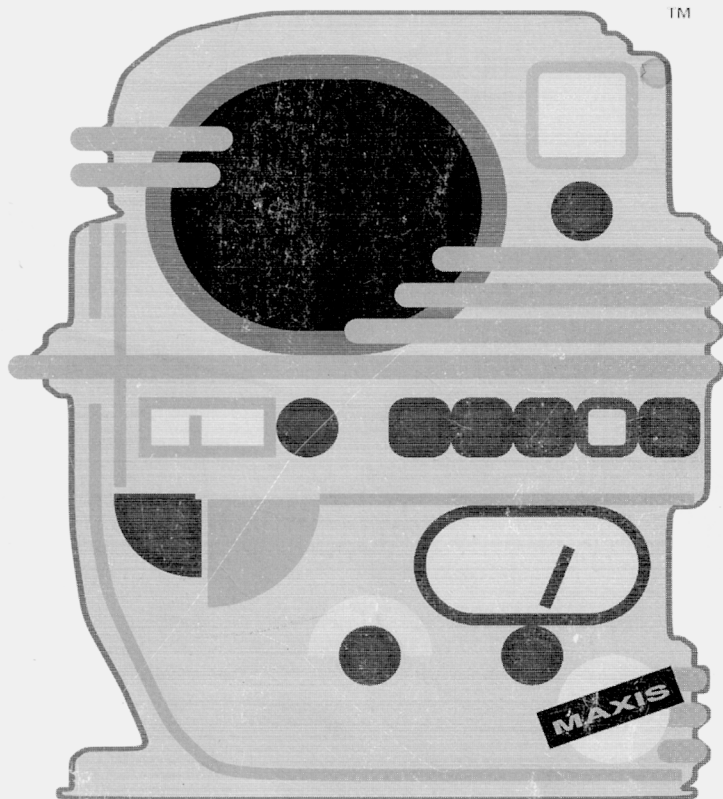


SIMCITY[®]

THE CITY SIMULATOR



SimCity User Documentation
HyperLook Edition 1.0
for OpenWindows Version 3.0

HyperLook[™]



DUX

Credits

- Unix Implementation, User Interface & Graphics
Don Hopkins: DUX Software
- HyperLook User Interface System
Arthur van Hoff, Dug Scoular, Don Hopkins: The Turing Institute, Ltd.
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- City Scenarios
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- Special Thanks to
Arthur van Hoff, Dug Scoular, Marcel van Vuure, Bob Adams, Rich Garrettson, Rafael Bracho, Josh Siegel, John Gilmore, Tim Niblett, Pete Mowforth, The Turing Institute, HyperNeWS Fund Contributors, Sun Microsystems, Inc.

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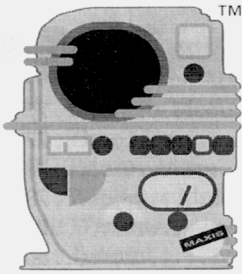
Limited Warranty

SimCity is provided "as is" without warranty of any kind. DUX warrants to the original purchaser of SimCity that the diskette will be free from defects in materials and workmanship for ninety days from the date of purchase.

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SIMCITY®

Introduction

Foreword

Enter *SimCity* and take control. Be the undisputed ruler of a sophisticated real-time City Simulation. Become the master of existing cities such as San Francisco, Tokyo, and Rio de Janeiro, or create your own dream city (or nightmare slum) from the ground up.

Whether you take over an existing city or build your own, you are the Mayor and City Planner with complete authority.

Your city is populated by *Sims* — Simulated Citizens. Like their human counterparts, they build houses, condos, churches, stores and factories. And, also like humans, they complain about things like taxes, mayors, taxes, city planners, and taxes. If they get unhappy, they move out; you collect fewer taxes, the city deteriorates.

The next few sections will explain the overall concept of *SimCity* and give information that will help you win Scenarios and design and build better cities.

About System Simulations

SimCity is the first of a new type of entertainment/educational software, called *System Simulations*. We provide you with a set of *Rules* and *Tools* that describe, create and control a system. In the case of *SimCity* the system is a city.

The challenge of playing a *System Simulation* game is to figure out how the system works and take control of it. As master of the system, you are free to use the *Tools* to create and control an unlimited number of systems (in this case, cities) within the framework and limits provided by the *Rules*.

Rules

In SimCity, the *Rules* to learn are based on city planning and management, including:

- *Human Factors*
Residential space and amenities, availability of jobs, and quality of life.
- *Economic Factors*
Land value, industrial and commercial space, unemployment, internal and external markets, electric power, taxation, and funding for city services.
- *Survival Factors*
Strategies for dealing with disasters, crime, and pollution.
- *Political Factors*
Public opinion, zoning, and keeping residents and businesses satisfied with your city and your performance.

Tools

The *Tools* provide you with the ability to plan, lay out, zone, build, bulldoze, re-zone, and manage a city.

- *Plan*
Mapping systems give physical and demographic overviews of the entire city.
- *Layout*
Design living and working areas, road and transit systems, and recreational areas.
- *Zone*
Set zoning boundaries for parks, residential, commercial and industrial areas.
- *Build*
Place roads, rails, airports, seaports, fire and police stations, sports stadiums, and power plants.
- *Bulldoze*
Clear forests for city growth, build landfill along waterways, clear and re-zone developed areas.



- *Manage*
Using the mapping and graphing systems, gather up-to-date information on traffic density, population trends, power grid status, pollution, crime, land value, police and fire department efficiency, and cash flow. Set the tax rate and funding levels for city services.

But the most important *Tool* of all is the Simulator itself. Test your plans and ideas as you watch the city grow or shrink through the immigration and emigration of industrious Simulated Citizens. Sims will move in and build homes, hospitals, churches, stores and factories in the zones you provide, or move out in search of jobs or a better life elsewhere. The success of the city is based on the quality of the city you design and manage.

Simulator Reaction Time

The simulator is a very complex multi-tasking piece of software. It is constantly performing many checks, calculations, and updates, as well as keeping watch on the mouse and keyboard to respond to your demands. When you load in a city, give the simulator some time to compile its data and update the maps, graphs, population levels, etc. Some of the other times when the simulator lags behind you are when powering zones and updating the city services map after installing police and fire stations.

The Goals of SimCity

There are many goals to be pursued and reached in SimCity.

Scenarios

Each of the eight included scenarios is actually a game in itself, with an unlimited number of ways to win — or lose.

Each Scenario is a city which is either the victim of horrible planning or about to be the victim of a natural disaster. After you load in a Scenario, you will have a limited amount of time to correct or repair the problems. If you are successful, you will be given the key to the city. If not, you may be ridden out of town on a rail.

If one strategy doesn't work, try another. There are a million stories in each city, and you write them.

Your Dream City

Perhaps the main goal of SimCity is for you to design, manage and maintain the city of your dreams.

Your ideal place to live may be a bustling megalopolis, lots of people, lots of cars, tall buildings: high-energy, high density living. Or it may be a small rural community, or a linked group of small communities providing slow-paced country living.

As long as your city can provide places for people to live, work, shop and play, it will attract residents. And as long as traffic, pollution, overcrowding, crime or taxes don't drive them away, your city will live.

Getting Started

SimCity Requirements

SimCity requires a SPARC workstation running the SunOS 4.1 operating system, with the OpenWindows 3.0 window system installed, an 8 bit deep color graphics display, a kernel with the shared memory option enabled, and at least 16 megabytes of memory. It doesn't support 1 bit deep monochrome displays, nor does it work with earlier or different window systems.

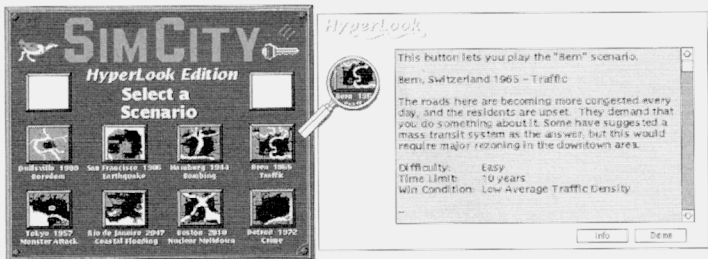
This version of SimCity was built using the HyperLook user interface design system, and is shipped with a HyperLook run time system. It includes an demonstration of HyperLook, featuring a fully functional PostScript graphics editor, that was used to draw parts of the SimCity user interface.

SimCity is copy protected, using the Elan License Manager. If you don't have a license, SimCity will run in demo mode: saving the city is disabled, and you can play for five minutes before something dreadful happens.

SimCity Features

On-Line Help

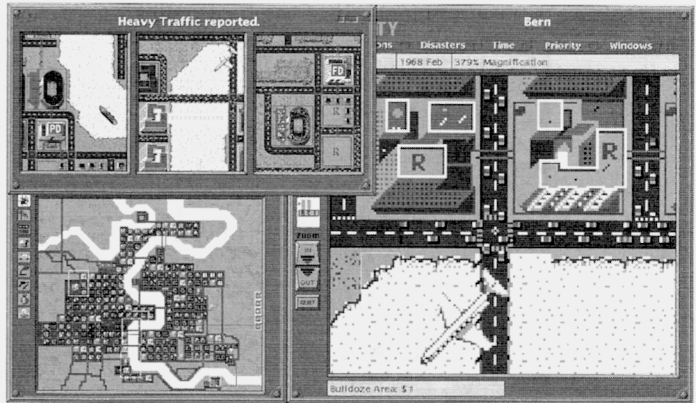
You can get help on the SimCity user interface, by pointing the mouse at anything mysterious and pressing the "Help" key. The HyperLook Help window will pop up, giving instructions and useful hints on how to use the controls.



HyperLook Help Window

Multiple Views

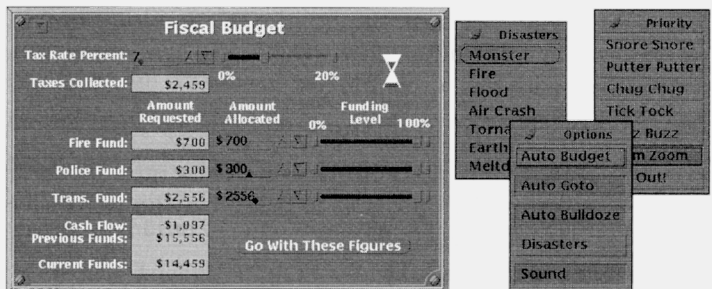
It's possible to display several animated views of the city on the screen at once. You can even zoom in and out, to magnify or shrink the graphics! The animation is slower when a view is scaled, but you can still scroll around and edit your city as usual, at any size.



Animated City Views

Open Look

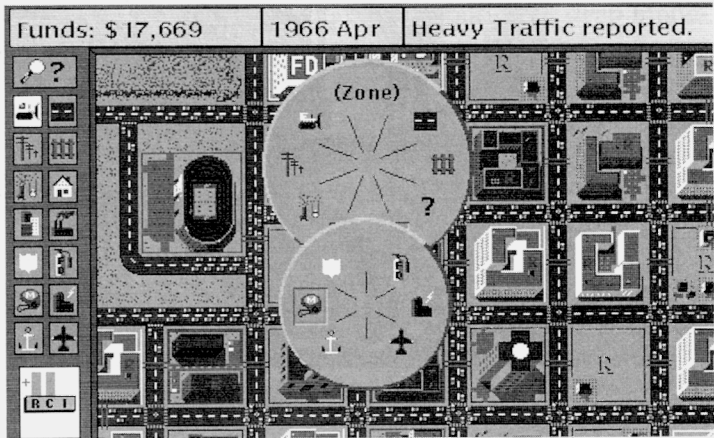
HyperLook is integrated with The NeWS Toolkit (TNT), to implement the Open Look user interface. SimCity uses Open Look buttons, menus, sliders, settings, text and numeric fields. They help to make the interface familiar and easy to use.



Open Look User Interface

Pie Menus

SimCity features pop up “*pie menus*” for selecting between city editing tools. Pie menus are circular menus with their choices in different directions, and they’re very fast and efficient to use. Since you change editing tools quite often while building a city, you can save much time and effort by using pie menus instead of the tool pallet.



Pie Menus for Selecting Tools

Sound Mixer

SimCity plays its sound effects using the HyperLook sound server, which makes real time sound effects by mixing them together and playing them immediately when needed. So you can hear the bulldozer rumbling, buildings crashing, and the monster roaring at the same time, all synchronized with the animation.

PostScript Printing

You can print your city on a color or monochrome PostScript printer. It’s possible to print the whole city on one page, or a twelve page poster.

Installing SimCity

SimCity comes on two floppy disks. It includes the HyperLook user interface runtime system, and the Elan License Manager. There is an installation script called “`InstallSimCity`” that asks you a few questions and then configures the SimCity startup scripts.

HyperLook

If you don’t already have HyperLook, you need to install the runtime system included with SimCity. Otherwise, you can use your own installed version of HyperLook 1.5.

Elan License Manager

You must run the Elan License Manager daemon and have a valid key in order to unlock SimCity. You can run the license server on the local host or another system. If you don’t have a key, SimCity will run in demo mode: you can’t save your city, and something dreadful will happen after five minutes.

Using “`extract_unbundled`”

You can automatically extract SimCity from the floppy disks and install it using the standard “`extract_unbundled`” script, usually located in “`/usr/etc/extract_unbundled`”. To extract SimCity from floppy disk, first change to a directory that you can write to, then type:

```
% /usr/etc/extract_unbundled
```

It will ask:

```
Enter media drive location [local | remote]:
```

Just type “`local`”. Next it will ask:

```
Enter Device Name (e.g. rst0, rmt0, rfd0c): /dev/r
```

Note that the “`/dev/r`” is already entered for you. Just type “`fd0`” for the floppy disk, so it says “`/dev/rfd0`”, and don’t worry about the strange example in the prompt. Then it says:

```
**Please insert the first diskette if you haven't  
done so already.**
```

Press return when ready:



Now insert the first SimCity disk, and press return. Then it will read in the installation script, tell you what you're getting into, and ask if you want to go on. Of course you do, so type "y" and press return.

Next, it will ask for the name of a directory where it should install the "simCity" directory. Then it asks if you already have HyperLook installed. If you do, type the full name of your "\$HLHOME" directory, otherwise press return, and it will ask where you want to install HyperLook. Then it makes sure there's enough disk space, and extracts the software from the floppy disks. It will prompt you to insert volume two and press return, when it's finished reading the first floppy.

Once it's all loaded in, it will automatically run the SimCity installation script, called "InstallSimCity", which lives in the "simCity" directory. That will ask for the names of the SimCity and HyperLook directories, hopefully providing reasonable defaults, that you can select by pressing return.

Next, it asks for the key directory, and you can go with the default name unless you care to store the keys somewhere else. Then, it asks for the name of a large local temporary directory, defaulting to "/tmp", which you should only change if your "/tmp" is too small (SimCity will complain if it is). Lastly, it asks for the host name of the license server, defaulting to the local host. If you want to run the license server on another host, give its name here.

Now the "InstallSimCity" script will put the appropriate environment variable settings into several shell scripts and install them in the top level "simCity" directory. You can run SimCity by typing "simCity", or double clicking on the "simCity" icon in the file manager.

You can always run the "InstallSimCity" script again to reconfigure the shell scripts, if you make a mistake or change your mind about the setup. Note that your environment variables will override the values configured into the shell scripts, so look at the scripts and check your environment if there are any problems.

Shell Scripts Created by InstallSimCity

Once you have run "InstallSimCity", the following shell scripts are created in the top level "SimCity" directory. You can install them wherever you want, and run them from the shell or the file manager:

- **GetKey**
Display your server code and prompt for a key. You must contact DUX Software to get a key. (Don't run this from the file manager, since it prompts for input.)
- **SimCity**
Start up SimCity normally, giving a choice of playing a scenario, generating a new city, or loading a city.
- **SimCity.GenerateCity**
Start up SimCity by letting you generate terrain for a new city.
- **SimCity.NewCity**
Like **SimCity.GenerateCity**, but automatically generates the terrain and starts the game.
- **Scenario.Bern**
Bern, Switzerland 1965 — Traffic.
- **Scenario.Boston**
Boston, MA 2010 — Nuclear Meltdown.
- **Scenario.Detroit**
Detroit, MI 1972 — Crime.
- **Scenario.Dullsville**
Dullsville, USA 1920 — Boredom.
- **Scenario.Hamburg**
Hamburg, Germany 1944 — Fire.
- **Scenario.Rio_de_Janeiro**
Rio de Janeiro, Brazil 2047 — Flood.
- **Scenario.San_Francisco**
San Francisco, CA 1906 — 8.0 Earthquake.
- **Scenario.Tokyo**
Tokyo, Japan 1957 — Monster Attack.

Tutorial — A Walk Through Your City

Starting Up

To start up SimCity, go to the SimCity directory and run the shell script named "simCity". The computer will chug for a while as HyperLook and SimCity are loaded. You'll know things are going well when you see the *Introduction Screen*.

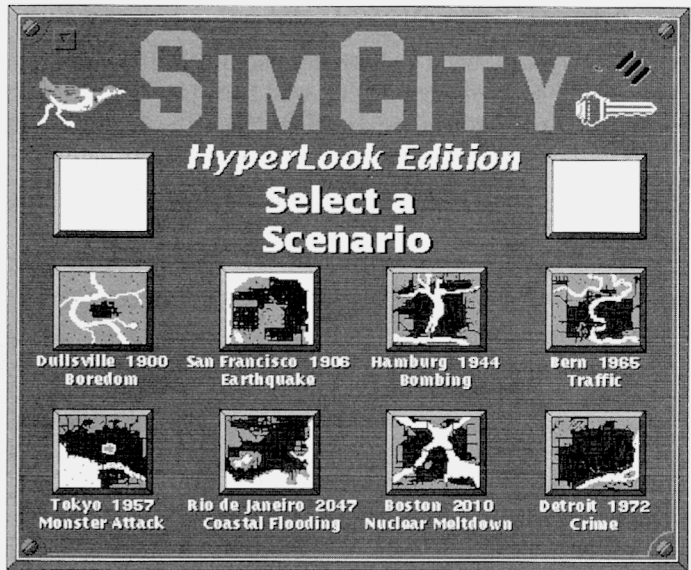


The Introduction Screen

Once SimCity is loaded, the *Introduction Screen* will go away and be replaced by a *Welcome Notice*, and a *Startup Window* with a bunch of buttons for cities and scenarios.

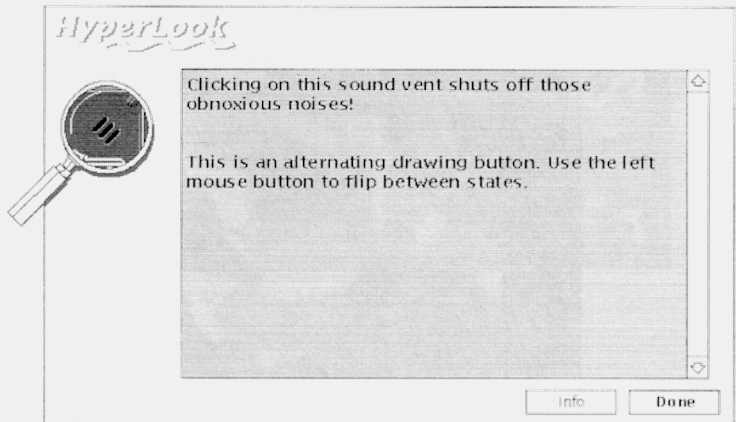


The Welcome Notice



The Startup Window

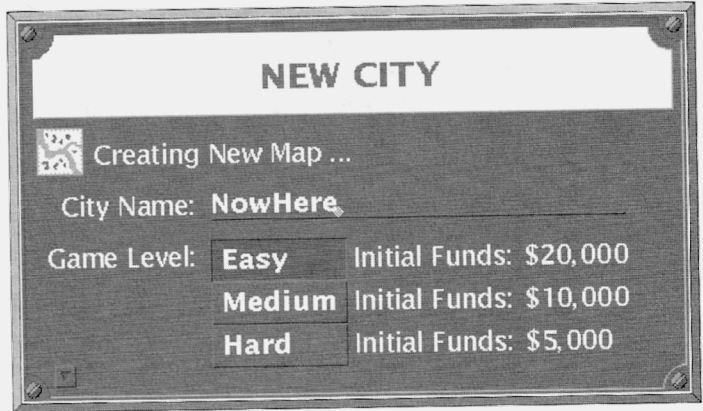
In case you wonder about any of the buttons or graphics, you can get help on anything by pointing at it and pressing the "Help" key. So try pressing "Help" over the weird little grill in the upper right corner of the *Startup Window*. This brings up the HyperLook *Help* stack. Click on "Done" to dismiss it.



