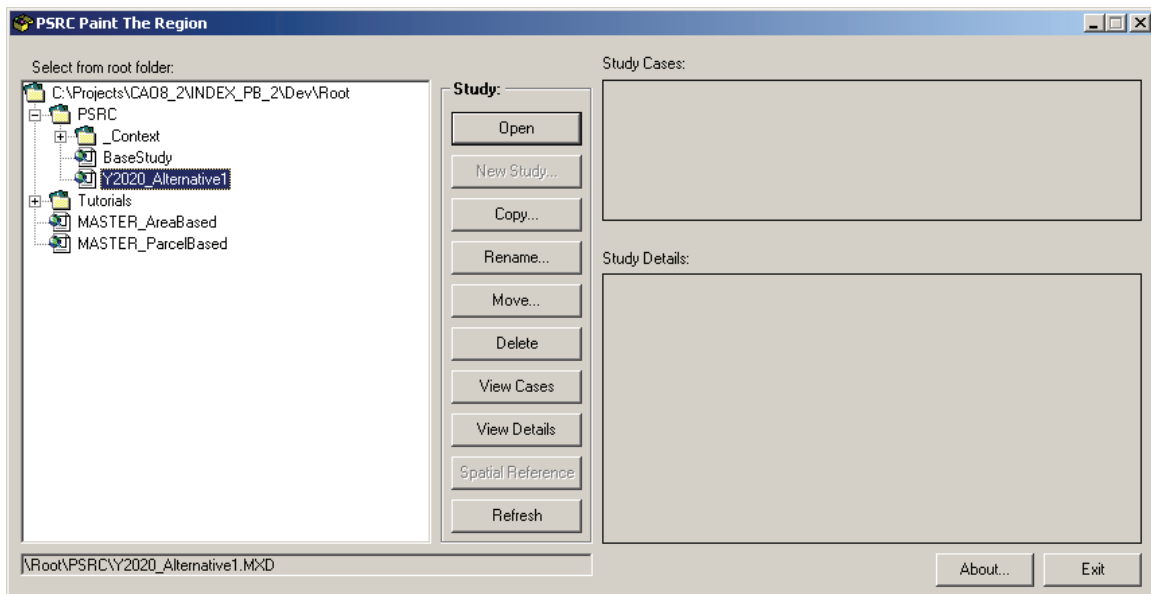
In the Study Management dialog, give the new study an appropriate name and click the OK button:



Since PSRC's data set consists of over half a million 5.5 acre grid cells, BaseStudy is large (approx 300 MB) and you will see the following dialog while the copy occurs:

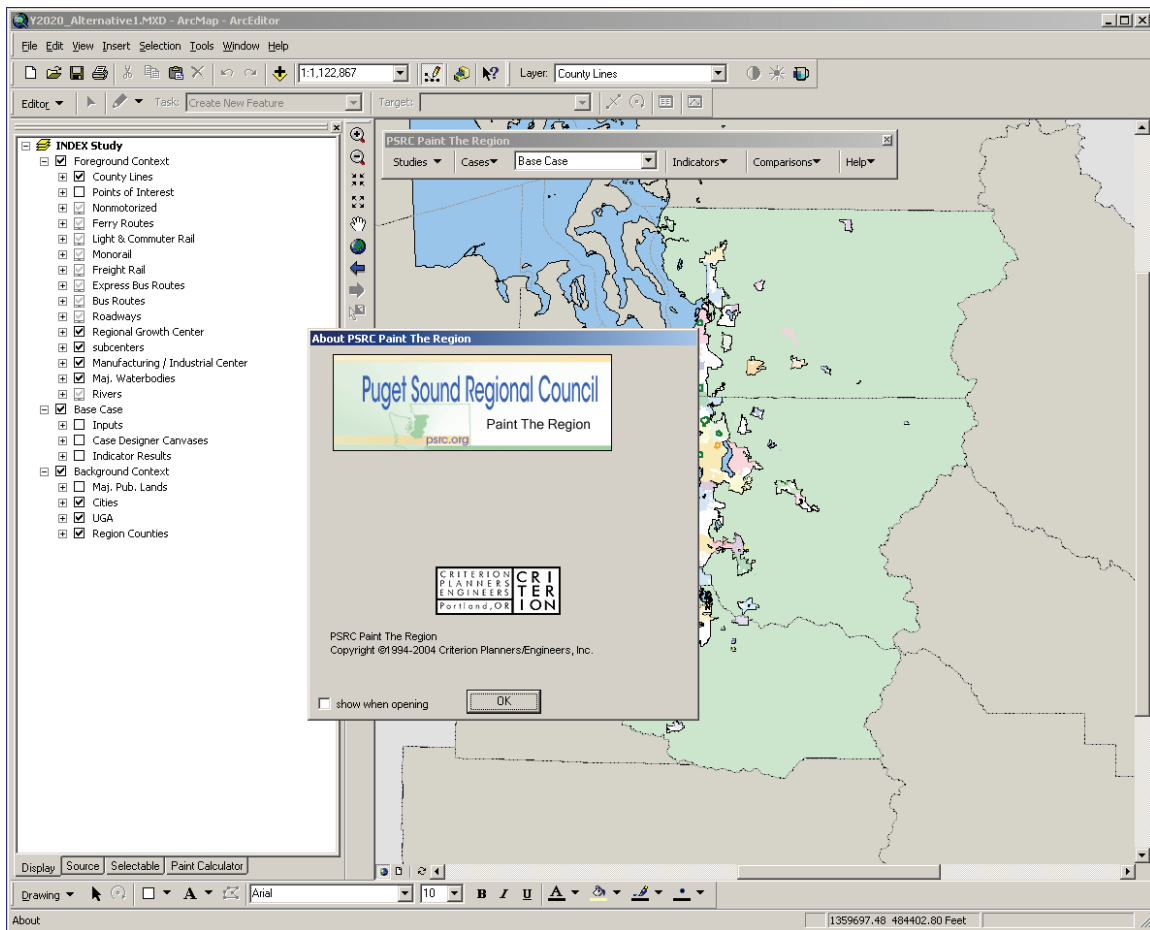


The study is created and appears in the Study Manager tree:



Click Open to open the study into ArcMap.

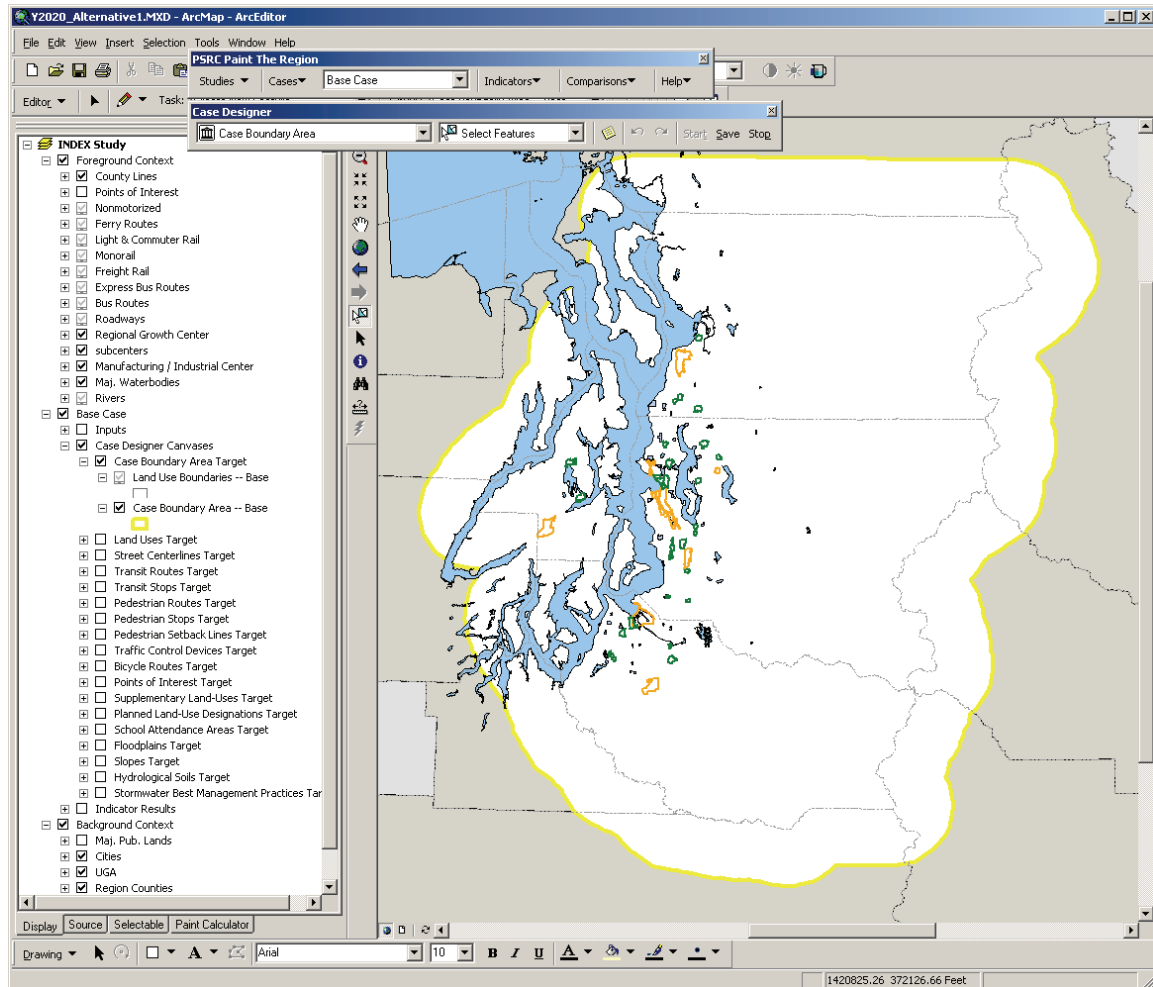
ArcMap opens the study with a custom table of contents and a special Paint The Region toolbar:



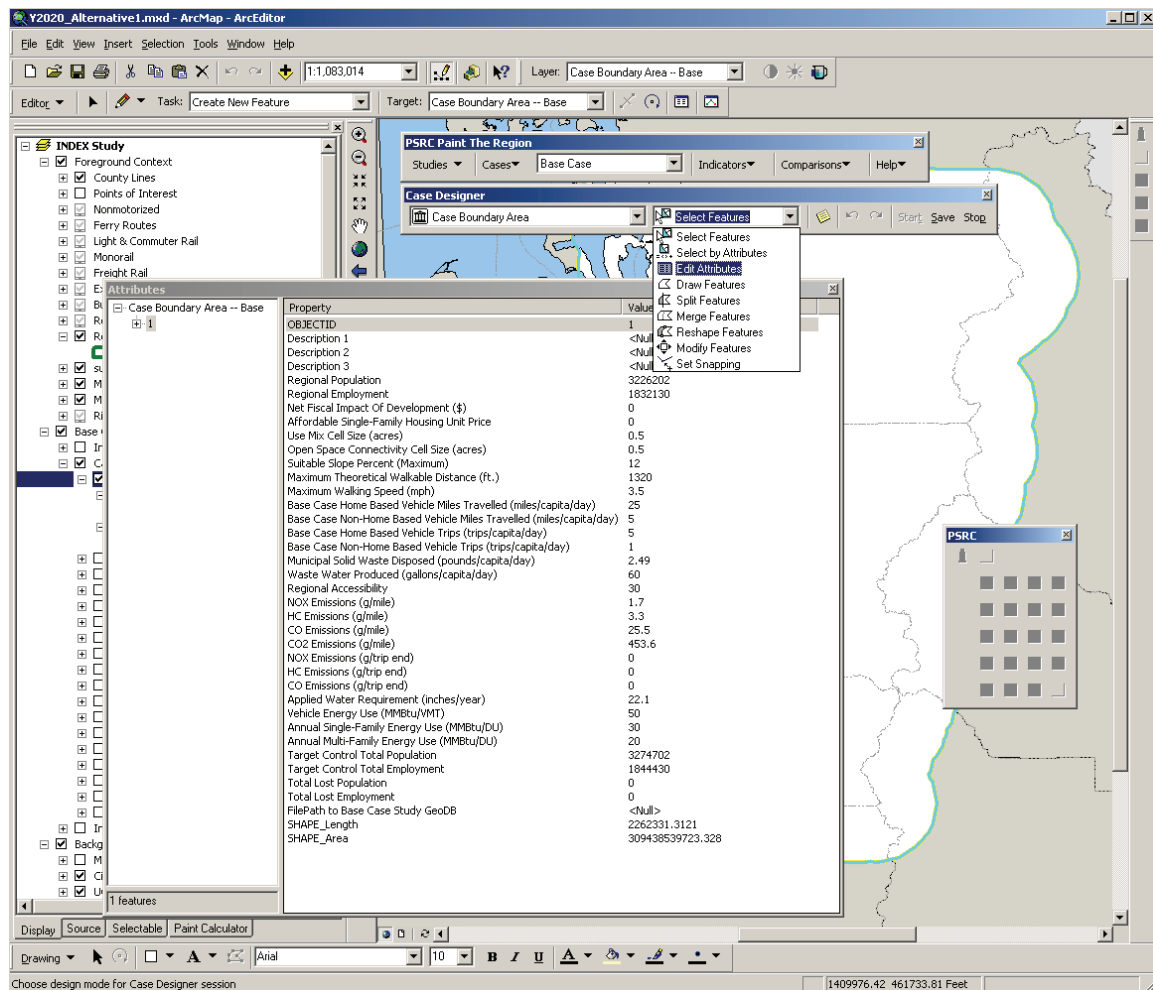
Allocating Growth by Painting Land Use Features

Setting the Demographic Control Targets

PSRC determines for each alternative study how much demographic growth must be painted down using Paint The Region. These pop/emp targets can be recorded as attributes of the Case Boundary Area feature class, and will be displayed as a guide in the Paint Calculator (see below). To update the targets, Open Case Designer and go to the Case Boundary Area design target:



Since the "Select Feature" Case Designer toolbar action is chosen by default, simply click on the Case Boundary feature to select it, then choose Case Designer's "Edit Attributes" action to pull up the Attribute Editor:



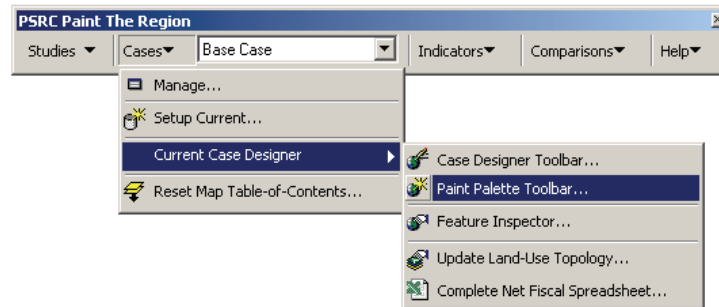
Near the bottom of the attribute list, give new values to the following attributes:

Target Control Total Population = 3,274,702
Target Control Total Employment = 1,844,430

After making these updates, click Case Designer's "Save" menu button to save your changes.

Preparing to Paint

You must open a Paint The Region palette to complete any painting activity. To do so, select the Paint Palette Toolbar command from the Paint The Region toolbar menus:



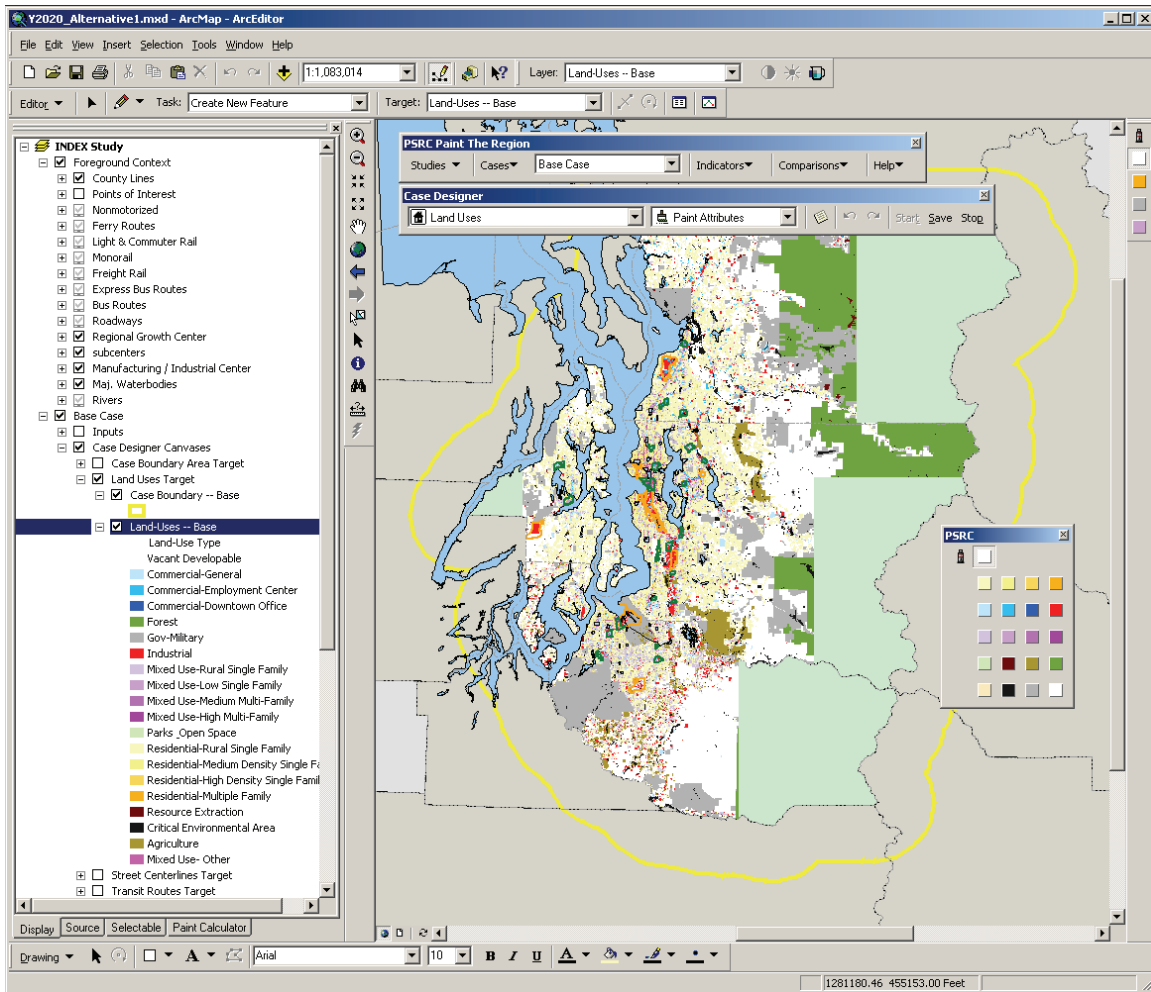
The following dialog lists all Paint The Region paint palette toolbars saved in this study:



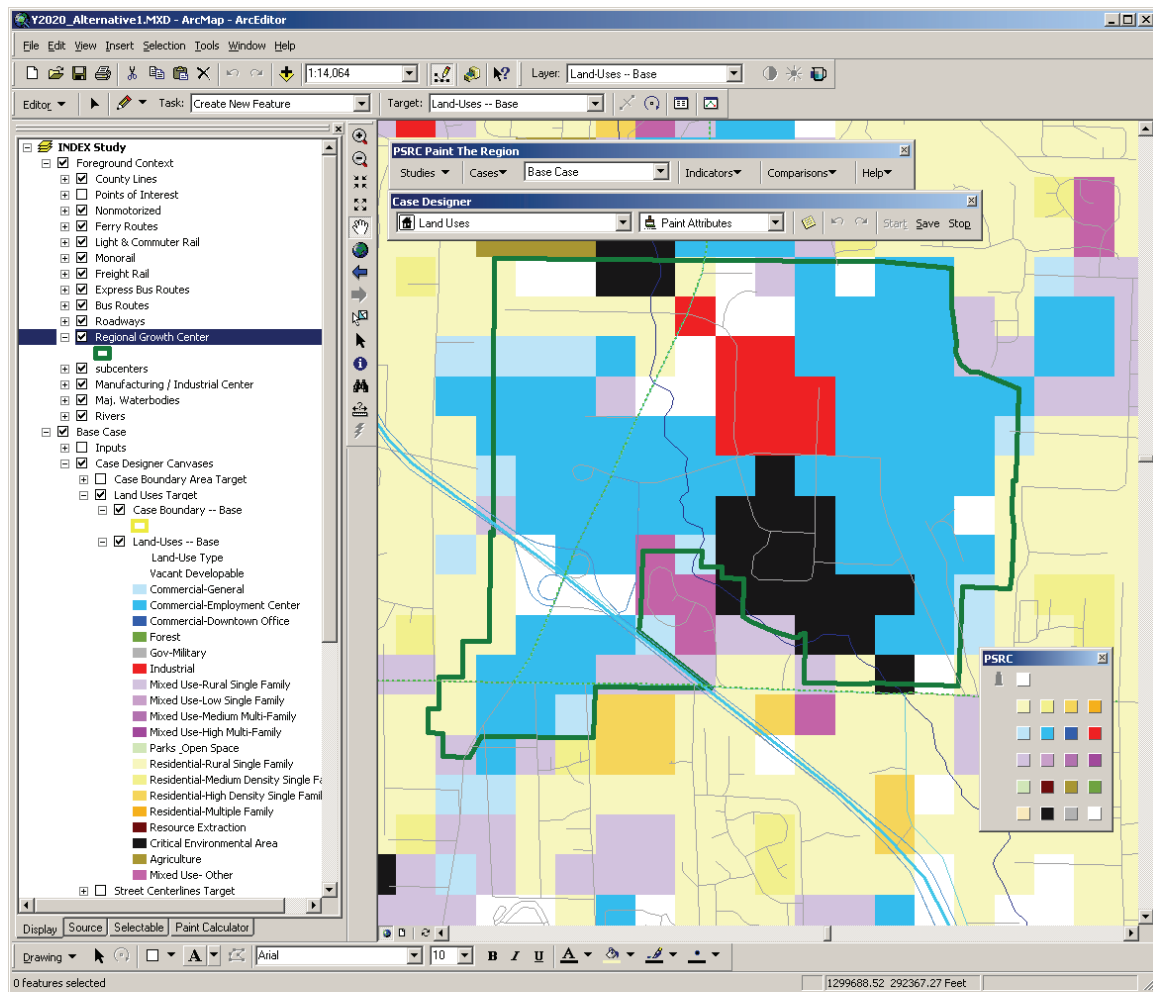
Select the "PSRC" palette and click OK, which will make visible (either docked or floating) the PSRC paint palette toolbar:



Also, you are placed in edit mode of the land uses feature class:

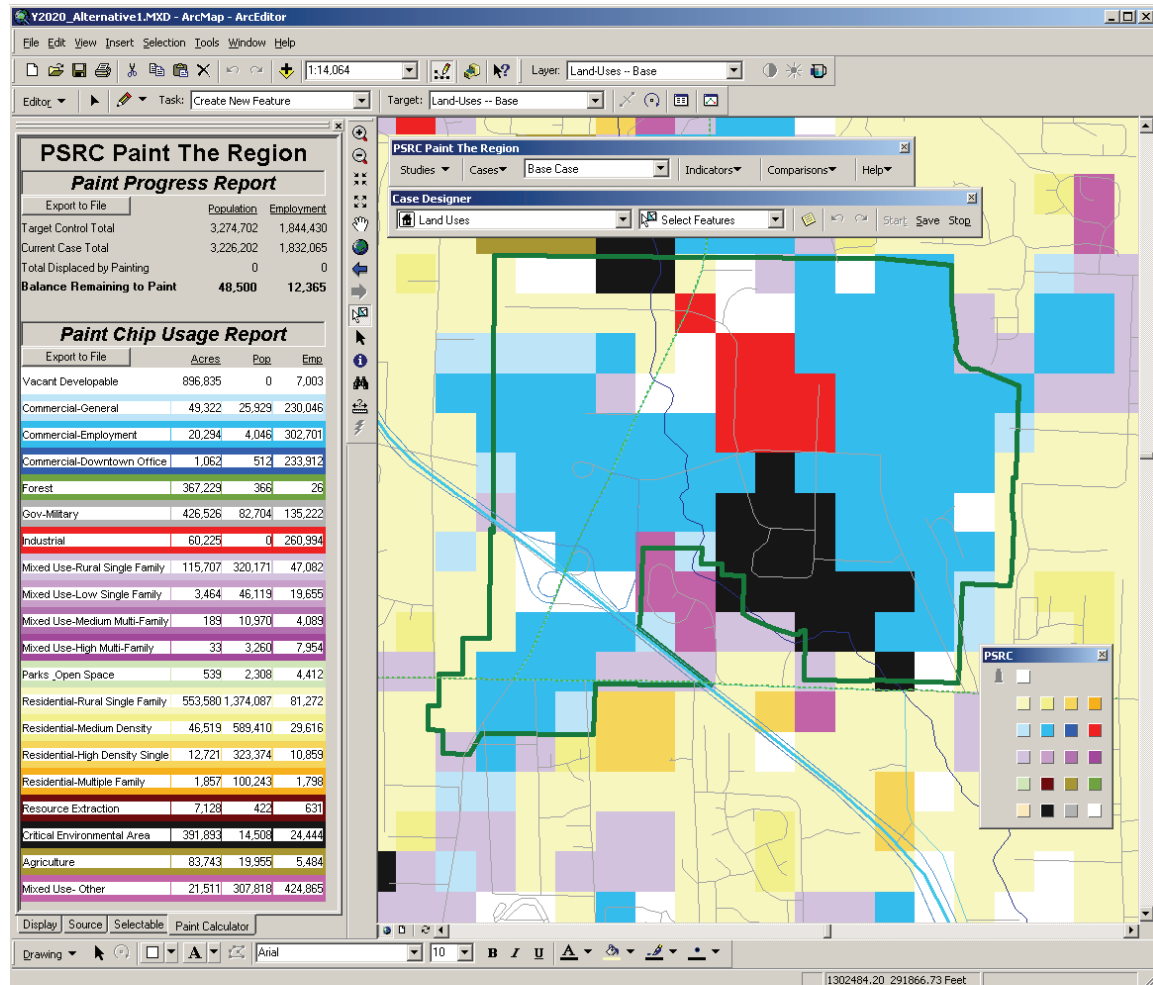


Zoom in to a growth/redevelopment area on the map using one of the "centers" context layers:



The Paint Calculator

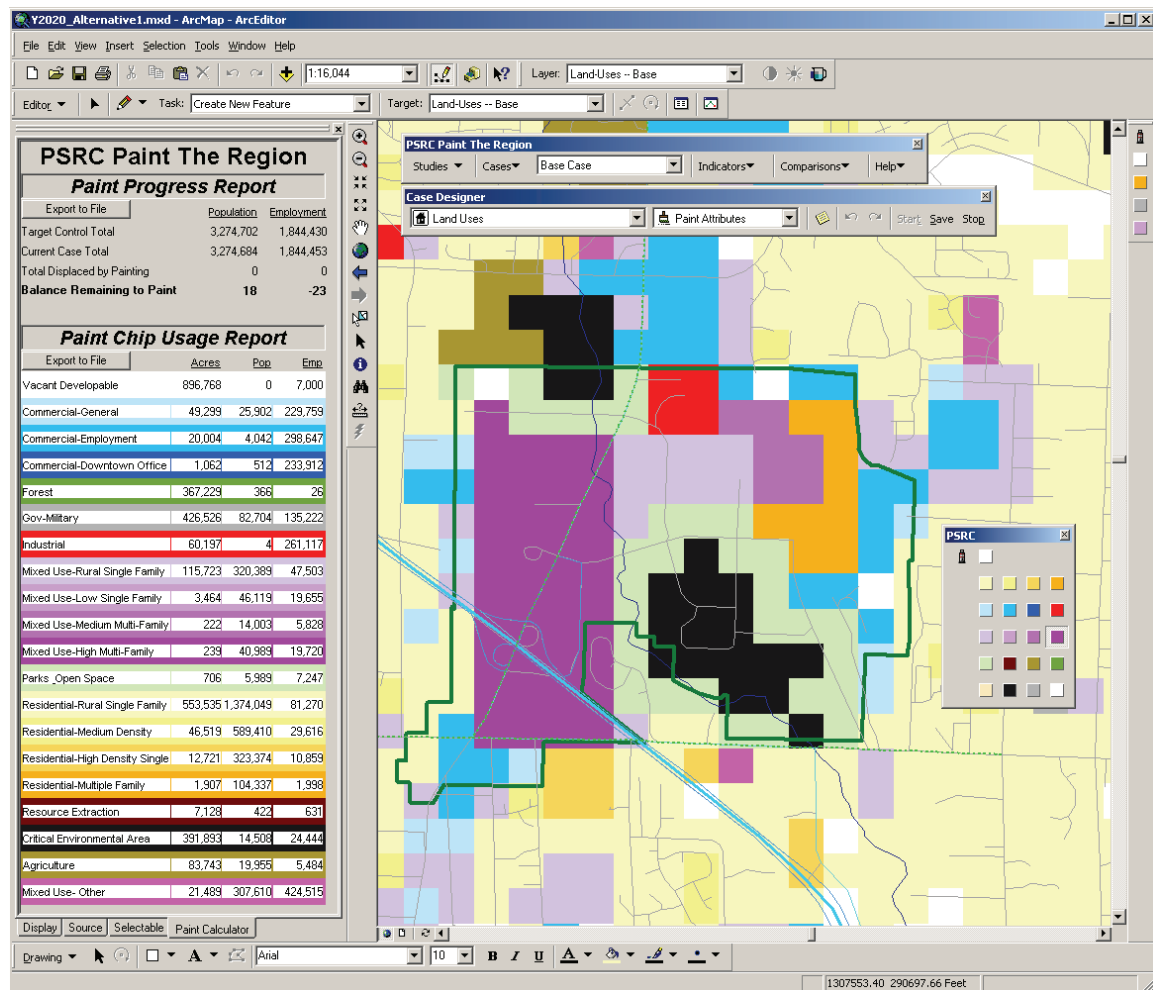
Click on the ArcMap TOC's "Paint Calculator" tab to see a summary of this study's land use distribution:



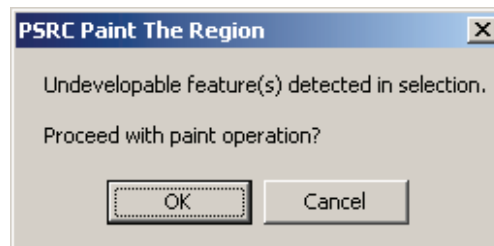
The Paint Calculator has two sections, both of which are updated in real-time as you paint:

1. **Paint Progress Report**, which is used during alternative case land use painting to track how close one is to allocating all the required demographic growth in a proposed scenario. Note the Target Control Totals you entered previously.
2. **Paint Chip Usage Report**, which breaks down the acreage, pop and emp for each land use type that has been painted throughout the study area.

Select paint chips from the PSRC paint palette toolbar and click on a cell to "paint" down land use zoning and demographic data. You can also click and drag to paint multiple cells at once. Both sections of the Paint Calculator update in real-time as you paint:



If you attempt to paint a cell that has a land use type that falls into the category of "Protected" (in this case, the black "Critical Environmental Area" cells), the following confirmation dialog will appear:

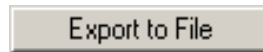


Click OK to override the protection and allocate growth, Cancel to leave the protected area untouched.

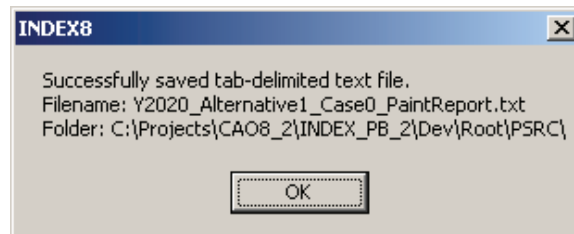
When you have finished allocating all required growth (i.e. when the Paint Progress Report's "Balance Remaining to Paint" row approaches zero) click the Save button on the Case Designer toolbar to save your work.