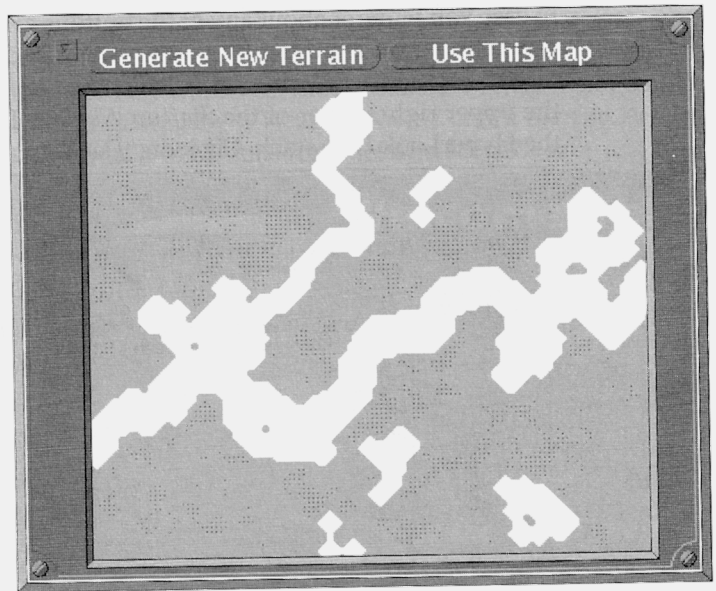
The Help Stack

Generating a New City

Now click the left mouse button on the “*New City*” button. The *Welcome Notice* will turn into a control panel for setting up a *New City*, and the *Startup Screen* will turn into a *Terrain Generator* with a map and some buttons.



The New City Panel



The Terrain Generator

City Name

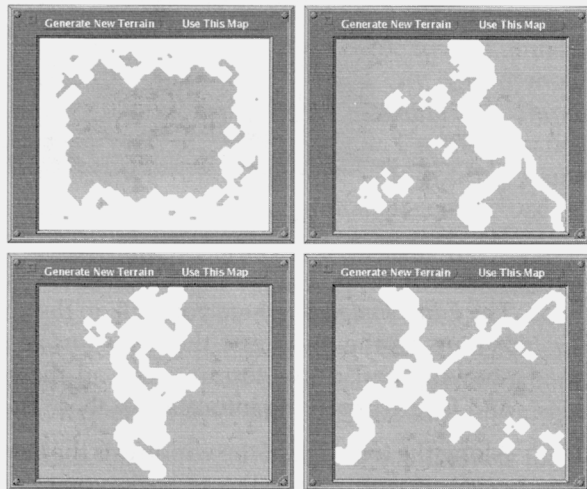
You can set the name of your city by clicking the left button on the "City Name" text field, and typing the name. The delete key erases the last character, and Control-U erases to the beginning of the line. You can double or triple click on the name to select it, and it will be deleted when you type a new name.

Game Level

The three exclusive settings let you select the *Game Level*. Choose "Easy" for now, by clicking the left mouse button. If you're just starting out, you can certainly use the extra money!

Generate New Terrain

If you're not satisfied with the terrain map you see, just press "Generate New Terrain", and you will get a new map. You can do this as many times as you like, until you get a nice map.



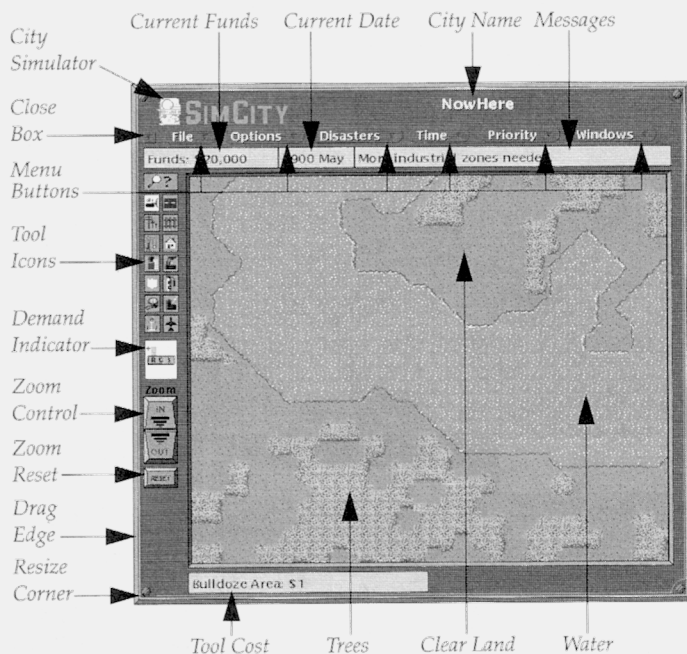
Randomly Generated Terrain Maps

Use This Map

When you are happy with the terrain map, press the "Use This Map" button, and the game will begin!

The Edit Window

You're now playing SimCity! The *Edit Window*, which is the main window used for controlling SimCity, will be displayed:



The Edit Window

The *Edit Window* is where you will do the actual building and zoning. In the middle of the *Edit Window* is a detailed map showing part of the terrain. Around the edges are controls and fields displaying information about the city.

Along the top edge of the window is the *City Name*, where the name of your city or the scenario you selected is displayed. Clicking on it brings the window to the front.

In the upper left corner is a picture of the *City Simulator*, from Maxis. If you click on that, the *Introduction Screen* will be displayed to show the credits, version, and copyrights. Click on the *Introduction Screen* to dismiss it.

On the left edge, below the *City Simulator*, is a *Close Box*. Clicking the left button on the *Close Box* closes the *Edit Window* into a small icon, a miniature version of the window. Thanks to the way HyperLook is designed, when a window is iconified, it continues to animate. You can double click on an icon to open it back up to a full sized window.

There is a row of *Menu Buttons* below the title, to the right of the *Close Box*. Pressing the right mouse button down over any of these buttons pops up a menu, from which you can select using the right mouse button. Clicking the left mouse button over a *Menu Button* selects the menu's default item, without displaying the menu. The default menu item has a black ring or rectangle around it. You can set the default by pressing the *Control* key when the menu is up.

There are three fields below the *Menu Buttons*, that display your *Current Funds* (in dollars), the *Current Date* (the year and month), and important *Messages* (one at a time). Clicking on them just brings the window to the front.

Along the left edge of the window are two columns of colorful *Tool Icons*, used for choosing the city editing mode. Click the mouse over an icon to select an editing tool. The currently selected tool is highlighted in yellow. The *Tool Cost* field along the bottom edge of the window tells you the name of the selected tool, and how many dollars it costs to use.

You can use the selected tool by pressing the left mouse button over the map in the middle of the *Edit Window*. Also, you can pop up a *Pie Menu* to quickly switch between editing tools, by clicking the right mouse button over the map. You can easily scroll the map by pressing the middle mouse button down over the map and dragging the view around.

The *Demand Indicator* shows the demand levels for Residential (green), Commercial (blue), and Industrial zones (yellow), and can be helpful in planning your city.

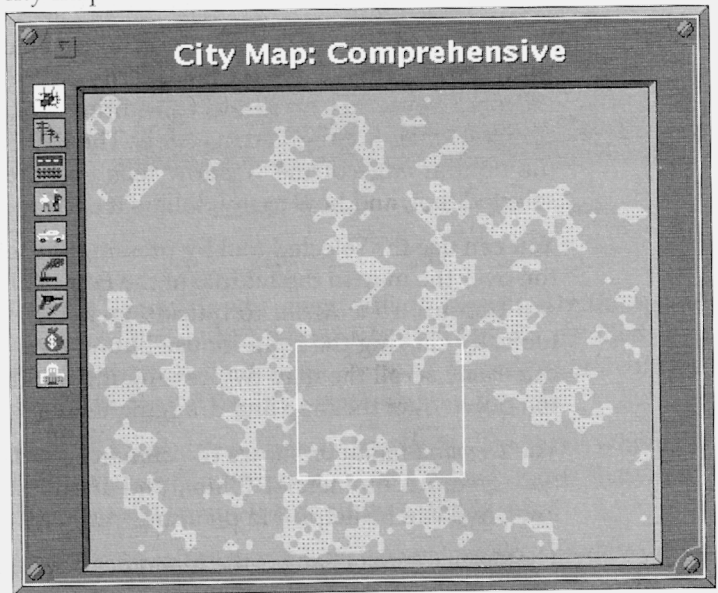
The *Zoom Control* changes the magnification of the map. You can zoom in or out to make the graphics larger or smaller, or press the *Zoom Reset* button to zoom back to normal. The animation is fastest at the normal size.

All of the SimCity windows have *Drag Edges* with which you can move the window around, and *Resize Corners* to change the size of the window. Some windows cannot be resized, so the resize corners just move them around. To use them, press *the left mouse button down over the corner or edge*, and move the outline to where you want it. The window will move or resize to that location, when you release the button.

The main portion of the map is land. Your available land is made up of three types of terrain. The brown areas are *Clear Land*, the green areas are forests and *Trees*, and the blue areas are *Water*. You can build only on *Clear Land*. You can clear forest and extend coastlines with your bulldozer. You can run roads, rails, and power lines straight across the *Water*.

The Map Window

The other window that's shown when you start the game is the *Map Window*, which displays an overview of your entire city map:



The Map Window

You can see different demographic views of the city, chosen by the icons on the left. The type of map is shown along the top edge of the window, to the right of the *Close Box*.

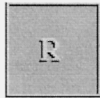
There is a yellow rectangle in the *Map Window* that shows the location of the detailed city view. (There may be more than one yellow rectangles, if multiple views are visible.) Press the mouse button down over the yellow rectangle, and drag it around the map, to scroll the view.

Building a City

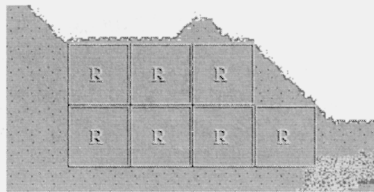
To begin a city, we need: places for Sims to live, places for Sims to work, and power.



You can only build on *Clear Land*, so use the *Bulldozer* to clear away some trees. Click the left mouse button on the *Bulldozer Icon*. Move the cursor over to land. It now points to a small square, outlining the area that will be bulldozed when you click the left button. The *Trees* under your pointer are now *Clear Land*. Now, hold the left button down and drag the pointer across the *Trees*. Mass destruction. Clear a large area of land to prepare for building.

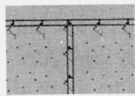
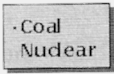


Click the *Residential Icon*, then move back to your terrain. Your cursor will now point to a large square outline. This outline indicates how much clear space you will need to create a *Residential Zone* — a place for Sims to live. Clicking the left mouse button in *Clear Land* will “zone” that area. The “R” in the zone center indicates that it is a *Residential Zone*. The flashing lightning symbol means that the zone has no power. Place a few more *Residential Zones* next to the first one¹.



Several New Residential Zones

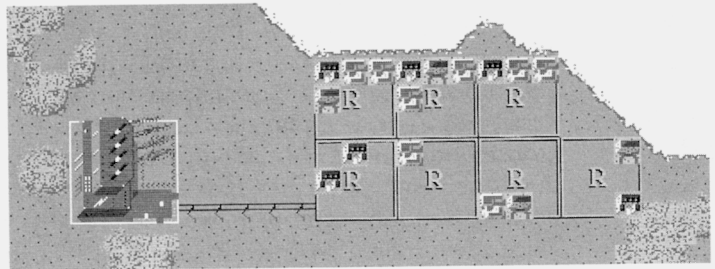
1. If you have trouble placing a zone, make sure it is on *Clear Land*. You cannot zone over *Trees*, unless you have *Auto Bulldoze* activated.



Now decide where to position a *Power Plant* in your city. Point to the *Power Plant Icon*, and press and hold the left mouse button. A menu will appear, giving you the option of choosing a *Coal* or *Nuclear* plant. For now, release the button over “*Coal*”. The outline for a *Power Plant* is even larger than for a *Residential Zone*. Place the *Power Plant* in some open space near your *Residential Zones*. If your *Power Plant* is not directly adjacent to a *Residential Zone*, you’ll need to run a *Power Line* from your *Power Plant* to the *Residential Zones*.

To do this, click the left mouse button over the *Power Line Icon*. By pointing your cursor and pressing the button, lay *Power Lines* from your *Power Plant* to your *Residential Zones*. Adjacent *Power Line* sections will automatically connect to each other. *Road* and *Rail* lines connect in the same manner.

In a moment, the flashing symbols in the *Residential Zones* will disappear, indicating that your zones have been powered¹. Any zones that are adjacent to a powered zone do not need separate *Power Lines* run to them. Soon you will see small houses start to appear². The Sims have started to move in!

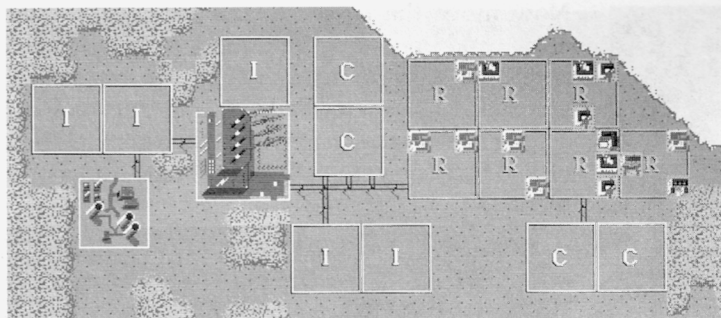


Here Comes the Neighborhood!

Once there are a few *Residential Zones*, where Sims can live, you need to make it possible for your new residents to find jobs. They can’t all work at the power plant!

1. There is a delay between the time you connect power to a zone and the time the flashing lightning symbol disappears. This delay gets longer as your city gets larger.

2. When you zone land, you designate where building is allowed. It is the Sims who actually build.



Residential, Commercial, and Industrial Zones



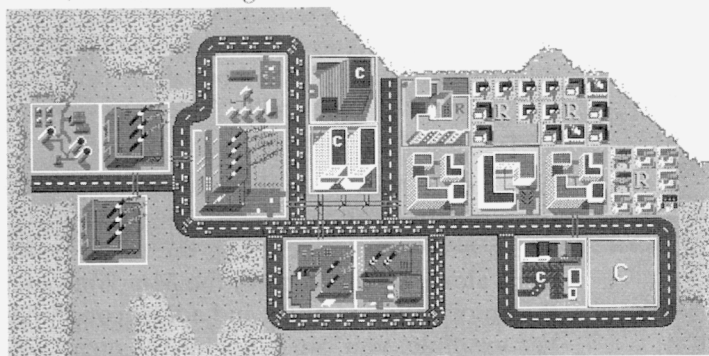
Now you're ready for *Commercial* and *Industrial* areas; places for Sims to work, shop, and transact business. Select the *Commercial Icon* and place a few *Commercial Zones* near your *Residential* ones. Then select the *Industrial Icon* and place some *Industrial Zones*. Connect all necessary *Power Lines*.



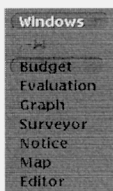
Notice that as you select different *Tool Icons*, the icon's description and its associated cost will be displayed in the *Tool Cost* field near the lower left corner of the *Edit Window*. The *Current Funds* field near the top of the window displays your total funds available.



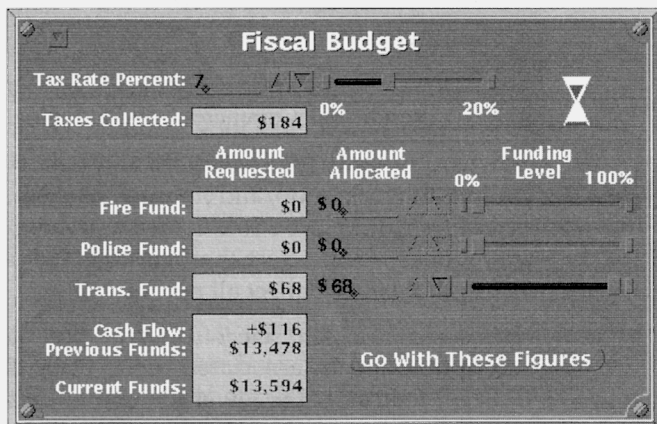
Now click the left button on the *Road Icon* and add *Roads* from your *Residential* housing to the *Commercial* and *Industrial* areas to allow the Sims to commute to work. *Road* sections connect themselves like *Power Line* sections. Once you have *Roads*, traffic will be generated.



Roads with Traffic



Now move the cursor to the *Menu Button* labelled “Windows”, and press the right mouse button down. The *Windows Menu* will pop up below the cursor. Drag the cursor to the menu item labelled “Budget”, and release the right button. This brings up the *Budget Window*, which lets you set the level of funding for your fire, police, and transportation departments.

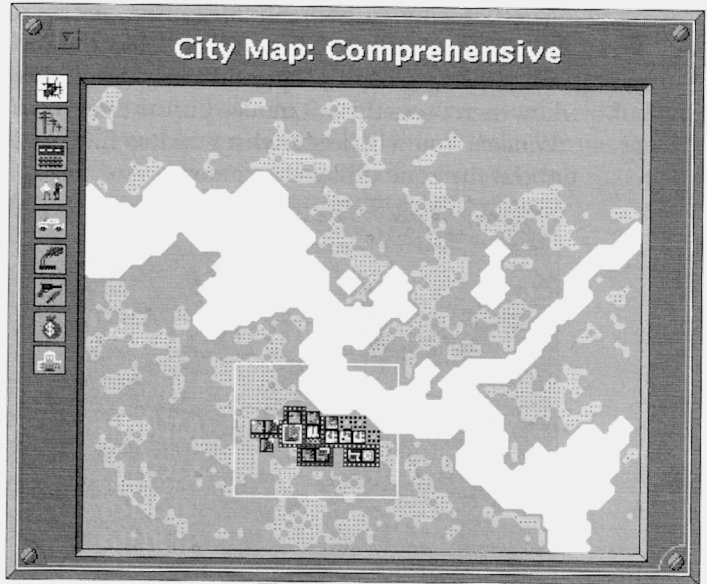


The Budget Window

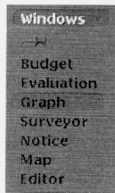
Click the left mouse button on the up and down arrows, or drag the sliders to change the funding levels. You can also adjust the current tax rate. If you have no police or fire departments, you can't fund them. You cannot fund more than 100%. Since your city is so new, you can't do much here now, but come back later. Click the left mouse button on the “Go With These Figures” button to make the window go away when you're done. If the hour glass runs out, the window will go away automatically. You can click on the hourglass to keep that from happening.

Now look at the *Map Window*. You can get an idea of the size of your city, and how much room you have left. Try the different map views by clicking the left mouse button on the icons along the left edge of the *Map Window*. You will need this information to build and adjust conditions in your city. For example, you can pinpoint the areas with the highest crime to determine locations for new police stations.

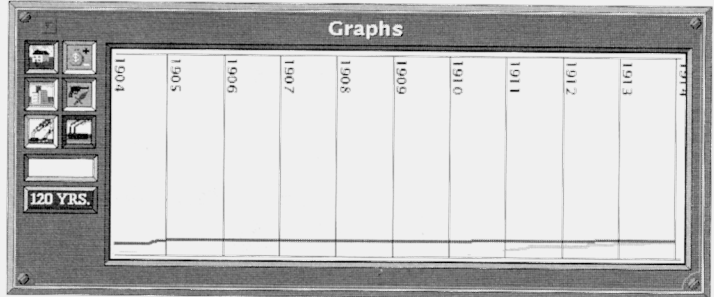




The Map Window

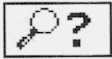


Additional information can be gained through the available *Graphs*. Unlike the *Maps*, which only show the current state of your city, the *Graphs* give you a record of the past so you can gauge trends and cycles. You can display the *Graph Window* by selecting the item labelled "*Graph*" from the *Window Menu*.

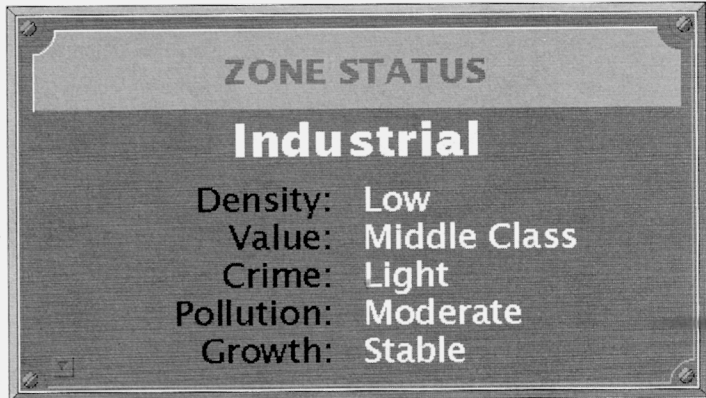


The Graph Window

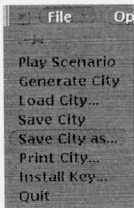
You can toggle the various graph displays on and off, and switch between 10 year and 120 year graphs, by clicking on the icons at the left of the *Graph Window*.



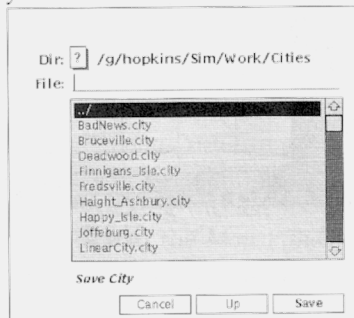
Another way to gather information about your city is by using the *Query Tool*. To use this, select the *Tool Icon* with the magnifying glass and question mark, or hold down the “Q” key, then press the left mouse button over the map in the *Edit Window*. You will be shown a window filled with information about the zone under the cursor.



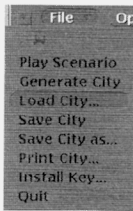
The Zone Status Window



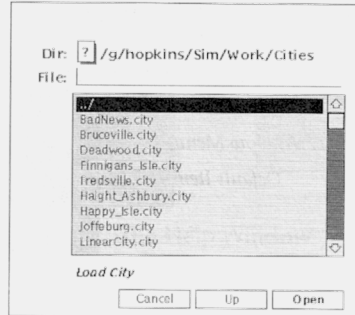
Now, let's *Save* the city to disk. Use the *File Menu* to select “*Save City as...*”. You'll see the *Save File* dialog. Near the top of the window is a text field labelled “*File:*”. You can select a directory by typing its name into the text field, or by double clicking in the scrolling list. Then you can type in a name for your city, ending with the “.city” extension, and press return. Your city will be saved to disk, so you can load it later to get back to where you are now.



Save File Dialog

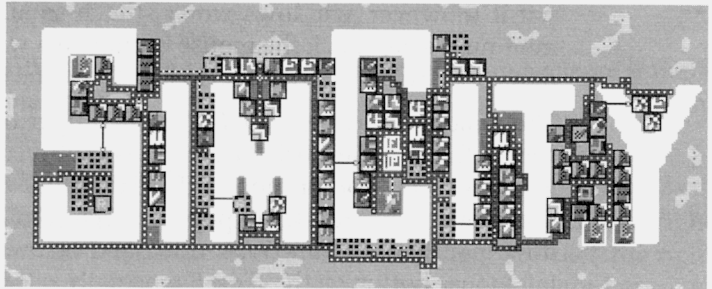


To load a city, use the *File Menu* and select the item labelled “Load City...”. The *Open File* dialog looks and works almost like the *Save File* dialog. It will start out in a directory named “Cities”, which contains some interesting cities included with SimCity. You can load and play any of them, or navigate to the directory where you saved your city, and load that again.



Open File Dialog

This is all the basic information you need to run SimCity, but we suggest reading on. The *User Reference* section explains in detail how to use each program function. *Inside SimCity* explains the inner workings of the simulator, and gives some brief hints and tips for using it. There is also an essay on *The History of Cities and City Planning*, and a *Bibliography* for serious City Planners.



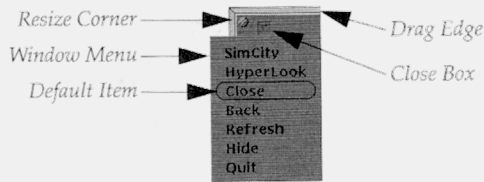
Have Fun Playing SimCity!

User Reference

Controlling SimCity

Managing Windows

A big part of controlling SimCity is controlling its windows. You can select which windows are displayed. Windows can be moved around the screen. They can be brought to the front, hidden, or closed into small icons.



The Close Box Menu

To move a SimCity window around, just press the mouse button down on its *Drag Edge*, the thick beveled border, and drag the outline to where you want it. When you release the button, the window will move there.

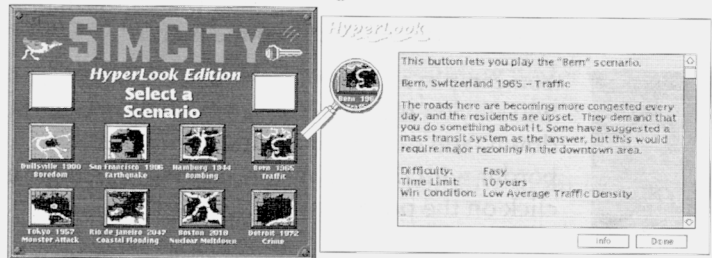
Some windows can be resized, by pressing the mouse button down on the *Resize Corner*, and dragging the outline to where you want it. The opposite corner will stay in the same place, and the window will stretch so the corner is where you've put it (however, windows won't stretch smaller than their minimum size). Click the mouse button on a window's *Drag Edge*, *Resize Corner*, or its title, to bring it to the top.

The windows have a *Close Box* in the upper or lower right corner, that you can click the left mouse button on to close the window to an icon or hide it. Press the right mouse button down over the *Close Box* to pop up a *Close Box Menu* of window management functions, described below. Clicking the left mouse button on the *Close Box* actually selects the menu's *Default Item*, which is "Close" or "Hide" as appropriate.

You can press the "Front" key to bring the window under the cursor to the front, or to push it to the back if it's already in front. The "Open" key closes a window to an icon or opens an icon to a window. Double clicking on an icon also opens it.

Getting Help

If you wonder about a control or graphic in SimCity, you can point at it with the cursor, and press the “Help” key, to bring up a help window describing it.



The Help Window

The magnifying glass in the help window shows an image of the screen where you pressed the “Help” key. You can scroll the help text with the scroll bar if there is more than one page. Press the “Done” button to get rid of the help window, or the “Info” button to find out more about HyperLook¹.

Using the Mouse

In SimCity, you will primarily use the left mouse button. The main function of the right mouse button is to select from menus. The middle button is used to scroll the view in the *Edit Window*. But in most places, the right and middle buttons do the same thing as the left button.

Clicking a mouse button means to press and release it without moving. Dragging means to press and hold the button, move the mouse, then release.

Open Look Menus

To bring up an Open Look menu, press and hold the right mouse button down over a menu button. (Or click the right button without moving.) Drag over to the menu item you want to select, then release the button (or click it again).

1. The HyperLook system includes many demos, including the structured PostScript graphics editor used to create the graphics in SimCity and this manual. Press “Info” to find out about how to use HyperLook!

When an Open Look menu is popped up, you can set the *Default Item* to the currently highlighted item, by pressing and releasing the *Control* key. The default item is has a black ring or a rectangle around it. Pressing the left mouse button on a *Menu Button* will select the associated menu's *Default Item*, without popping up the menu.

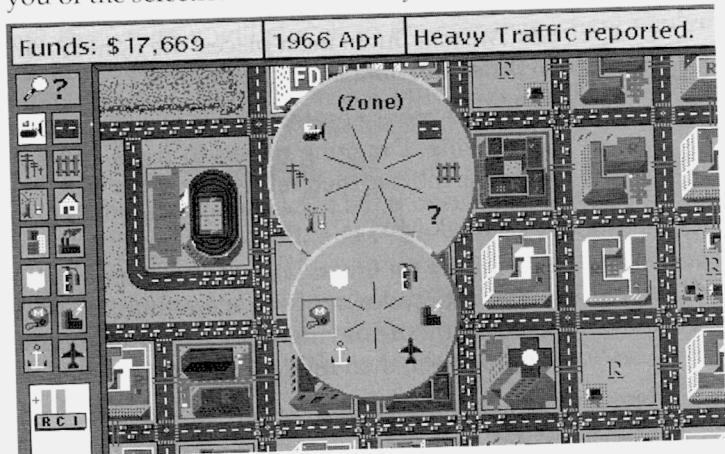


You can pin an Open Look menu by selecting its push-pin. It will stay on the screen, and you can use it without it popping down. You can move a pinned menu around by dragging its border with the left button. To get rid of a pinned menu, just click on the push-pin.

Pie Menus

Pie menus are designed to be very fast and efficient to use. You can pop up a pie menu by clicking the right button, then select from it by moving in the direction of the item you want, and clicking again.

Once you are familiar with the directions, you can use pie menus very quickly by pressing the right button down, moving in the direction you want, and releasing. If you do this without stopping, the menu will not even display on the screen — you will just see the menu label flash up to remind you of the selection. See how fast you can get!



Pie Menus for Selecting Tools

Using the Keyboard

There are several keyboard shortcuts in SimCity¹. Keep the keyboard reference chart handy.

The following keys work with any SimCity window, the same as they work with the other windows on the desktop:

- The “*Front*” key (L5) brings the window under the cursor to the front, or pushes it to the back, if it’s already in front.
- The “*Open*” key (L7) closes a window to an icon, or opens an icon to a window.

The following keys are only applicable when the cursor is in the *Edit Window*:

- The “*Esc*” key silences any sound that is playing.
- The *Arrow Keys* on the numeric keypad (R8, R10, R12, and R14) scroll the view by three tiles.
- The “*X*” key changes to the next editing tool in the *Tool Icon* pallet, wrapping around from *Airport* to *Query*.
- The “*Z*” key changes to the previous editing tool, wrapping around from *Query* to *Airport*.

The following keys temporarily switch editing tools, while you are holding them down. When you release the key, the tool changes back to what it was before:

- “*B*” temporarily selects *Bulldozer*.
- “*R*” temporarily selects *Roads*.
- “*P*” temporarily selects *Power Lines*.
- “*T*” temporarily selects *Train Tracks*.
- “*Q*” temporarily selects *Query*.

1. Keep the “*Num Lock*” and the “*Caps Lock*” keys off! You may have troubles if you use “*click to type*”. If so, turn it off by running the “*Workspace Properties*” utility, selecting the “*Miscellaneous*” category, and switching the “*Set Input Area*” setting to “*Move Pointer*”.

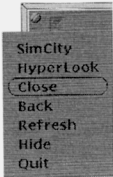
Menus

This section explains the SimCity menus in detail.



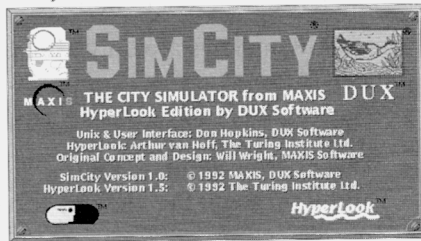
The Editor Window Menu Buttons

Close Box Menu



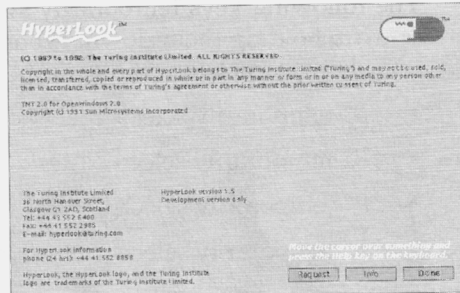
Every SimCity window has a *Close Box* with an associated menu, for window management commands.

- *SimCity* — Display fascinating and vital information about SimCity, DUX, and Maxis.



The SimCity Introduction Screen

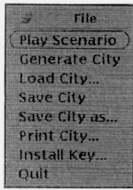
- *HyperLook* — Display witty and profound details about HyperLook, the user interface system from The Turing Institute that supports SimCity.



The HyperLook Introduction Stack

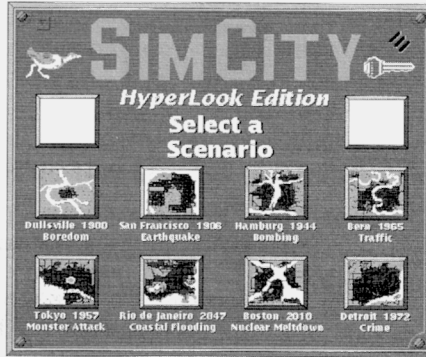
- *Close* — Close the window to an icon.
- *Back* — Bury the window underneath other windows.
- *Refresh* — Redisplay the graphics in the window.
- *Quit* — Exit SimCity. Asks for confirmation, first.

File Menu



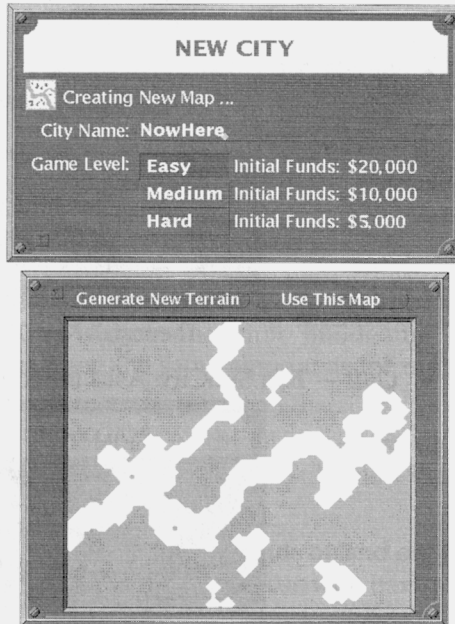
The *File Menu* lets you start new games, read and write cities to disk, and other unclassifiable stuff like that.

- *Play Scenario* — Select a scenario to play.



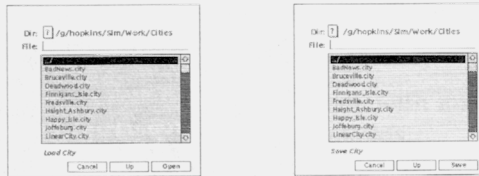
The Start Scenario Screen

- *Generate City* — Start a new city with fresh terrain.



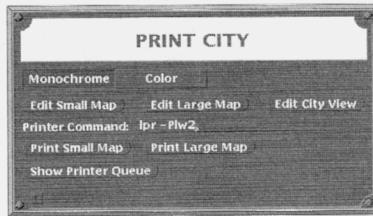
The Terrain Generator

- *Load City...* — Read a city from a file.
- *Save City* — Write the city to a file.
- *Save City as...* — Save the city with a new name.



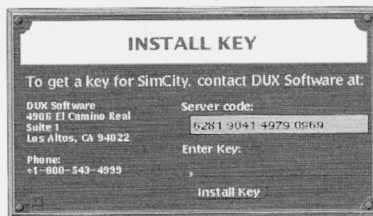
The Load and Save File Dialogs

- *Print City* — Print the city on a PostScript printer.



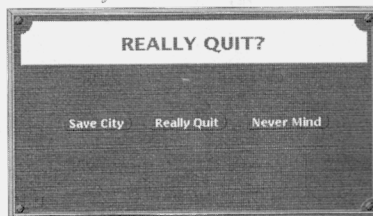
The Print City Dialog

- *Install Key* — Get a license key. Cure for demo mode!



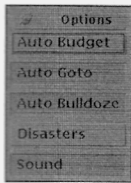
The Install Key Dialog

- *Quit* — Exit SimCity. Asks for confirmation, first.



The Really Quit Dialog

Options Menu



The *Options Menu* contains nonexclusive settings, any of which you may toggle on or off by selecting.

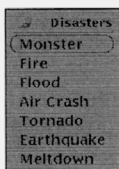
- *Auto Budget* — Keeps your budget at the same level (or fully funded) without asking for approval every year. If there isn't enough money to meet the budget, then funds will be allocated first to the Transit system, then to the Fire Department, then to the Police. If your city runs out of money, the budget window comes up at the end of the year anyway, and *Auto Budget* is turned off.
- *Auto Goto* — Automatically brings up the *Surveyor Window*, showing another view of the scene of disasters and events.



The Surveyor Window

- *Auto Bulldoze* — Allows you to place zones, roadways, etc., directly on top of trees, shoreline, power lines, and rubble, without manually bulldozing first. You will be charged the same amount as for manual bulldozing.
- *Disasters* — Enables or disables random disasters. If disasters are disabled, you can still select them manually from the *Disasters Menu*.
- *Sound* — Toggles the city sounds on and off. Preserves the sanity and good will of those who have to work in the same room.

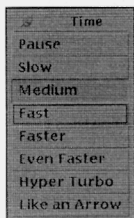
Disasters Menu



The *Disasters Menu* allows you to set natural (and unnatural) disasters loose on your city. Use these disasters to test your ability to deal with emergencies in your city or just to release some aggression. More information on disasters, their causes, and dealing with them is presented later.

- *Monster* — Sets a monster loose on your city.
- *Fire* — Starts a fire somewhere on the map.
- *Flood* — Causes a flood to occur near the water.
- *Air Crash* — Causes a plane to crash. If there are no planes in the air, one will be generated.
- *Tornado* — Causes a tornado to appear somewhere on the map.
- *Earthquake* — Causes a *MAJOR* earthquake.
- *Meltdown* — If there's a nuclear power plant, this spills Irr-Bru in the control room, causing a meltdown.

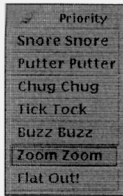
Time Menu



The *Time Menu* contains exclusive settings that control the speed that time passes in the simulation. The faster time passes, the less frequently the screen updates.

- *Pause* — Stops the passage of time entirely.
- *Slow* — Months pass slowly, with smooth animation.
- *Medium* — Months pass by, with smooth animation.
- *Fast* — Months pass fast, with smooth animation.
- *Faster* — Months pass faster, and animation updates every other pass through the simulator.
- *Even Faster* — Simulates several times per update.
- *Hyper Turbo* — Simulates many times per update, and months pass very quickly.
- *Like an Arrow* — Only animates occasionally, and time flies like an arrow! (But don't ask what fruit flies like.)