Exporting Paint Calculator Results

Once editing is complete, PSRC Paint The Region can also export the Paint Calculator data to a tab delimited text file by clicking either of the Export to File" buttons on the Paint:

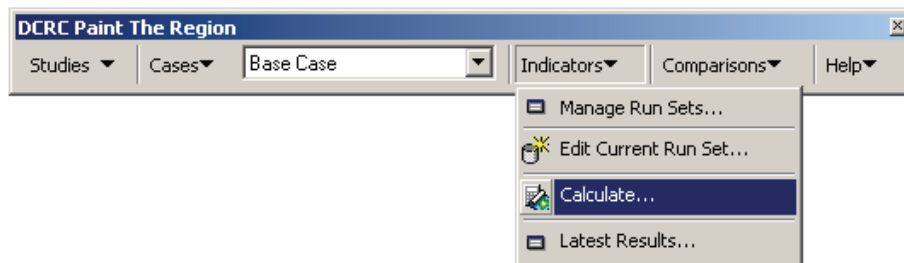


A message box will tell you where the tab-delimited text file was stored:

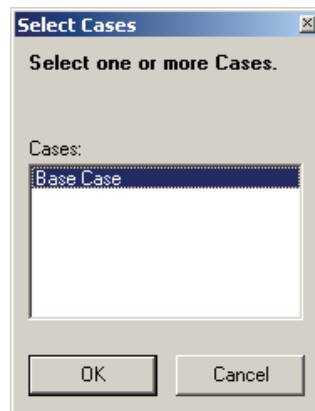


Calculating Indicator Results

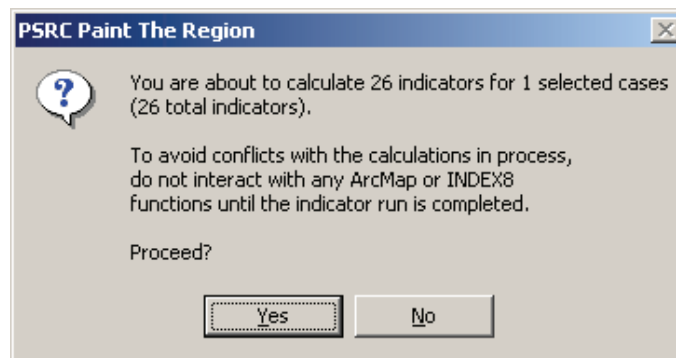
At the end of a significant amount of work, you can capture more formally the results of your work by running a set of indicators on your Paint The Region study. To do so, select the Run Indicators option from the Indicators menu:



The following dialog appears:



Click OK to run the base case, the only case in PSRC. As this process can take a few minutes (depending on CPU speed), the following additional confirmation dialog appears:



WARNING: Indicator calculations for 550,000 land use polygons take at least 2 hours to run.

Click 'Yes' to proceed and return to the computer later when the run has finished. When the indicator run is complete, the following results window will appear:

Indicator Results

Collapse the nodes to hide Elements. Use the map column (e.g., M0) button to show indicator maps.

Definition				Base	
IID	Indicator	Units	Objective	Score0	M0
Element : [0] Demographics					
2	Population	residents	none	3,226,202	
3	Employment	employees	none	1,832,130	
4	Population Density	res/gross ac	8.00 or more	1.12	
Element : [1] Land-Use					
7	Use Mix	0-1 scale	0.50 or more	0.21	
Element : [2] Housing					
75	Dwelling Density	DU/net ac	12.00 or more	0.37	
19	Amenities Adjacency	%	100.0 or more	39.8	
22	Transit Adjacency to Housing	%	100.0 or more	5.1	
76	Wastewater Generation	gal/day	none	193,572,120	
77	Solid Waste Generation	lbs/day	none	8,033,243	
78	Structural Energy Use	MMBtu/capita	15 or less	10	
Element : [3] Employment					
24	Jobs to Housing Balance	jobs/DU	0.80 to 1.20	1.64	
25	Employment Density	emps/gross ac	10.00 to 20.00	0.63	
27	Transit Adjacency to Employment	%	100.0 or more	25.0	
Element : [5] Environment					
32	NOx Pollutant Emissions	lbs/capita/yr	25 or less	32	
57	HC Pollutant Emissions	lbs/capita/yr	50 or less	62	
58	CO Pollutant Emissions	lbs/capita/yr	400 or less	482	
33	Greenhouse Gas Emissions	lbs/capita/yr	7,000 or less	8,580	
35	Open Space Connectivity	0-1 scale	0.75 or more	0.55	
36	Stormwater Runoff	cubic ft per acre per year	10,000 or less	17,227	
37	Nonpoint Pollution	kilograms per acre per year	3.0 or less	30.5	
38	Imperviousness	%	10.00 or less	10.21	
Element : [6] Travel					
69	Home Based Vehicle Miles Traveled	mi/day/capita	15.0 or less	14.3	
70	Non-Home Based Vehicle Miles Traveled	mi/capita/day	5.0 or less	7.1	
71	Home Based Vehicle Trips	trip/day/cap	4.0 or less	1.6	
72	Non-Home Based Vehicle Trips	trip/day/cap	2.0 or less	1.1	
79	Personal Vehicle Energy Use	MMBtu/capita	30 or less	201	

OK

Exporting Indicator Results

You can export any study's current set of indicator scores to an XLS spreadsheet for further analysis by clicking the Print button (printing actually occurs from the created spreadsheet):