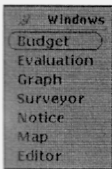
Priority Menu



The *Priority Menu* contains exclusive settings that control what percentage of the CPU time SimCity sucks down.

- *Snore Snore* — SimCity sleeps a long time (about a second) between passes through the simulator.
- *Putter Putter* — The simulator bops along slowly (half second pauses), leaving plenty of time for other processes to run.
- *Chug Chug* — SimCity takes quarter second pauses between simulating.
- *Tick Tock* — At this priority, we're simulating several times a second.
- *Buzz Buzz* — SimCity flies along like a bumble bee, simulating many times a second.
- *Zoom Zoom* — Only a small fraction of a second sleep between simulations, just to be polite.
- *Flat Out!* — SimCity hogs as much of the CPU as it can get, without ever sleeping!

Windows Menu

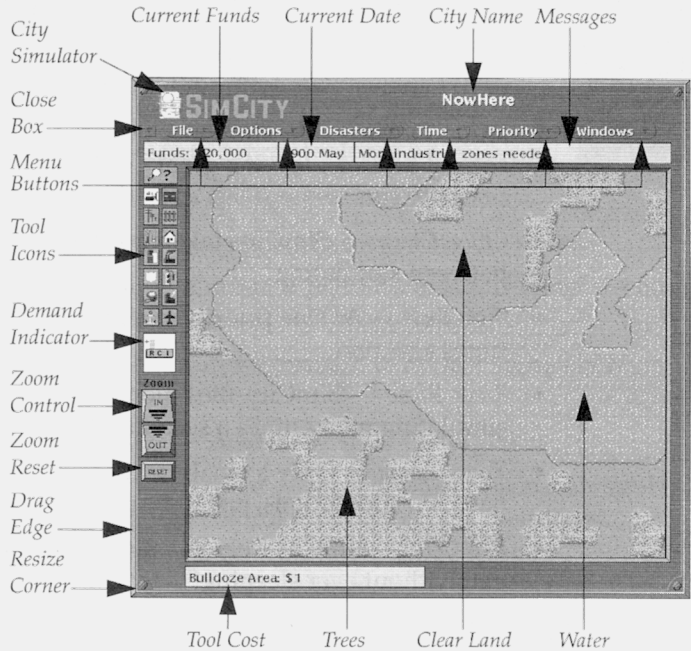


The *Windows Menu* opens up the various SimCity windows, bringing them to the front.

- *Budget* — Open the *Budget Window*. The simulation is paused as long as the budget window is open.
- *Evaluation* — Open the *Evaluation Window*.
- *Graph* — Open the *Graph Window*.
- *Surveyor* — Open the *Surveyor Window*, with multiple scrolling views of the city.
- *Notice* — Open the *Notice Window*, which displays timely information and control panels.
- *Map* — Opens the *Map Window*.
- *Editor* — Opens the *Edit Window*.

Edit Window

This is where all actual zoning and building takes place.



The Edit Window

Terrain

There are three types of terrain in the *Edit Window*: *Open Land*, *Trees*, and *Water*.

Open Land is where you can zone and build. It is shown as brown with dark brown speckles.

Trees and *Forests* are shown as green, with dark green speckles. You cannot zone or build on trees. You may bulldoze trees and forests to turn them into clear land. While some bulldozing is necessary, clearing away too much green area will result in lower property values.

Water is shown as blue, with dark blue speckles. You cannot zone or build on water. You must bulldoze coastlines to create landfills before you can build or zone there.

Edit Window Gadgets

The *Edit Window* is where you will do the actual building and zoning. In the middle of the *Edit Window* is a detailed map showing part of the terrain. Around the edges are controls and fields displaying information about the city.

In the upper left corner is a picture of the *City Simulator*, from Maxis. If you click on that, the *Introduction Screen* will be displayed to show the credits, version, and copyrights. Click on the *Introduction Screen* to dismiss it.

There is a row of *Menu Buttons* below the title. You can read how to use *Open Look Menus* on page 26, and read a detailed description of each of the *Menus* on page 29.

There are three fields below the *Menu Buttons*, that display your *Current Funds* (in dollars), the *Current Date* (the year and month), and important *Messages* (one at a time). Clicking on them just brings the window to the front.

Along the left edge of the window are two columns of colorful *Tool Icons*, used for choosing the city editing mode. Click the mouse over an icon to select an editing tool. The currently selected tool is highlighted in yellow. The *Tool Cost* field along the bottom edge of the window tells you the name of the selected tool, and how many dollars it costs to use.

You can use the selected tool by pressing the left mouse button over the map in the middle of the *Edit Window*. Also, you can pop up a *Pie Menu* to quickly switch between editing tools, by clicking the right mouse button over the map. You can read how to use *Pie Menus* on page 27.

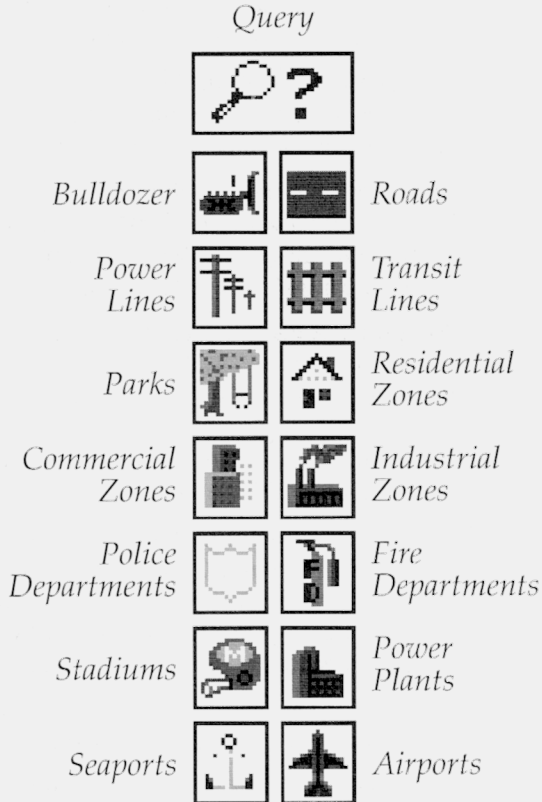
You can easily scroll the map by pressing the middle mouse button down over the map and dragging the view around.

The *Demand Indicator* shows the demand levels for Residential (green), Commercial (blue), and Industrial zones (yellow), and can be helpful in planning your city.

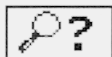
The *Zoom Control* changes the magnification of the map. You can zoom in or out to make the graphics larger or smaller, or press the *Zoom Reset* button to zoom back to normal. The animation is fastest at the normal size.

Edit Window Icons

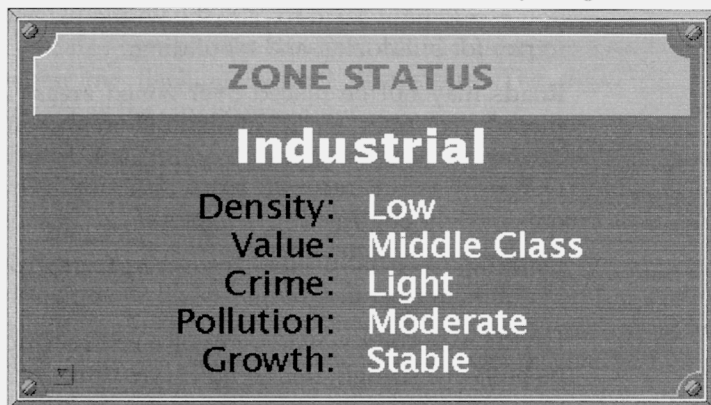
You can select an icon from the *Tool Icon* pallet to use a city editing tool. When an icon is selected, a rectangle will accompany the cursor when it's over the map, to indicate the area the tool will affect.



The Edit Tool Icons



Query shows the *Zone Status Window*, describing the population density, value, crime rate, pollution, and growth rate of the zone under the cursor. It doesn't cost anything to use.

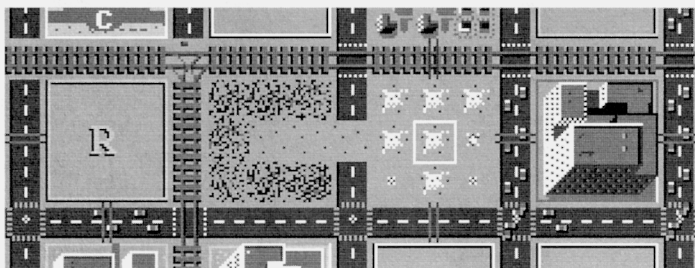


The Zone Status Window



Bulldozer clears trees and forests, creates landfill along the water, and levels developed, existing zones¹ and clears rubble caused by disasters. The *Auto Bulldoze* option works on natural terrain, power lines and rubble, but not on zones, roads and rails.

It costs \$1 for each square tile bulldozed. Knocking down a 3x3 zone costs \$9 since it's made up of nine tiles. You're automatically charged \$1 for each non-empty tile that you *Auto Bulldoze*.



Bulldozing Zones

1. Bulldozing the center of a zone will destroy the whole zone.



Roads connect developed areas. Intersections and turns are automatically created. Lay continuous roads by pressing the left mouse button and dragging your cursor. Be careful — if you accidentally lay a road in the wrong place you will have to pay for bulldozing and rebuilding.

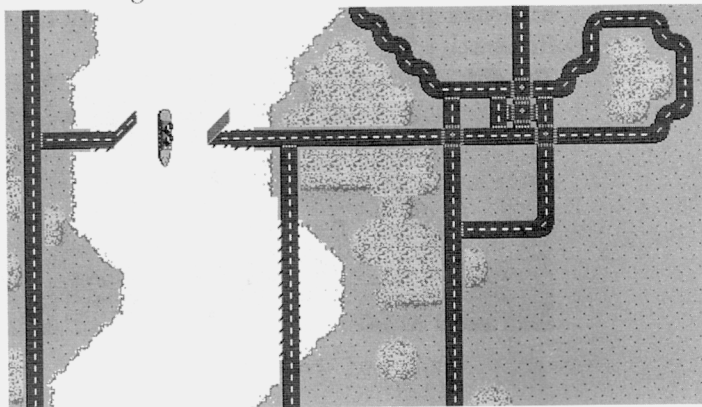
Roads may not be placed over zoned areas. They may be placed over trees, shrubbery, and shoreline only after bulldozing or activating the *Auto Bulldoze* function from the *Options Menu*. Roads can cross over power lines and rails only at right angles.

Holding down the *Control* key while laying roads will constrain them to a straight line.

Laying roads across water creates a bridge. Bridges can only be built in a straight line — no curves, turns or intersections. Shorelines must be bulldozed prior to building a bridge, unless the *Auto Bulldoze* function from the *Options Menu* is active.

Roadways are maintained by the transit budget, and wear out if there is a lack of funding. The amount of yearly funding requested by the transportation department is \$1 for each section of road, \$4 for each section of bridge.

It costs \$10 to lay one section of road and \$50 to lay one section of bridge.



Roads and Bridges



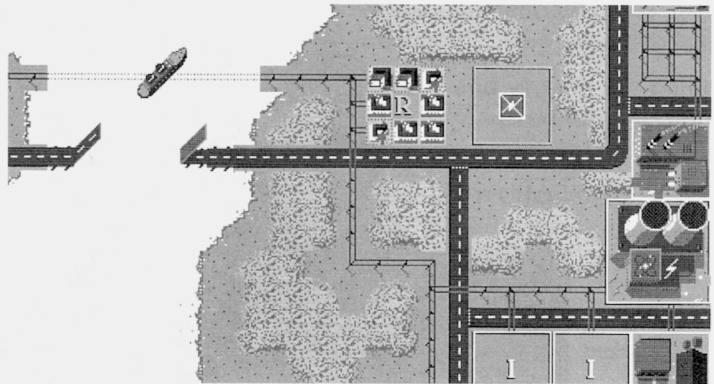
Power Lines carry power from power plants to zoned land and between zones. All developed land needs power to function. Power is conducted through adjacent zones. Unpowered zones display the flashing lightning bolt symbol. There is a delay between the time you connect power to a zone and when the flashing symbol disappears. The delay grows longer as the city grows larger.

Power lines cannot cross zoned land. They can be built over trees, shrubbery, and shoreline only after bulldozing, or activating the *Auto Bulldoze* function from the *Options Menu*.

Junctions and corners are automatically created. Lay continuous power lines by pressing the left mouse button down and dragging your cursor. Power lines across water must be horizontal or vertical — no turn, curves or intersections. Power lines consume some power due to transmission inefficiencies.

Holding down the *Control* key while laying power lines will constrain them to a straight line.

It costs \$5 to lay one section of power line on land, \$25 on water.



Power Lines Connecting Zones



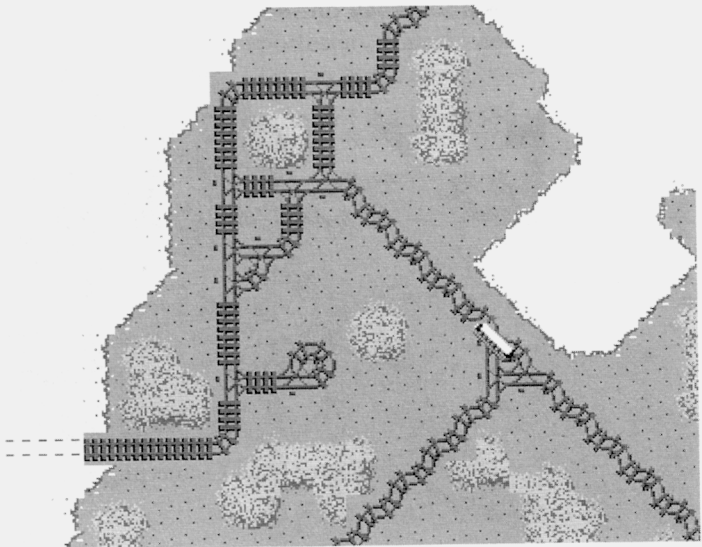
Transit Lines create a railway system for intra-city mass transit. Place tracks in heavy traffic areas to help alleviate congestion.

Intersections and turns are created automatically. Lay continuous transit lines by pressing the left mouse button down and dragging with your cursor. Tracks laid under rivers will appear as dashed lines. These are underwater tunnels, and must be vertical or horizontal — no turns, curves or intersections.

Holding down the *Control* key while laying tracks will constrain them to a straight line.

Transit lines are maintained by the transit budget. The level of funding affects the efficiency of the system. The amount of yearly funding requested by the transportation department is \$4 for each section of rail, and \$10 for each section of tunnel.

It costs \$20 per section of track laid on land, \$100 per section under water.



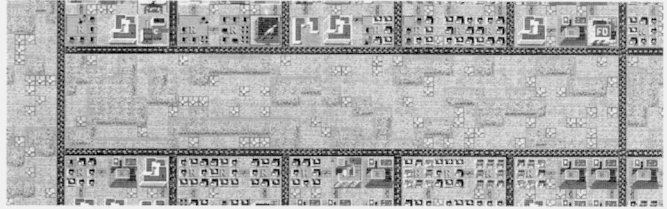
Train Tracks Provide Mass Transit



Parks can be placed on clear land. Parks, like forests and water, raise the land value of surrounding zones. Parks can be bulldozed as fire breaks or reserve space for later mass transit expansion.

Holding down the *Control* key while building parks will constrain them to a straight line.

It costs \$10 to zone one park.



Parks Improve the Quality of Life

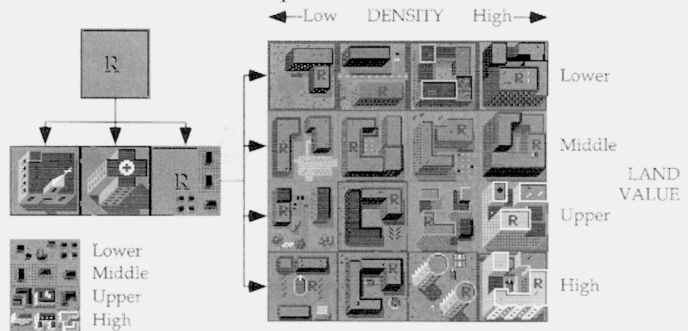


Residential Zones are where the Sims live, build houses, apartments and community facilities like hospitals and churches.

Most residential zones develop into one of four classes: lower, middle, upper, and high. They can range in population density from single-family homes to high-rise apartments and condominiums. Some residential zones will automatically develop into churches and hospitals.

Factors influencing residential value and growth are pollution, traffic density, population density, surrounding terrain, roadway access, parks and utilities.

It costs \$100 to zone one plot of land as residential.



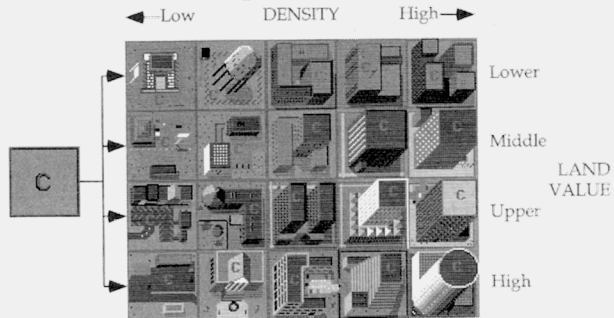
Residential Zone Evolution



Commercial Zones are used for many things, including retail stores, office buildings, parking garages and gas stations.

There are four values for commercial property, and five levels of growth, from the small general store to tall skyscrapers. Factors influencing the value and growth of commercial areas include internal markets, pollution, traffic density, residential access, labor supply, airports, crime rates, transit access and utilities.

It costs \$100 to zone one plot of land as commercial.



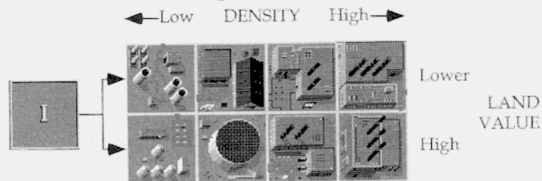
Commercial Zone Evolution



Industrial Zones are for heavy manufacturing and industrial services. There are four levels of industrial growth, from small pumping stations and warehouses to large factories.

Factors influencing industrial growth are external markets, seaports, transit access, residential access, labor supply and utilities.

It costs \$100 to zone one plot of land as industrial.



Industrial Zone Evolution



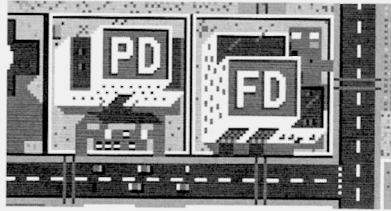
Police Departments lower the crime rate in the surrounding area. This in turn raises property values. Place these in high-density crime areas, as defined by your *Crime Rate Map*. The efficiency of a station depends on the level of police department funding and transit access.

It costs \$500 to build a police station. Full yearly maintenance of each Police Station is \$100.



Fire Departments make surrounding areas less susceptible to fires. When fires do occur, they are put out sooner and do less damage if a station is near. The effectiveness of fire containment depends on the level of fire department funding and transit access.

It costs \$500 to build a fire station. Full yearly maintenance of each fire station is \$100.

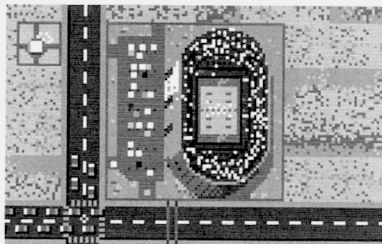


A Police and a Fire Station



Stadiums encourage residential growth, once a city has become fairly large. You may build a stadium in a smaller city without negative (or positive) effect. Stadiums indirectly generate a lot of revenue, but create a lot of traffic. Properly maintaining a stadium requires a good road and transit network.

It costs \$3000 to build a stadium.



A Stadium During a Game

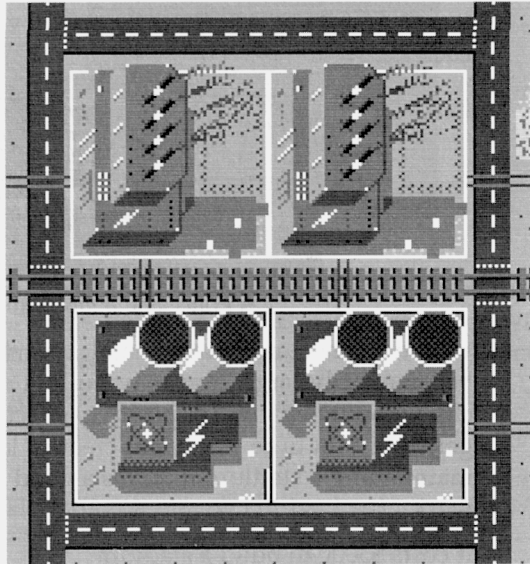


· Coal
· Nuclear

Power Plants can be *Coal* or *Nuclear*, chosen from a sub-menu provided when you press the left mouse button over the power plant icon. The nuclear plant is more powerful but carries a slight risk of meltdown. The coal plant is less expensive, but less powerful and it pollutes.

All zoned land needs power to develop and grow. When developed land loses power, it will degenerate to an undeveloped zone unless power is restored. Connecting too many zones to a power plant causes brownouts.

Coal power plants cost \$3000 to build, and supply enough energy for about 50 zones. *Nuclear* power plants cost \$5000 and supply electricity for about 150 zones.



Coal and Nuclear Power Plants



Seaports increase the potential for industrial growth. They have little effect in a small city, but contribute a lot to industrialization in a large city.

Seaports should be placed on a shoreline. The shoreline must be bulldozed prior to zoning a Seaport, unless Auto Bulldoze is active. Once the port is operational you may see ships in the water.

It costs \$5000 to zone land for use as a seaport.



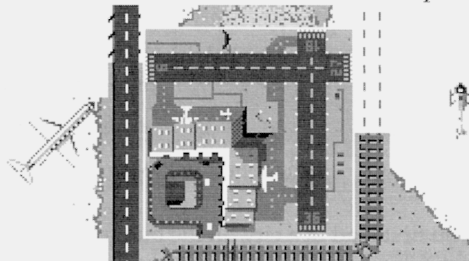
A Seaport and a Ship



Airports increase the growth potential of your commercial markets. Once a city starts getting large, commercial growth will level off without an airport. Airports are large and expensive and should not be built unless your city can afford one. Position airports to keep flight paths over water whenever possible, lessening the impact of air disasters.

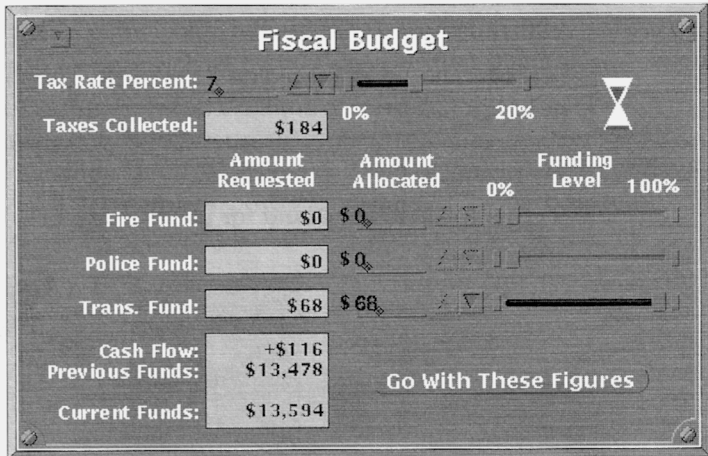
Once you build an airport you will see planes flying above your city to and from the airport. There is also a traffic helicopter that alerts you to heavy traffic areas.

It costs \$10,000 to zone land for use as an airport.



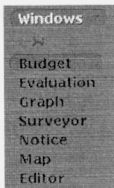
An Airport, with a Plane and a Helicopter

Budget Window

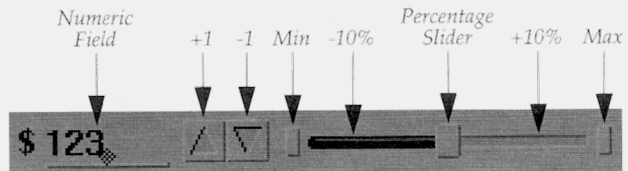


The Budget Window

When your first taxes are collected in a new city¹, and each year after, the *Budget Window* will appear (unless you select the *Auto Budget* option). You will be asked to set the funding levels for the fire, police, and transportation departments, and to set the property tax rate.



The *Budget Window* can be opened from the *Windows Menu*. When *Auto Budget* is active, all the funding levels will remain at full funding, or your last setting. If there is not enough money to completely fund the budget, money will go first to the *Transit Department*, then the *Fire Department*, then the *Police Department*.



An Open Look Numeric Field and Slider

1. When you first load in a city, all the budget amounts will be zeroed out until the next January. This first year is a "grace period," and all city services will be considered completely funded.

You can raise and lower budget levels by clicking on the little arrows or dragging the sliders that correspond to each category. A numeric field will display the level of funding that will be maintained if you turn on the *Auto Budget* function. You may also adjust your tax rate by clicking on the arrows or dragging the slider next to the tax rate indicator. Press the button labeled "*Go With These Figures*" to make the *Budget Window* disappear.

When the *Budget Window* opens up, the hour glass in the upper right corner starts running. When it runs out, the *Budget Window* automatically goes with the currently selected figures and disappears. You can click on the hour glass to make it go away, and the *Budget Window* will stay up for as long as you like.

Tax Rate

The maximum tax rate you can set is 20%.

The minimum tax rate you can set is 0%.

The optimum tax rate for fast growth is between 5% and 7%.

To slow city growth without actually shrinking, set the tax rate to 8% or 9%.

The tax collected from each zone is based on the following formula:

$$\text{Tax} = \text{Population} \times \text{LandValue} \times \text{TaxRate} \times \text{ScalingConstant}$$

The scaling constant changes with the difficulty level of the game.

Funding Levels

The amount of yearly funding requested for the fire and police departments is \$100 per station that you have placed. Until you actually build fire or police stations, you cannot fund them. You cannot allocate more than 100% of the requested funding for fire and police departments — Sim-City police officers and fire inspectors are honest and will not accept your bribes.

Allocating less than the requested amount will decrease the effective coverage of the police or fire stations.

The amount of yearly funding requested for the transportation department is \$1 for each section of road, \$4 for each section of bridge (roads over water), \$4 for each section of rail, and \$10 for each section of tunnel (underwater rails). You cannot allocate more than 100% of the requested funds.

Transportation maintenance funding slightly below 100% will cause slow, minor deterioration of the transit system — an occasional pothole or bad track section. Funding between 90% and 75% will cause noticeable damage — many sections of road and rail will be unusable. Funding below 75% will cause rapid deterioration of your transit system.

Cash Flow

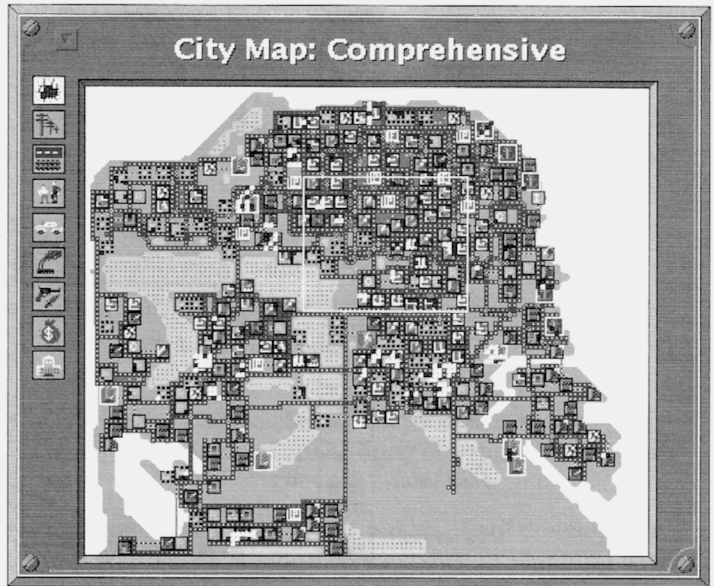
The cash flow is calculated as follows:

$$\text{CashFlow} = \text{TaxesCollected} - \text{TotalAllocatedFunds}$$

It will be a negative number if your yearly maintenance costs are greater than your yearly tax intake.

A major difference between SimCity and a real city is that SimCity does not allow budget deficits. If you don't have the money, you can't spend it. Try not to let your city run with a negative cash flow.

Map Window

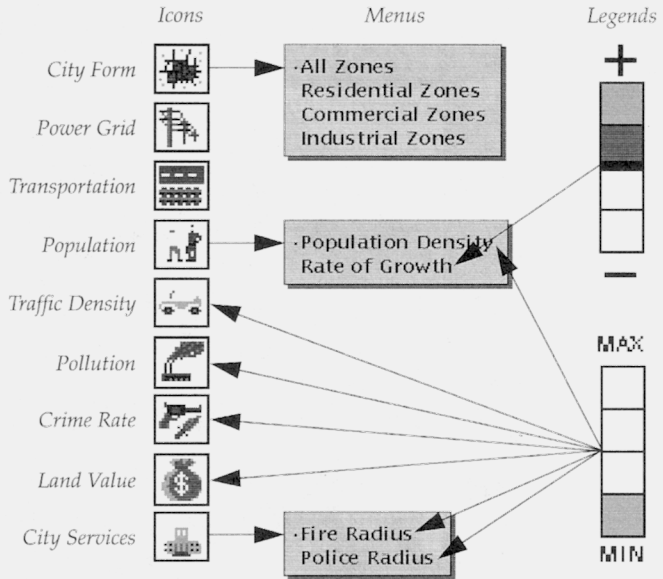


The Map Window

The *Map Window* shows the entire area of your city. It has a pallet of icons down the left edge, for selecting between different map types. The maps show demographic information to help you comprehend the state of your city.

You can select between various views by pressing the left mouse button over any of the icons. Some of the icons have submenus, that pop up when you hold the button down, so you can select different aspects of the view.

One or more yellow rectangular outlines overlay the map, showing the location of the *Edit Window* and *Surveyor Window* views of the city. You can drag the rectangles around the map to pan the other views. You can also “throw” the view, by dragging with the left mouse button, and releasing the button while moving the mouse. The view keeps on panning and bounces off the edges of the map! Click on a moving rectangle to make it sit still, or on the map to stop all the bouncing rectangles. Use the middle button to avoid such behavior.



The Map Icons, Menus, and Legends

Using The Maps

The *Map Window* should be constantly referred to in all stages of city planning, building and managing.

Before you build, use the map before beginning a new city to plan:

- Where you want your city center.
- Where you want the high-class waterfront residential areas.
- Where you will cross water with bridges, power lines and tunnels.
- Where to place power plants.
- Where to place large industrial sections away from the residential sections.
- The general layout of your city.

Printing the map and sketching in your plan with pencil or pen can save a lot of bulldozing and re-zoning and rebuilding.

During city growth:

- Use the map to guide your city's growth around forest areas, to preserve the trees and improve property values.
- Use the *Transportation Map* along with the *Traffic Density* map to plan traffic control and expansion.
- Use the *City Form Maps* to make sure you have the proper ratio of residential to commercial to industrial zones.
- Use the *Pollution Map* to detect problem areas, and disperse the industrial zones and/or replace roads with rails.
- Printing out the map in various stages of development and doing some preliminary expansion planning with pencil can be useful. Printouts can also be used for city historical records.

During city maintenance:

- Use the *Power Grid Map* to locate zones that have lost power.
- Use the *City Services Maps* to evaluate the effective coverage of your police and fire departments.
- Use the *Crime Rate Map* to locate problem areas that need more police protection.
- Use the *Pollution Map* to locate problem areas.
- Use the *Transportation* and *Traffic Density Maps* to determine where to replace roads with rails.
- Use the *Land Value Map* to locate depressed areas for improvement or replacement.
- Use the *City Form Maps* to maintain the proper ratio of residential to commercial to industrial zones.

Graph Window

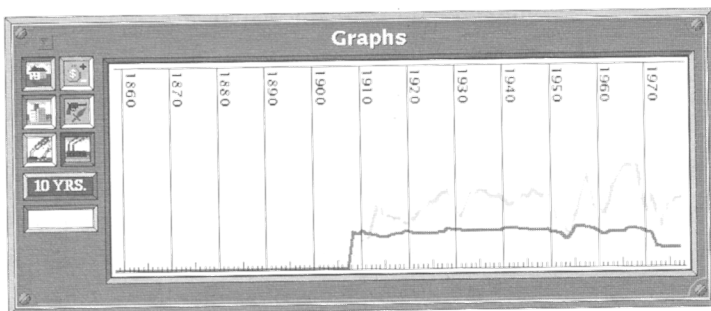
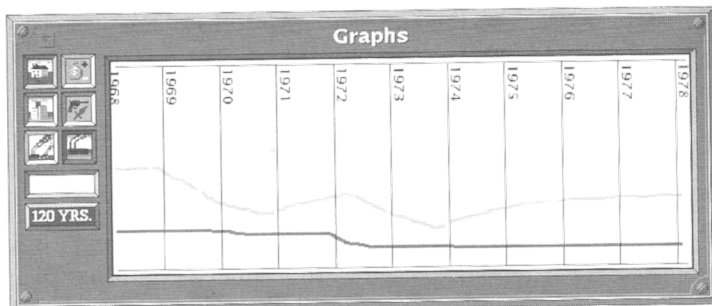
Windows

Budget
 Evaluation
 Graph
 Surveyor
 Notice
 Map
 Editor

The *Graph Window* gives you time-based graphs of various city data. It can be opened through the *Windows Menu*.

Unlike the maps, which only show the current state of your city, the *Graphs* give you a record of the past so you can gauge trends and cycles.

You may view graphs for time periods of either the last 10 years or the last 120 years by clicking on the "10 YRS." or "120 YRS." button.



10 and 120 Year Graph Windows



- The *Residential Population Graph* shows the total population in residential zones.
- The *Commercial Population Graph* shows the total population in commercial zones.
- The *Industrial Population Graph* shows the total population in industrial zones.



- The *Cash Flow Graph* shows your city's cash flow: money collected in taxes minus money it took to maintain your city. The center of the *Cash Flow Graph* represents a cash flow of zero. Do not build more infrastructure (roads, rails, police departments, fire stations) than you can support with tax revenues¹.



- The *Crime Rate Graph* shows the overall crime rate of the entire city.



- The *Pollution Graph* shows the overall average pollution reading of the entire city.

Using the Graphs

The *Graphs* give information on many of the same factors as the maps, but show the information over time. *Graphs* are for locating trends in city life that won't be noticeable in a map. If you look at a map, for example the *Crime Rate Map*, a very slight rise in the crime rate will not be noticeable. But on the *Crime Rate Graph*, you would easily locate the upward trend in crime because you will be viewing the levels for a number of years at the same time.

Residential, commercial and industrial population growth and/or decline can be tracked and displayed. If you notice a downward trend in any of these, refer to the *User Reference Card* to locate potential problems and solutions.

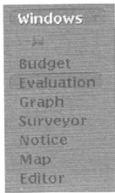
Use the *Cash Flow Graph* to track your city's efficiency as it grows. If your maintenance costs are higher than your tax revenues, you will have a negative cash flow.

The *Crime Rate Graph* can be displayed, revealing slight but consistent upward or downward trends.

Use the *Pollution Graph* to catch rising levels of pollution before they reach a problem level.

1. Cash flow has little to do with your current funds, or how much you spend in building and zoning (except that city expansion will increase both taxes collected and maintenance costs).

Evaluation Window



The *Evaluation Window* gives you a performance rating. You can access it through the *Windows Menu*.

City Evaluation 1975			
PUBLIC OPINION		STATISTICS	
Is the mayor doing a good job?			
76%	Yes	Population:	112680
24%	No	Net Migration:	10340
		(last year)	
		Assessed Value:	\$73,165,000
		Category:	METROPOLIS
			Easy
What are the worst problems?			
18%	CRIME	Overall City Score	
17%	TRAFFIC	(0 - 1000)	
5%	HOUSING COSTS	current score	annual change
4%	POLLUTION	860	-22

The Evaluation Window

Public Opinion is presented in poll form, rating your overall job as Mayor and listing what the public regards as the city's most pressing problems. You are advised to keep your residents happy or they might migrate away, and you will be left with a "ghost town."

In general, if more than 55% of the populace thinks you are doing a good job, then you can feel secure of keeping your job.

If 10% or less of the people think something is a problem, then it's not too bad.

These are most of the problems that citizens complain about, and how to correct them:

- Traffic — Replace dense sections of roads with rails.
- Crime — Add police stations and/or raise property values.
- Pollution — Replace roads with rails, disperse industrial zones.
- Housing — Zone more residences.
- Housing Costs — Zone more residences in low property value areas.
- Fires — Build more fire departments.
- Taxes — Lower taxes (if you can). Or lie through your lips.
- Unemployment — Zone more commercial and industrial areas.

Statistics on Population, Net Migration, and Assessed Value are displayed, along with the city's *Game Level* and the *Overall City Score*. This data is calculated once a year at budget time.

Population is the number of residents in your city.

The *Net Migration* statistic provides a rating of the desirability of your city. If people are leaving in droves, then you know something is rotten in SimCity.

The *Assessed Value* is the combined value of all city-owned property: roads, rails, power plants, police and fire stations, airports, seaports, parks, etc. It does not include residential, commercial and industrial zones.

The *Categories* are defined by population as follows:

Village	0 to 1,999
Town	2,000 to 9,999
City	10,000 to 49,999
Capital	50,000 to 99,999
Metropolis	100,000 to 499,999
Megalopolis	500,000 and above

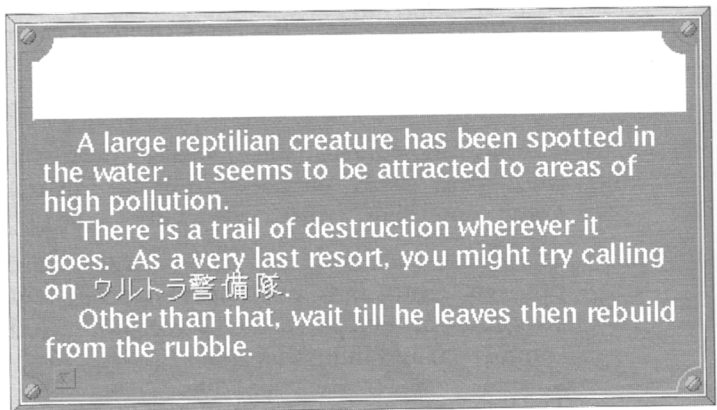
Overall City Score is a composite score based on the following factors (some positive, some negative):

- Major Factors
Crime, pollution, housing costs, taxes, traffic, unemployment, fire protection, unpowered zones, city growth rate.
- Minor Factors
Stadium needed (but not built), seaport needed (but not built), airport needed (but not built), road funding, police funding, fire department funding, and fires.

A large population is not necessarily a sign of a successful city. Population size does not affect the overall city score, since low population could indicate a new or growing city.

Since city growth rate does affect the overall city score, a city in which growth has been intentionally stopped for environmental or aesthetic reasons will have a slightly lower score.

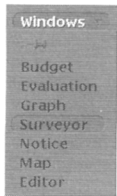
Notice Window



The Notice Window

The *Notice Window* is used to display important messages, and for temporary control panels. When something important happens, it pops up to the front, and throbs at you to get your attention. You can dismiss it by clicking the left button on the *Close Box*, since the *Close Box Menu* default is "Hide".

Surveyor Window



The *Surveyor Window* lets you look at different parts of the city, independent of the *Editor Window* view. When a disaster or event happens, and you have *Auto Goto* activated, it pops up and scrolls to the scene. You can access it through the *Windows Menu*. To scroll the *Editor Window* to the location of a *Surveyor* view, just click the left mouse button on the view.



The Surveyor Window

Zoom

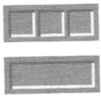


You can zoom the view in and out by pressing down and holding the *Zoom* control. The *Reset* button resets the zoom back to normal. The animation is fastest at the normal magnification.

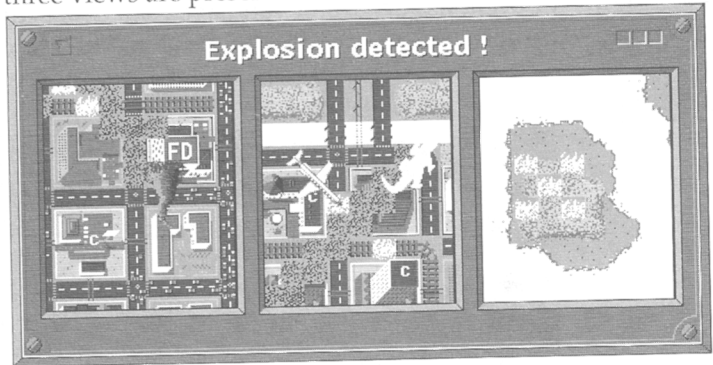


Zooming the View

You can resize the *Surveyor Window* by dragging the *Resize Corners*, and the views will resize proportionally.

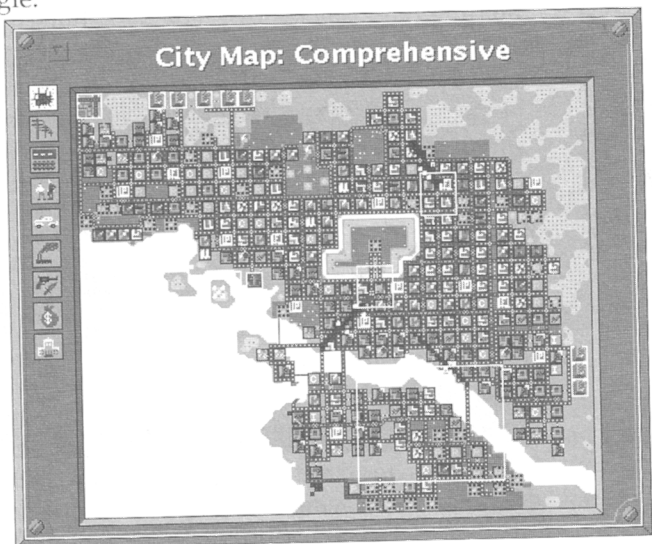


By clicking on the recessed rectangles in the upper right corner of the Surveyor Window, you can toggle between one and three views. The middle view is used for *Auto Goto* when three views are present.



Three Surveyor Views

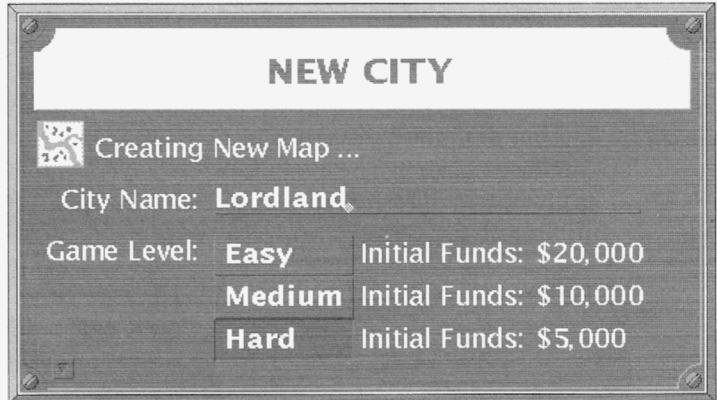
You can pan *Surveyor Window* views around by dragging them with the middle button. For each view, including the *Editor Window*, a yellow rectangle is displayed over its area in the *Map Window*. You can pan any view by dragging its rectangle.



The Map showing Four Views

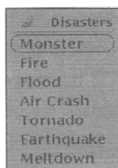
Game Level

When you first start a new city, you must pick a *Game Level*. Once a city is started, you cannot change the *Game Level*; it remains at your initial setting for the life of the city. The current *Game Level* is displayed in the evaluation window.



This level — *Easy*, *Medium*, or *Hard* — adjusts the simulation to your current abilities by altering several factors. A harder setting will increase the chance of disasters, make residents more intolerant of taxation, cause maintenance costs to grow, etc.

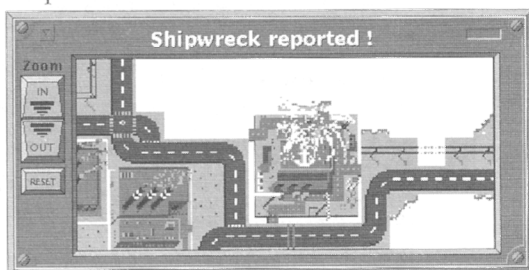
Disasters



Disasters will randomly occur as you play SimCity. At higher game levels the disasters will happen more often. Most disasters can be activated from the *Disasters Menu*. Random disasters can be eliminated by turning off the *Disasters* setting of the *Options Menu*.

Shipwreck

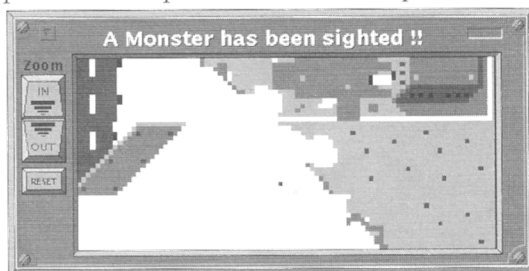
Shipwrecks can occur once you have an operating seaport. They can cause fires where the ship crashes into a shore or bridge. Shipwrecks are not available on the *Disasters Menu*.



A Shipwreck

Monster Attack

Monster Attacks are provoked by high levels of pollution. A monster destroys everything in its path, starts fires, and causes planes, helicopters, trains, and ships to crash.



A Monster Attack

Fire

Fires can start anywhere in the city. Fires spread fairly rapidly through forests and buildings, somewhat slower over roadways. Fire will not cross water or clear land.

The effectiveness of the fire department (which can be viewed in the *Map Window*) is based on how close it is to the fire, its funding level, and its transit access. Fires inside this effective radius will be extinguished automatically. If you have no operational fire departments in the area you can try to control the fire yourself. Since fire will not spread across clear terrain, you can build fire breaks with the bulldozer. Just surround the fire with clear areas and it will stop spreading and eventually burn itself out. You cannot directly bulldoze a fire.



A Fire

Flood

Flooding occurs near the water. Floods gradually spread and destroy buildings and utilities. After a while the flood waters recede, leaving behind cleared terrain.



A Flood

Air Crash

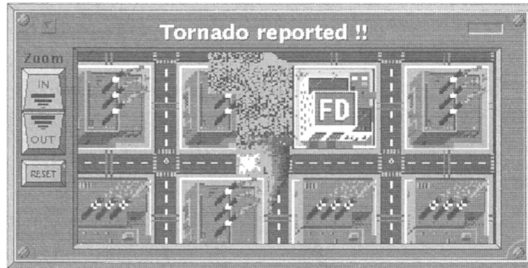
Air Crashes can happen anywhere in the city if an airport is operational. This happens whenever aircraft collide with things, such as tornados or another aircraft. When a crash occurs, a fire will start, unless the crash is on water. A good strategy is to locate the airport away from the central city to minimize the fire damage.



A Plane Crash

Tornado

Tornados can occur anywhere on the map at any time. Very fast and unpredictable, they can appear and disappear at a moment's notice. Tornados destroy everything in their path, and can cause planes, helicopters, trains, and ships to crash.

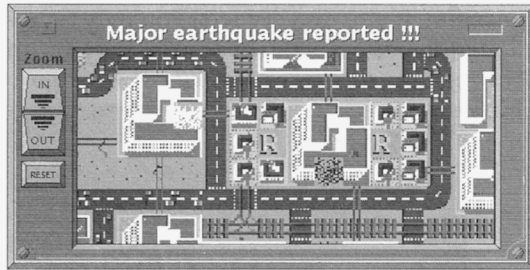


A Tornado

Earthquake

Earthquakes are the most devastating disaster. This is a *Major* earthquake — between 8.0 and 9.0 on the Richter Scale. It will destroy buildings and start fires. The initial damage will vary with the severity of the earthquake, and the eventual fire damage depends on your fire-control efforts.

When an Earthquake occurs, the *Edit Window* will shake for a while. When it stops you will have to take charge and control the scattered fires. Use the bulldozer to contain the largest fires first and work your way down to the smaller ones.



An Earthquake

Meltdown

Meltdowns are only possible if you are using a nuclear power plant. If a meltdown occurs, your nuclear plant will explode into flames. The surrounding area will be unusable for the remainder of the simulation due to radioactive contamination.

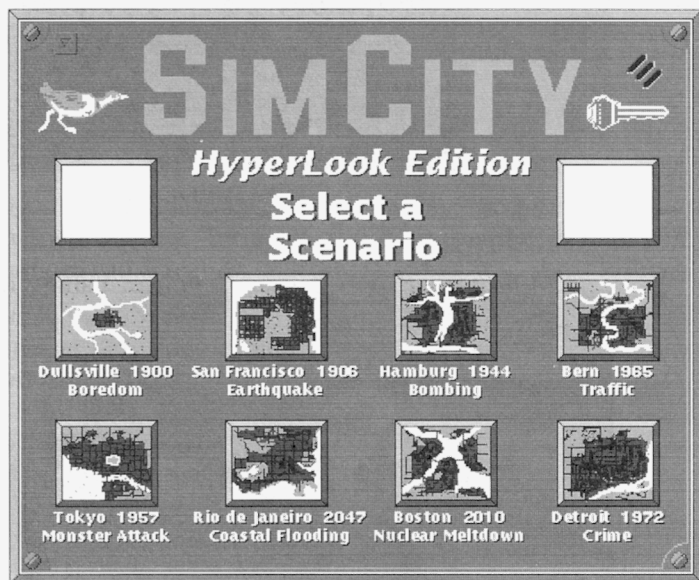


A Meltdown

Scenarios

The *Scenarios* provide both real and hypothetical problems for you to deal with in seven famous (and one not-so-famous) cities. They present various levels of difficulty. Some problems are in the form of disasters which will occur some time after you start¹. Other problems are more long-term, such as crime.

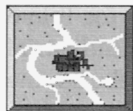
Your task is to deal with the problem at hand as well as possible under the circumstances. After a certain amount of time the city residents will rate your performance in a special election. If you do very well you may be given the key to the city. However, if you do poorly, they just might run you out of town.



The Scenario Screen

1. To avoid the disaster which is tied to a scenario, save it to disk and reload the city from the saved file.

Dullsville, USA 1900 — Boredom



Things haven't changed much around here in the last hundred years and the residents are beginning to get bored. They think Dullsville could be the next great city with the right leader. It is your job to attract new growth and development, turning Dullsville into a Metropolis by the 21st century.

Difficulty:	Easy
Time Limit:	30 years
Win Condition:	Metropolis

San Francisco, CA 1906 — 8.0 Earthquake



Damage from the earthquake was minor compared to that of the ensuing fires, which took days to control. 1500 people died. Controlling the fires should be your initial concern here. Afterwards, clearing the remaining rubble will allow the city to start rebuilding.

Difficulty:	Very difficult
Time Limit:	5 years
Win Condition:	Metropolis

Hamburg, Germany 1944 — Fire



Allied fire-bombing of German cities in WWII caused tremendous damage and loss of life. People living in the inner cities were at greatest risk. You must control the firestorms during the bombing and then rebuild the city after the war.

Difficulty:	Very difficult
Time Limit:	5 years
Win Condition:	Metropolis

Bern, Switzerland 1965 — Traffic



The roads here are becoming more congested every day, and the residents are upset. They demand that you do something about it. Some have suggested a mass transit system as the answer, but this would require major rezoning in the downtown area.

Difficulty:	Easy
Time Limit:	10 years
Win Condition:	Low Average Traffic Density



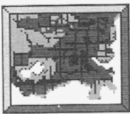
Tokyo, Japan 1957 — Monster Attack



A large reptilian creature has been spotted heading for Tokyo bay. It seems to be attracted to the heavy levels of industrial pollution there. Try to control the fires, then rebuild the industrial center.

Difficulty:	Moderately difficult
Time Limit:	5 years
Win Condition:	City Score above 500

Rio de Janeiro, Brazil 2047 — Flood



In the mid-21st century, the greenhouse effect raised global temperatures 6 degrees F. Polar ice caps melted and raised sea levels worldwide. Coastal areas were devastated by flood and erosion. Unfortunately, some of the largest cities in the world are located on the coast.

Difficulty:	Moderately difficult
Time Limit:	10 years
Win Condition:	City Score above 500

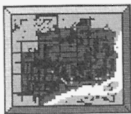
Boston, MA 2010 — Nuclear Meltdown



A major meltdown is about to occur at one of the new downtown nuclear reactors. The area in the vicinity of the reactor will be severely contaminated by radiation, forcing you to restructure the city around it.

Difficulty:	Very difficult
Time Limit:	5 years
Win Condition:	City Score above 500

Detroit, MI 1927 — Crime



By 1970, competition from overseas and other economic factors pushed the once "automobile capital of the world" into recession. Plummeting land values and unemployment then increased crime in the inner-city to chronic levels. You have just been elected after promising to reduce crime and rebuild the industrial base of the city.

Difficulty:	Moderately difficult
Time Limit:	10 years
Win Condition:	Low Average Crime Density

Growing a City

While growing a city, refer often to the *User Reference Card*. It provides a chart of *City Dynamics*; how all factors of city life and growth are related.

The main points to keep in mind while growing a city are:

- Grow slowly. Watch your money.
- All zones must be powered to develop.
- Zones must be developed to generate tax money.
- Roads or rails must provide access to and from each zone for it to fully develop.
- There is a yearly maintenance cost for each section of road, rail, bridge and tunnel. This can add up. Don't build too many roads and rails and generate high maintenance costs before your city can generate enough tax revenues to support them.
- Extra power plants and redundant power lines are expensive, but can keep zones from losing power during a disaster or emergency and deteriorating.
- Rails can carry much more traffic than roads. While building and zoning an area that you predict will generate heavy traffic, install rails instead of roads in the early stages of development.
- If you get a lot of heavy traffic warnings, replace roads with rails. You can build an entirely roadless city, even if you're not a train spotter¹!
- Grouping zones together, four or five in a row touching each other, can eliminate a lot of power line segments.
- Airports, seaports and stadiums won't help a small city grow — so save your money until the city gets

1. There is only one animated train car at a time in SimCity. It will not necessarily cover every section of track. This does not mean that the tracks are not working. Don't worry, everything is OK.

larger. The Sims will tell you when they need these things.

- Place zones, roads, etc. carefully — they cannot be moved, and you will have to pay to bulldoze them and rebuild.
- As a rule of thumb, the number of residential zones should be approximately equal to the sum of commercial and industrial zones. When your city is small, you will need more industrial zones than commercial, and when your city gets larger, you will need more commercial zones than industrial.
- Separate the residential areas from the industrial areas.
- Proximity to forests, parks, and water increases land value, which increases the taxes collected. Don't bulldoze any more forest than you must. Natural shoreline increases property values more than landfill shoreline.
- Keep in mind that proximity to downtown raises property values. The simulator defines the downtown areas as "the center of mass of the population density." It calculates the average geographical center of the population.
- A bigger, more populous city is not necessarily better. Having a self-supporting, profitable city with pleasant surroundings is better than a huge city that is always broke and has no forest or shoreline.
- Use the various maps and graphs to plan city growth, locate problems, and track your progress. Look for areas that need police and fire coverage as you go, so you don't have to go back and bulldoze developed zones to make room for police and fire stations.
- Save your city to disk before trying any major new policy so you can go back if your plan doesn't work.
- Print out your city in different stages of evolution to track and plan growth.

- Check the *Evaluation Window* often. The Sims will let you know how you are doing. Also the statistics can be useful; if your population is shrinking, don't go zoning new areas that may never develop. Look for problems in the existing zoned areas, and spend your time and money solving them.
- *Save your city to disk often!!!*

Inside The Simulator

How the Simulator Works and Strategies for Using It

Many factors influence the chance of your city's prospering or floundering: both internal factors (the structure and efficiency of your city) and external factors (the regional economy, disasters, etc.).

Zones

Your city is divided up into three primary zones: *residential*, *commercial* and *industrial*. These zones symbolize the three basic pillars upon which a city is based: population, industry, and commerce. All three are necessary for your city to grow and thrive.

- *Residential Zones* are where the Sims live. Here they build houses, apartments and community facilities such as churches and schools. Sims are the work force for your city's commercial and industrial zones.
- *Industrial Zones* are used to site warehouses, factories, and other unsightly and polluting structures which have a negative impact on surrounding zones. One of the major goals of planning is to separate these "nuisances" from the areas where people live. In this simulation, industrial zones represent the "basic" production of your city. Things produced here are sold outside the city to an "external market," bringing money into the city for future growth.
- *Commercial Zones* represent the retail stores and services in your city, including gas stations, grocery stores, banks, and offices. Commercial areas are mainly dedicated to producing goods and services needed within your city. This is called "non-basic" production or production for the "internal market."

Population — Residential

The major factors controlling residential population are birthrate, availability of jobs and housing, unemployment, and quality of life within the city.

Birthrate as used here, is actually a combination of the birthrate (positive) and the deathrate (negative). Within SimCity there is always a positive birthrate.

Availability of jobs (the employment rate) is a ratio of the current commercial and industrial populations to the total residential population. As a rule of thumb, the number of commercial and industrial zones together should roughly equal the number of residential zones.

If there are more jobs in your city than residents, new settlers will be attracted. If the job market declines during a local recession, your people will migrate away in search of jobs.

Housing for your residents is built in the residential zones. These zones must be powered and connected to the places of employment by roads. The structures built in residential zones are influenced by land value and population density.

Quality of life is a measure of relative “attractiveness” assigned to different zone locations. It is affected by negative factors such as pollution and crime, and positive factors such as parks and accessibility.

External Market — Industrial

There are thousands of variables that influence your city. All these variables can be influenced by your actions with the exception of one.

The external market (the economic conditions that exist outside of your city) is controlled by the simulation — there is *nothing* you can do to change it. In many ways, this external market is the original source of all city growth. Towns frequently begin as production centers (steel towns, refineries, etc.) that service a demand in the surrounding region. As time passes, the external market grows to reflect the regional growth going on around your city.

The industry in your city will attempt to grow as the external market grows. For this to happen there must be room for expansion (more industrial zones) and an adequate labor supply (more residential zones).

Internal Market — Commercial

The internal market is completely influenced by the conditions within your city. Internal production, created in the commercial zones, represents all the things which are purchased and consumed within the city. Food stores, gas stations, retail stores, financial services, medical care, etc. — all depend on a nearby population to service. Within SimCity, the size of the internal market determines the rate at which commercial zones will prosper. Commercial zones need enough zoned land to build on and an existent, sufficient work force to employ. The structures built in commercial zones are mainly influenced by land value and population density.

Commercial zones grow and develop to serve the expanding internal market. Commercial growth will usually be slow at first, when the population is small and needs very little. As your city grows, commercial growth will accelerate and the internal market will become a much larger consumer of your total city production. This accelerating effect, when the external/industrial production is overtaken by the accelerating internal/commercial sector, can turn a sleepy little town of 50,000 into a thriving capital of 200,000 in a few short years.

Tax Rate

The tax rate you set controls the amount of income generated by your city. As taxes are collected each year (simulation time), the *Budget Window* will appear, giving you the fiscal details of your city and a chance to adjust rates. The simulation determines the amount of revenue collected by assessing each zone an amount based on its land value, current level of development and the current tax rate.

The tax rate has a global affect on your city's growth rate. If you set it low (0%-4%), growth will be brisk but the city income will be low. If you set it high (10%-20%), you will col-

lect a lot in the short run but in the long run tax income will decrease along with the population. You must keep tax income high enough to invest in new development, but low enough not to scare off residents and businesses. A high tax rate is one way to control city growth, should you want to experiment with "growth control measures."

Budgeting

City budgeting affects the way your city grows. City infrastructure cost is represented by three departments: police, fire, and transportation. You may set the funding levels separately for each. All three departments will request a certain level of funding each year. You may supply all or part of the requested funds, in the attempt to balance safety needs and budgetary concerns.

- *Police Department*

Police stations lower the crime rate around a territory. The effective radius of your police station is related to the amount of funding allocated to the police department. Police stations cost \$100 per year to fund.

- *Fire Department*

Fire stations prevent and extinguish fires. The level of funding determines the effective radius of a fire station. Fire stations put out fires within this radius much sooner than outside it, and decrease the chance that they will start in the first place. Fire stations cost \$100 per year to fund.

- *Transportation Department*

When you build roads and rail systems you are charged for construction and yearly maintenance. The larger your transportation network, the more it will cost for upkeep. If you decide not to or are unable to pay this maintenance cost, roads will slowly deteriorate and become unusable. The maintenance cost for each piece is: Road - \$1, Bridge - \$4, Rail - \$4, Rail tunnel - \$10.

Power

Electrical power makes modern cities possible. Efficient and reliable power transmission to all zones is the goal of good "power management."

The entire power grid of your city is periodically checked in the simulation for links to power. If a zone is connected (by other zones or power lines) to a power plant, the zone is considered powered.

Zones must be powered for development to occur. Many things (such as fires, tornadoes, earthquakes and bulldozers) can knock down power lines and cause blackouts in parts of your city. Development will stop in unpowered zones, and if power is not quickly restored, the zone will decline back to its original state of emptiness.

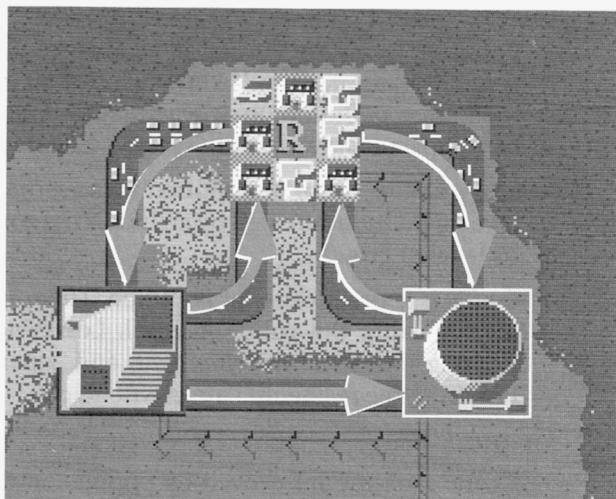
Redundant power plants and power connections can make your power grid more reliable, but running more line adds construction costs.

Transportation — Traffic

One of the most important elements of city structure is the transportation network. It moves Sims and good throughout your city. Roads typically occupy as much as 25%-40% of the land in urban areas. Traffic along these roads indicates which sections of your road system are used the most.

Traffic levels are simulated by a process known as "Trip Generation." Over time, each populated zone in the city will generate a number of trips, depending on the population. Each generated trip starts at the origin zone, travels down the road, and if a "proper destination" is reached, ends at the destination zone — otherwise, the trip fails. Trip failure indicates inaccessibility of a zone and limits its growth.

The majority of generated trips represent people commuting to and from work. Additional traffic is generated by residents traveling to shopping, recreation, etc. When analyzing traffic, the simulator tests the following traffic routes:



Traffic Patterns

From Origin Zone:

Residential
Commercial
Industrial

To Destination Zone:

Commercial and Industrial.
Residential and Industrial.
Residential.

When Sims drive away from an origin zone, they have a limited "trip range" in which to find a destination zone. Heavy traffic decreases the trip range. If the destination zone is too far away, the trip is unsuccessful. Repeated unsuccessful trips will cause the Sims to move out of the origin zone.

Each road has a limited capacity for traffic. When this capacity is exceeded traffic jams will form. Traffic jams drastically lower the capacity of a road, compounding the problem and frustrating drivers.

Traffic conditions fluctuate quickly. Avoid traffic problems by providing several routes for the traffic to take.

A road must be adjacent to a zone for the zone to be connected to the traffic pattern. Zones do not conduct traffic the way they conduct power.

Pollution

Pollution levels are tracked in all areas of your city. This is a general "nuisance level" that includes air and water pollution, noise pollution, toxic wastes, etc. Pollution has a negative impact on the growth of residential areas.

The primary cause of pollution is industrialized zones. The level of pollution created by an industrial zone increases with its level of growth.

Traffic is another cause of pollution. There are limited means of combating the pollution level. Lowering traffic density, limiting industrial development, and separating the pollution from the residential areas will help.

Crime

Crime rates are influenced by population density, local law enforcement, and land values. As population density increases in an area, the number of crimes committed increases. Crime will also increase in areas of low land value.

The most effective way to deal with high crime rates is to introduce a police station into the area. Based on its level of funding, the police station will reduce the rate of crime in its sphere of influence. A long-term approach to lowering crime is to raise the land value of the area. One way to do this is to demolish and rezone (urban renewal).

Land Value

Land value is one of the most fundamental aspects of urban structure. The land value of an area affects how that area is used. In this simulation the land value of an area is based on terrain, accessibility, pollution, and distance to downtown.

The farther the residents have to go to work, the lower the land value where they live, due in part to transportation costs. The value of commercial zones depends greatly on accessibility by the populace.

Land value is also affected by surrounding terrain. If land is closer to water, trees, agricultural areas, or parks, its value will rise. Creative placement of zones within the terrain, with

little bulldozing, can make good use of this natural advantage.

Land value and crime rate have a feedback effect on each other. Lower land values cause crime rates to rise. Higher crime rates cause land values to drop, and can cause “transition areas” near your central city to rapidly decline in value.

History Of Cities And City Planning

By Cliff Ellis

Introduction

The building of cities has a long and complex history. Although city planning as an organized profession has existed for less than a century, all cities display various degrees of forethought and conscious design in their layout and functioning.

Early humans led a nomadic existence, relying on hunting and gathering for sustenance. Between 8,000 and 10,000 years ago, systematic cultivation of plants and the domestication of animals allowed for more permanent settlements. During the fourth millennium B.C., the requirements for the "urban revolution" were finally met: the production of a surplus of storable food, a system of writing, a more complex social organization, and technological advances such as the plough, potter's wheel, loom, and metallurgy.

Cities exist for many reasons, and the diversity of urban forms can be traced to the complex functions that cities perform. Cities serve as centers of storage, trade, and manufacture. The agricultural surplus from the surrounding countryside is processed and distributed in cities. Cities also grew up around marketplaces, where goods from distant places could be exchanged for local products. Throughout history, cities have been founded at the intersections of transportation routes, or at points where goods must shift from one mode of transportation to another, as at river and ocean ports.

Religious elements have been crucial throughout urban history. Ancient peoples had sacred places, often associated with cemeteries or shrines, around which cities grew. Ancient cities usually had large temple precincts with monumental religious buildings. Many medieval cities were built near monasteries and cathedrals.

Cities often provide protection in a precarious world. During attacks, the rural populace could flee behind city walls, where defence forces assembled to repel the enemy. The wall served this purpose for millennia, until the invention of heavy artillery rendered walls useless in warfare. With the advent of modern aerial warfare, cities have become prime targets for destruction rather than safe havens.

Cities serve as centers of government. In particular, the emergence of the great nation-states of Europe between 1400 and 1800 led to the creation of new capital cities or the investing of existing cities with expanded governmental functions.

Washington, D.C., for example, displays the monumental buildings, radial street pattern, and large public spaces typical of capital cities.

Cities, with their concentration of talent, mixture of peoples, and economic surplus, have provided a fertile ground for the evolution of human culture: the arts, scientific research, and technical innovation. They serve as centers of communication, where new ideas and information are spread to the surrounding territory and to foreign lands.

Constraints on City Form

Cities are physical artifacts inserted into a preexisting natural world, and natural constraints must be respected if a settlement is to survive and prosper. Cities must conform to the landscape in which they are located, although technologies have gradually been developed to reorganize the land to suit human purposes. Moderately sloping land provides the best urban site, but spectacular effects have been achieved on hilly sites such as San Francisco, Rio de Janeiro, and Athens.

Climate influences city form. For example, streets have been aligned to take advantage of cooling breezes, and arcades designed to shield pedestrians from sun and rain. The architecture of individual buildings often reflects adaptations to temperature, rainfall, snow, wind and other climatic characteristics.

Cities must have a healthy water supply, and locations along rivers and streams, or near underground watercourses, have always been favored. Many large modern cities have outgrown their local water supplies and rely upon distant water sources diverted by elaborate systems of pipes and canals.

City location and internal structure have been profoundly influenced by natural transportation routes. Cities have often been sited near natural harbors, on navigable rivers, or along land routes determined by regional topography.

Finally, cities have had to survive periodic natural disasters such as earthquakes, hurricanes, tornados, and floods. The San Francisco earthquake of 1906 demonstrated how natural forces can undo decades of human labor in a very short time.

Elements of Urban Structure

City planners must weave a complex, ever-changing array of elements into a working whole: that is the perennial challenge of city planning. The physical elements of the city can be divided into three categories: networks, buildings, and open spaces. Many alternative arrangements of these components have been tried throughout history, but no ideal city form has ever been agreed upon. Lively debates about the best way to arrange urban anatomies continue to rage, and show no signs of abating.

Networks

Every modern city contains an amazing array of pathways to carry flows of people, goods, water, energy, and information. Transportation networks are the largest and most visible of these. Ancient cities relied on streets, most of them quite narrow by modern standards, to carry foot traffic and carts. The modern city contains a complex hierarchy of transportation channels, ranging from ten-lane freeways to sidewalks. In the United States, the bulk of trips are carried by the private automobile, with mass transit a distant second. American cities display the low-density sprawl characteristic of auto-centered urban development. In contrast, many European cities have the high densities necessary to support rail transit.

Modern cities rely on complex networks of utilities. When cities were small, obtaining pure water and disposing of wastes was not a major problem, but cities with large populations and high densities require expensive public infrastructure. During the nineteenth century, rapid urban growth and industrialization caused overcrowding, pollution, and disease in urban areas. After the connection between impure water and disease was established, American and European cities began to install adequate sewer and water systems. Since the late nineteenth century, cities have also been laced with wires and conduits carrying electricity, gas, and communications signals.

Buildings

Buildings are the most visible elements of the city, the features that give each city its unique character. Residential structures occupy almost half of all urban land, with the building types ranging from scattered single-family homes to dense high-rise apartments. Commercial buildings are clustered downtown and at various subcenters, with skyscrapers packed into the central business district and low-rise structures prevailing elsewhere, although tall buildings are becoming more common in the suburbs. Industrial buildings come in many forms ranging from large factory complexes in industrial districts to small workshops.

City planners engage in a constant search for the proper arrangement of these different types of land use, paying particular attention to the compatibility of different activities, population densities, traffic generation, economic efficiency, social relationships, and the height and bulk of buildings.

Open Spaces

Open space is sometimes treated as a leftover, but it contributes greatly to the quality of urban life. "Hard" spaces such as plazas, malls, and courtyards provide settings for public activities of all kinds. "Soft" spaces such as parks, gardens, lawns, and nature preserves provide essential relief from harsh urban conditions and serve as space for recreational activities. These "amenities" increasingly influence which cities will be perceived as desirable places to live.



Evolution of Urban Form

The first true urban settlements appeared around 3,000 B.C. in ancient Mesopotamia, Egypt, and the Indus Valley. Ancient cities displayed both “organic” and “planned” types of urban form. These societies had elaborate religious, political, and military hierarchies. Precincts devoted to the activities of the elite were often highly planned and regular in form. In contrast, residential areas often grew by a slow process of accretion, producing complex, irregular patterns that we term “organic.” Two typical features of the ancient city are the wall and the citadel: the wall for defense in regions periodically swept by conquering armies, and the citadel — a large, elevated precinct within the city — devoted to religious and state functions.

Greek cities did not follow a single pattern. Cities growing slowly from old villages often had an irregular, organic form, adapting gradually to the accidents of topography and history. Colonial cities, however, were planned prior to settlement using the grid system. The grid is easy to lay out, easy to comprehend, and divides urban land into uniform rectangular lots suitable for development.

The Romans engaged in extensive city-building activities as they consolidated their empire. Rome itself displayed the informal complexity created by centuries of organic growth, although particular temple and public districts were highly planned. In contrast, the Roman military and colonial towns were laid out in a variation of the grid. Many European cities, like London and Paris, sprang from these Roman origins.

We usually associate medieval cities with narrow winding streets converging on a market square with a cathedral and city hall. Many cities of this period display this pattern, the product of thousands of incremental additions to the urban fabric. However, new towns seeded throughout undeveloped regions of Europe were based upon the familiar grid. In either case, large encircling walls were built for defense against marauding armies; new walls enclosing more land were built as the city expanded and outgrew its former container.

During the Renaissance, architects began to systematically study the shaping of urban space, as though the city itself were a piece of architecture that could be given an aesthetically pleasing and functional order. Many of the great public spaces of Rome and other Italian cities date from this era. Parts of old cities were rebuilt to create elegant squares, long street vistas, and symmetrical building arrangements. Responding to advances in firearms during the fifteenth century, new city walls were designed with large earthworks to deflect artillery, and star-shaped points to provide defenders with sweeping lines of fire. Spanish colonial cities in the New World were built according to rules codified in the Laws of the Indies of 1573, specifying an orderly grid of streets with a central plaza, defensive wall, and uniform building style.

We associate the baroque city with the emergence of great nation-states between 1600 and 1750. Ambitious monarchs constructed new palaces, courts, and bureaucratic offices. The grand scale was sought in urban public spaces: long avenues, radial street networks, monumental squares, geometric parks and gardens. Versailles is a clear expression of this city-building model; *Washington, D.C.* is an example from the United States. Baroque principles of urban design were used by Baron Haussmann in his celebrated restructuring of Paris between 1853 and 1870. Haussmann carved broad new thoroughfares through the tangled web of old Parisian streets, linking major subcenters of the city with one another in a pattern which has served as a model for many other modernization plans.

Toward the latter half of the eighteenth century, particularly in America, the city as a setting for commerce assumed primacy. The buildings of the bourgeoisie expand along with their owners' prosperity: banks, office buildings, warehouses, hotels, and small factories. New towns founded during this period were conceived as commercial enterprises, and the neutral grid was the most effective means to divide land up into parcels for sale. The city became a checkerboard on which players speculated on shifting land values. No longer would religious, political, and cultural imperatives shape urban development; rather, the market would be

allowed to determine the pattern of urban growth. New York, Philadelphia, and Boston around 1920 exemplify the commercial city of this era, with their bustling, mixed-use waterfront districts.

Transition to the Industrial City

Cities have changed more since the Industrial Revolution than in all the previous centuries of their existence. New York had a population of about 313,000 in 1840 but had reached 4,767,000 in 1910. Chicago exploded from 4,000 to 2,185,000 during the same period. Millions of rural dwellers no longer needed on farms flocked to the cities, where new factories churned out products for the new markets made accessible by railroads and steamships. In the United States, millions of immigrants from Europe swelled the urban populations. Increasingly, urban economies were being woven more rightly into the national and international economies.

Technological innovations poured forth, many with profound impacts on urban form. Railroad tracks were driven into the heart of the city. Internal rail transportation systems greatly expanded the radius of urban settlement: horsecars beginning in the 1830s, cable cars in the 1870s, and electric trolleys in the 1880s. In the 1880s, the first central power plants began providing electrical power to urban areas. The rapid communication provided by the telegraph and the telephone allowed formerly concentrated urban activities to disperse across a wider field.

The industrial city still focused on the city center, which contained both the central business district, defined by large office buildings, and substantial numbers of factory and warehouse structures. Both trolleys and railroad systems converged on the center of the city, which boasted the premier entertainment and shopping establishments. The working class lived in crowded districts close to the city center, near their place of employment.

Early American factories were located outside of major cities along rivers which provided water power for machinery. After steam power became widely available in the 1930s, fac-

tories could be located within the city in proximity to port facilities, rail lines, and the urban labor force. Large manufacturing zones emerged within the major northeastern and midwestern cities such as Pittsburgh, Detroit, and Cleveland. But by the late nineteenth century, factory decentralization had already begun, as manufacturers sought larger parcels of land away from the congestion of the city. Gary, Indiana, for example, was founded in 1906 on the southern shore of Lake Michigan by the United States Steel Company.

The increasing crowding, pollution, and disease in the central city produced a growing desire to escape to a healthier environment in the suburbs. The upper classes had always been able to retreat to homes in the countryside. Beginning in the 1830s, commuter railroads enabled the upper middle class to commute in to the city center. Horsecar lines were built in many cities between the 1830s and 1880s, allowing the middle class to move out from the central cities into more spacious suburbs. Finally, during the 1890s electric trolleys and elevated rapid transit lines proliferated, providing cheap urban transportation for the majority of the population.

The central business district of the city underwent a radical transformation with the development of the skyscraper between 1870 and 1900. These tall buildings were not technically feasible until the invention of the elevator and steel-frame construction methods. Skyscrapers reflect the dynamics of the real estate market; the tall building extracts the maximum economic value from a limited parcel of land. These office buildings housed the growing numbers of white-collar employees in banking, finance, management, and business services, all manifestations of the shift from an economy of small firms to one of large corporations.



The Form of the Modern City in the Age of the Automobile

The city of today may be divided into two parts:

- An inner zone, coextensive with the boundaries of the old industrial city.
- Suburban areas, dating from the 1920s, which have been designed for the automobile from the beginning.

The central business districts of American cities have become centers of information processing, finance, and administration rather than manufacturing. White-collar employees in these economic sectors commute in from the suburbs on a network of urban freeways built during the 1950s and 1960s; this "hub-and-wheel" freeway pattern can be observed on many city maps. New bridges have spanned rivers and bays, as in New York and San Francisco, linking together formerly separate cities into vast urbanized regions.

Waves of demolition and rebuilding have produced "Manhattanized" downtowns across the land. During the 1950s and 1960s, urban renewal programs cleared away large areas of the old city, releasing the land for new office buildings, convention centers, hotels, and sports complexes. Building surges have converted the downtowns of American cities into forests of tall office buildings. More recently, office functions not requiring a downtown location have been moved to huge office parks in the suburbs.

Surrounding the central business area lies a large band of old mixed-use and residential buildings which house the urban poor. High crime, low income, deteriorating services, inadequate housing, and intractable social problems plague these neglected areas of urban America. The manufacturing jobs formerly available to inner city residents are no longer there, and resources have not been committed to replace them.

These inner city areas have been left behind by a massive migration to the suburbs, which began in the late nineteenth century but accelerated in the 1920s with the spread of the automobile. Freeway building after World War II opened up even larger areas of suburban land, which were quickly filled

by people fleeing central city decline. Today, more people live in suburbs than in cities proper. Manufacturers have also moved their production facilities to suburban locations which have freeway and rail accessibility.

Indeed, we have reached a new stage of urbanization beyond the metropolis. Most major cities are no longer focused exclusively on the traditional downtown. New subcenters have arisen round the periphery, and these subcenters supply most of the daily needs of their adjacent populations. The old metropolis has become a multi-centered urban region. In turn, many of these urban regions have expanded to the point where they have coalesced into vast belts of urbanization — what the geographer Jean Gottman termed “megapolis.” The prime example is the eastern seaboard of the United States from Boston to Washington. The planner C.A. Doxiadis has speculated that similar vast corridors of urbanization will appear throughout the world during the next century. Thus far, American planners have not had much success in imposing a rational form on this process. However, New Town and greenbelt programs in Britain and the Scandinavian countries have, to some extent, prevented formless sprawl from engulfing the countryside.

The Economics of Urban Areas

Since the 1950s, city planners have increasingly paid attention to the economics of urban areas. When many American cities experienced fiscal crises during the 1970s, urban financial management assumed even greater importance. Today, planners routinely assess the economic consequences of all major changes in the form of the city.

Several basic concepts underlie urban and regional economic analysis. First, cities cannot grow if their residents simply provide services for one another. The city must create products which can be sold to an external purchaser, bringing in money which can be reinvested in new production facilities and raw materials. This “economic base” of production for external markets is crucial. Without it, the economic engine of the city grinds to a halt.

Once the economic base is established, an elaborate internal market can evolve. This market includes the production of goods and services for businesses and residents within the city. Obviously, a large part of the city's physical plant is devoted to facilities for internal transactions: retail stores of all kinds, restaurants, local professional services, and so on.

Modern cities are increasingly engaged in competition for economic resources such as industrial plants, corporate headquarters, high-technology firms, and government facilities. Cities try to lure investment with an array of features: low tax rates, improved transportation and utility infrastructure, cheap land, and skilled labor force. Amenities such as climate, proximity to recreation, parks, elegant architecture, and cultural activities influence the location decisions of businesses and individuals. Many older cities have difficulty surviving in this new economic game. Abandoned by traditional industries, they're now trying to create a new economic base involving growth sectors such as high technology.

Today, cities no longer compete in mere regional or national markets: the market is an international one. Multinational firms close plants in Chicago or Detroit and build replacements in Asia or Latin America. Foreign products dominate whole sectors of the American consumer goods market. Huge sums of money shift around the globe in instantaneous electronic transactions. Cities must struggle for survival in a volatile environment in which the rules are always changing. This makes city planning even more challenging than before.

Modern City Planning

Modern city planning can be divided into two distinct but related types of planning. visionary city planning proposes radical changes in the form of the city, often in conjunction with sweeping changes in the social and economic order. Institutionalized city planning is lodged within the existing structures of government, and modifies urban growth processes in moderate, pragmatic ways. It is constrained by the prevailing alignment of political and economic forces within the city.

Visionary or Utopian City Planning

People have imagined ideal cities for millennia. Plato's Republic was an ideal city, although lacking in the spatial detail of later schemes. Renaissance architects designed numerous geometric cities, and ever since architects have been the chief source of imaginative urban proposals. In the twentieth century, Le Corbusier, Frank Lloyd Wright, Paolo Soleri, and dozens of other architects have designed cities on paper. Although few have been realized in pure form, they have influenced the layout of many new towns and urban redevelopment projects.

In his "Contemporary City for Three Million People" of 1922 and "Radiant City" of 1935, Le Corbusier advocated a high-density urban alternative, with skyscraper office buildings and mid-rise apartments placed within park-like open spaces. Different land uses were located in separate districts, forming a rigid geometric pattern with a sophisticated system of superhighways and rail transit.

Frank Lloyd Wright envisioned a decentralized low-density city in keeping with his distaste for large cities and belief in frontier individualism. The Broadacre City plan of 1935 is a large grid of arterials spread across the countryside, with most of the internal space devoted to single-family homes on large lots. Areas are also carefully set aside for small farms, light industry, orchards, recreation areas, and other urban facilities. A network of superhighways knits the region together, so spatially dispersed facilities are actually very close in terms of travel time. In many ways, Wright's Broadacre City resembles American suburban and exurban developments of the post-WWII period.

Many other utopian plans could be catalogued, but the point is that planners and architects have generated a complex array of urban patterns from which to draw ideas and inspiration. Most city planners, however, do not work on a blank canvas; they can only make incremental changes to an urban scene already shaped by a complicated historical process.

Institutionalized City Planning

The form of the city is determined primarily by thousands of private decisions to construct buildings, within a framework of public infrastructure and regulations administered by the city, state, and federal governments. City planning actions can have enormous impacts on land values. From the point of view of land economics, the city is an enormous playing field on which thousands of competitors struggle to capture value by constructing or trading land and buildings. The goal of city planning is to intervene in this game in order to protect widely shared public values such as health, safety, environmental quality, social equality, and aesthetics.

The roots of American city planning lie in an array of reform efforts of the late nineteenth century: the Parks movement, the City Beautiful movement, campaigns for housing regulations, the Progressive movement for government reform, and efforts to improve public health through the provision of sanitary sewers and clean water supplies. The First National Conference on City Planning occurred in 1909, the same year as Daniel Burnham's famous Plan of Chicago. That date may be used to mark the inauguration of the new profession. The early city planners actually came from diverse backgrounds such as architecture, landscape architecture, engineering, and law, but they shared a common desire to produce a more orderly urban pattern.

The zoning of land became, and still is, the most potent instrument available to American city planners for controlling urban development. Zoning is basically the dividing of the city into discrete areas within which only certain land uses and types of buildings can be constructed. The rationale is that certain activities of building types don't mix well; factories and homes, for example. Illogical mixtures create nuisances for the parties involved and lower land values. After several decades of gradual development, land-use zoning received legal approval from the Supreme Court in 1926.

Zoning isn't the same as planning; it is a legal tool for the implementation of plans. Zoning should be closely integrated with a Master Plan or Comprehensive Plan that spells

out a logical path for the city's future in areas such as land use, transportation, parks and recreation, environmental quality, and public works construction. In the early days of zoning this was often neglected, but this lack of coordination between zoning and planning is less common now.

The other important elements of existing city planning are subdivision regulations and environmental regulations. Subdivision regulations require that land being subdivided for development be provided with adequate street, sewers, water, schools, utilities, and various design features. The goal is to prevent shabby, deficient developments that produce headaches for both their residents and the city. Since the late 1960s, environmental regulations have exerted a stronger influence on patterns of urban growth by restricting development in floodplains, on unstable slopes, on earthquake faults, or near sensitive natural areas. Businesses have been forced to reduce smoke emissions and the disposal of wastes has been more closely monitored. Overall, the pace of environmental degradation has been slowed, but certainly not stopped, and a dismaying backlog of environmental hazards remains to be cleaned up. City planners have plenty of work to do as we move into the twenty-first century.

Conclusion: Good City Form

What is the good city? We are unlikely to arrive at an unequivocal answer; the diversity of human needs and tastes frustrates all attempts to provide recipes or instruction manuals for the building of cities. However, we can identify the crucial dimensions of city performance, and specify the many ways in which cities can achieve success along these dimensions.

A most useful guide in this enterprise is Kevin Lynch's *A Theory of Good City Form* (Cambridge, MA, MIT Press, 1981). Lynch offers five basic dimensions of city performance: *vitality, sense, fit, access, and control*. To these he adds two "meta-criteria," *efficiency and justice*.

For Lynch, a *vital* city successfully fulfils the biological needs of its inhabitants, and provides a safe environment for their



activities. A *sensible* city is organized so that its residents can perceive and understand the city's form and function. A city with good *fit* provides the buildings, spaces, and networks required for its residents to pursue their projects successfully. An *accessible* city allows people of all ages and background to gain the activities, resources, services, and information that they need. A city with good *control* is arranged so that its citizens have a say in the management of the spaces in which they work and reside.

Finally, an *efficient* city achieves the goals listed above at the least cost, and balances the achievement of the goals with one another. They cannot all be maximized at the same time. And a *just* city distributes benefits among its citizens according to some fair standard. Clearly, these two meta-criteria raise difficult issues which will continue to spark debates for the foreseeable future.

These criteria tell aspiring city builders where to aim, while acknowledging the diverse ways of achieving good city form. Cities are endlessly fascinating because each is unique, the product of decades, centuries, or even millennia of historical evolution. As we walk through city streets, we walk through time, encountering the city-building legacy of past generations. Paris, Venice, Rome, New York, Chicago, San Francisco — each has its glories and its failures. In theory, we should be able to learn the lessons of history and build cities that our descendants will admire and wish to preserve. That remains a constant challenge for all those who undertake the task of city planning.

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Related Reading for Children

Fiction

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For information on city planning and related subjects, contact:

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Planners Bookstore
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The User Reference Card

Included in the SimCity box is the *User Reference Card*, which includes the *System Information and Reference Card*, the *Keyboard Reference Chart*, the *Zone Evolution Chart*, and the *City Dynamics Chart*. They're reproduced on the following pages of this manual for reference, just in case somebody's nicked the card.

The *System Information and Reference Card* gives hardware and software requirements particular to this version of SimCity.

The *Keyboard Reference Chart* gives a summary of all the keyboard controlled functions and shortcuts.

The *Zone Evolution Chart* shows the various levels of development and decline of residential, commercial and industrial zones. The level of development depends on the land value and population density. Use this chart along with the *Query* function to identify and gather information on individual zones.

The *City Dynamics Chart* lists the factors of city life and growth and shows how they interrelate. Use this chart to guide you in designing your city. It will help you find solutions to the Sims' complaints, and to problems you discover from the maps and graphs.

System Info and Reference Card

Hardware Required

SimCity requires a SPARC workstation with an 8 bit color graphics display, and at least 16 Meg of memory.

Software Required

You need to have SunOS 4.1 or later, with the shared memory option enabled, and OpenWindows V3 installed. There should be at least 3.5 Meg of space in `"/tmp"` or some other local file system. SimCity uses HyperLook 1.5 and the Elan License Manager, both of which are included.

Installing SimCity

Run `"/usr/etc/extract_unbundled"` to extract SimCity from floppy disks. Then run the script `"InstallSimCity"` from the shell, and answer the questions. It will configure and install the SimCity startup scripts.

Getting a License Key

After installing SimCity, run the script `"GetKey"` to get a key. If you don't, SimCity will run in demo mode. You should call DUX Software at +1 800 543-4999 and tell us your server code, and we'll tell you the key. SPECIAL BONUS: We'll also tell you SimCity Tip #1: EMBEZZLING FUNDS.

Starting SimCity

To start SimCity normally, run the script `"simcity"`. Also, the following scripts start SimCity in different modes:

<code>SimCity.GenerateCity</code>	<code>SimCity.NewCity</code>
<code>Scenario.Bern</code>	<code>Scenario.Boston</code>
<code>Scenario.Detroit</code>	<code>Scenario.Dullsville</code>
<code>Scenario.Hamburg</code>	<code>Scenario.Rio_de_Janeiro</code>
<code>Scenario.San_Francisco</code>	<code>Scenario.Tokyo</code>

Important!

SEND IN YOUR REGISTRATION CARD! We'll keep you informed of updates, upgrades, options and expansions to SimCity. All information is confidential — we will NOT release your name or address to anyone.

Keyboard Reference Chart

There are several keyboard shortcuts in SimCity¹. Keep the keyboard reference chart handy.

The following keys work with any SimCity window, the same as they work with the other windows on the desktop:

- The “*Front*” key (L5) brings the window under the cursor to the front, or pushes it to the back, if it’s already in front.
- The “*Open*” key (L7) closes a window to an icon, or opens an icon to a window.

The following keys are only applicable when the cursor is in the *Edit Window*:

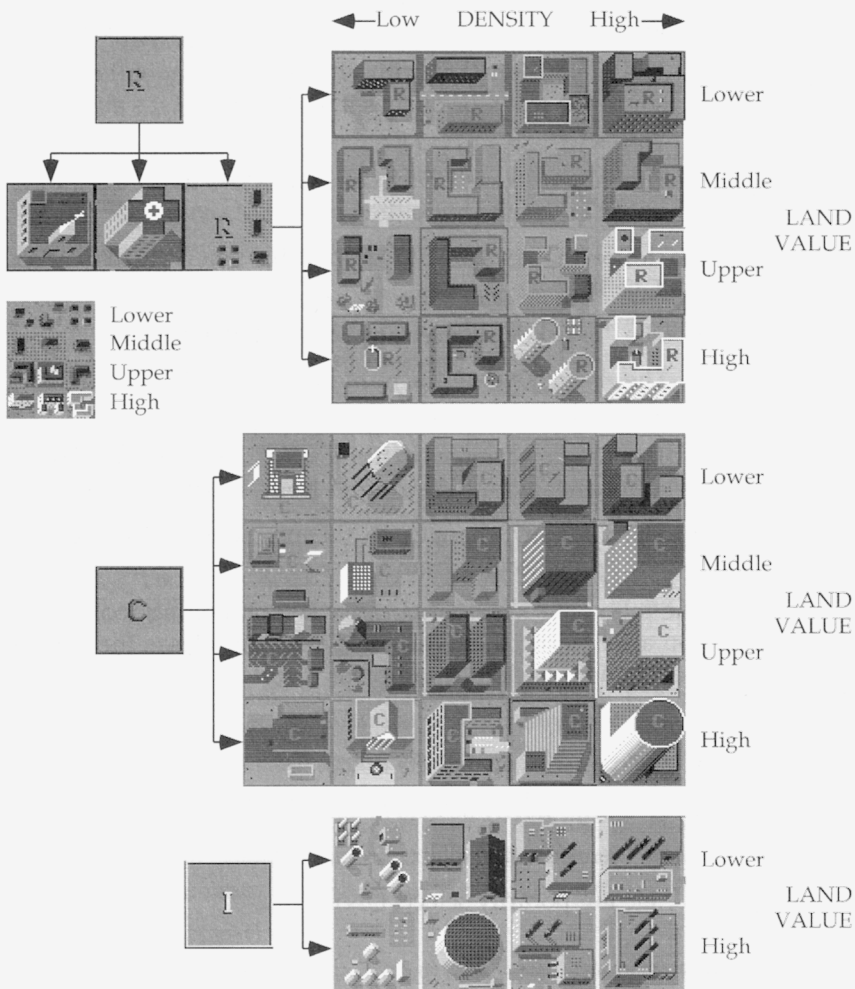
- The “*Esc*” key silences any sound that is playing.
- The *Arrow Keys* on the numeric keypad (R8, R10, R12, and R14) scroll the view by three tiles.
- The “*X*” key changes to the next editing tool in the *Tool Icon* pallet, wrapping around from *Airport* to *Query*.
- The “*Z*” key changes to the previous editing tool, wrapping around from *Query* to *Airport*.

The following keys temporarily switch editing tools, while you are holding them down. When you release the key, the tool changes back to what it was before:

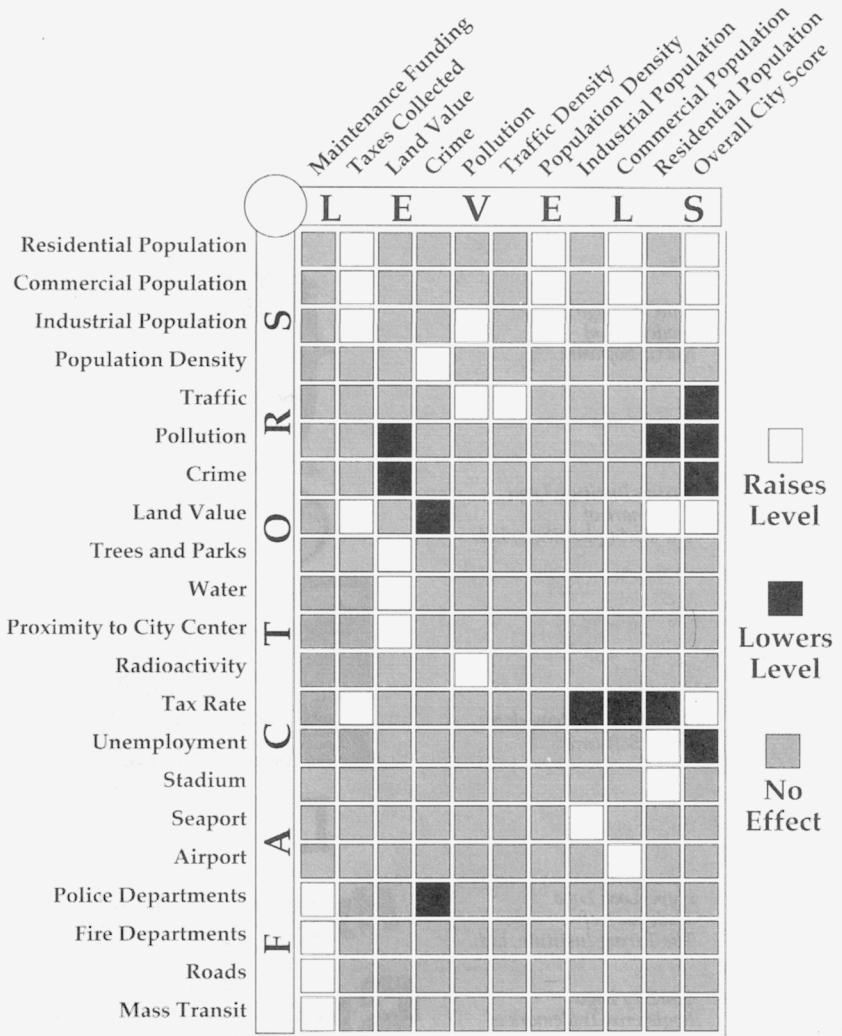
- “*B*” temporarily selects *Bulldozer*.
- “*R*” temporarily selects *Roads*.
- “*P*” temporarily selects *Power Lines*.
- “*T*” temporarily selects *Train Tracks*.
- “*Q*” temporarily selects *Query*.

1. Keep the “*Num Lock*” and the “*Caps Lock*” keys off! You may have troubles if you use “*click to type*”. If so, turn it off by running the “*Workspace Properties*” utility, selecting the “*Miscellaneous*” category, and switching the “*Set Input Area*” setting to “*Move Pointer*”.

Zone Evolution Chart



City Dynamics Chart



Trademarks and Logos

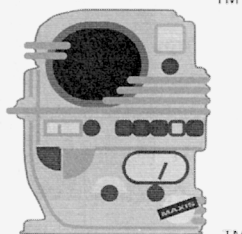
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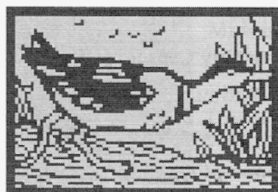
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