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Publication Date

1997-12-01

Peer reviewed

Working Paper 97-07

**An ArcView Application for the
Planning Department of the City of Oakland**

Juan Pablo Monzon



The University-Oakland Metropolitan Forum is a partnership of the University of California at Berkeley; California State University, Hayward; Mills College; Holy Names College; the Peralta Community College District; and the Oakland community.

University of California at Berkeley
Institute of Urban and Regional Development

PROFESSIONAL REPORT

MASTER OF CITY PLANNING

Department of City and Regional Planning

UNIVERSITY OF CALIFORNIA BERKELEY

Spring 1997

The *University-Oakland Metropolitan Forum* encourages faculty members to design assignments for graduate classes and studios that will result in valuable information and ideas for the Oakland community. The Forum may propose topics, bring teachers and students in contact with decision makers and users of the work, and/or support presentation and publication of the final designs and reports. This is one of those reports. The ideas expressed in this document are those of the students and do not necessarily represent the official position of the Forum.

The University Oakland Metropolitan Forum is a partnership dedicated to using the resources of the colleges and universities to enhance the quality of life in the Oakland region. Participating institutions of higher education include Holy Names College, Mills College, California State University, Hayward, Peralta Community College District, and the University of California at Berkeley. The Forum is broadly representative of the community, with over 1700 persons involved at this time, and provides settings for nonpartisan analysis, discussion, and leadership on critical issues facing Oakland. Task forces are formed to follow through on more specific issues and projects.

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EXECUTIVE SUMMARY

Geographical Information Systems (GIS) represent a powerful tool to make more efficient decisions by taking into account many spatial variables into a single analysis. They provide information but they also provide mechanisms for the analysis of information. In addition, today GIS can be customized to create user-friendly interfaces and applications that respond to the needs of a particular institution. Because of their multiple benefits, many organizations are now trying to incorporate GIS into their operations.

This project consists of an ArcView application designed for the Planning Department, a division of the Community and Economic Development Agency (CEDA) of the City of Oakland, California. It represents an example of how ArcView can be customized to create a more user-friendly interface that responds to the particular needs of a planning office. New menus, buttons and programmed routines (Avenue Scripts) have been added to facilitate the use and analysis of spatial information for planning and decision making. The design of the application was based on preliminary research which included interviews with planners and interns at CEDA and experimental work sessions.

The customized application consists of four modules:  Demographics,  General Plan,  Parcel Information and  Geocoding. This modules do not work independently but in a integrated way.

What are you able to do?

Demographics

- Obtain census information by planning area, census tract, block group or block
- Obtain demographic information of a defined area and present them in a table or chart
- Obtain demographic information of an area within a certain distance of a given address or point.
- Map a census variable by census tract, block group or block
- Calculate gross densities, i.e. units per acre, population per acre, etc.



General Plan

- Produce a General Plan land use distribution table or chart for any given area in the city.
- Check the current zoning in different general plan classifications.



Parcels

- Produce land use tables, charts or a land use map of a selected group of parcels
- Examine the zoning and General Plan classifications of a selected group of parcels
- Select the parcels that are within a certain distance of a given address or point
- Map any of the available variables in the Alameda County assessors database
- Find a parcel according to its APN number and get the corresponding information
- Select parcels according to their vacancy status or any other given criteria
- Calculate statistics and net densities of any of the variables of the assessor's database for any group of parcels. i.e. units per acre, total assessed value per acre, etc.



Geocoding

- Map your own databases and integrate them into the system.
- Map any of the variables of your database.

Integration

This application also allows you to integrate General Plan, parcel, census information and your own databases by providing the following operations:

- Select parcels according to the zoning or General Plan classification and then perform any of the described analysis of the parcel section.
- Select the parcels located inside specific areas of the general plan and then perform any of the described analysis of the parcel section.
- Select the parcels according to their census tract.

- Select the census tracts, block groups or blocks in which a selected groups of parcels are located and get the demographics of the area.
- Select different records of your databases according to the Census Tract, Planning Area, General Plan or zoning classification, even if your database does not include those fields, and then obtain the statistics of any of the variables (total, mean, etc).
- Select the different records of your database that are within a certain distance of a given address or point.

BENEFITS

A GIS application will produce the following benefits to CEDA:

- GIS accessible to planners with no GIS experience.
- An easy to use and understand screen organization.
- A user-friendly interface
- Integration of the information and different levels of analysis
- An application design according to needs of Strategic Planning. One of the objectives of creating this application is to facilitate the rezoning process.

OUTPUTS

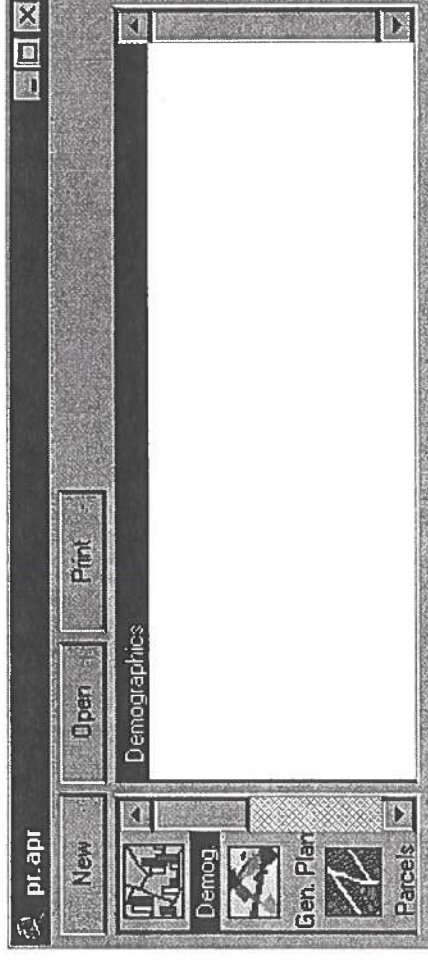
An application which is available on some computers in Strategic Planning (1330 Broadway, 3rd floor), a User Manual and Training Exercises.

BASIC CONCEPTS AND ORGANIZATION

HOW TO START

After starting Arcview, use **Open Project** under the **File** menu and locate the your project file. If it is a new project, just save it by using the **Save As** command under the **File** menu.

The following initial screen will appear:



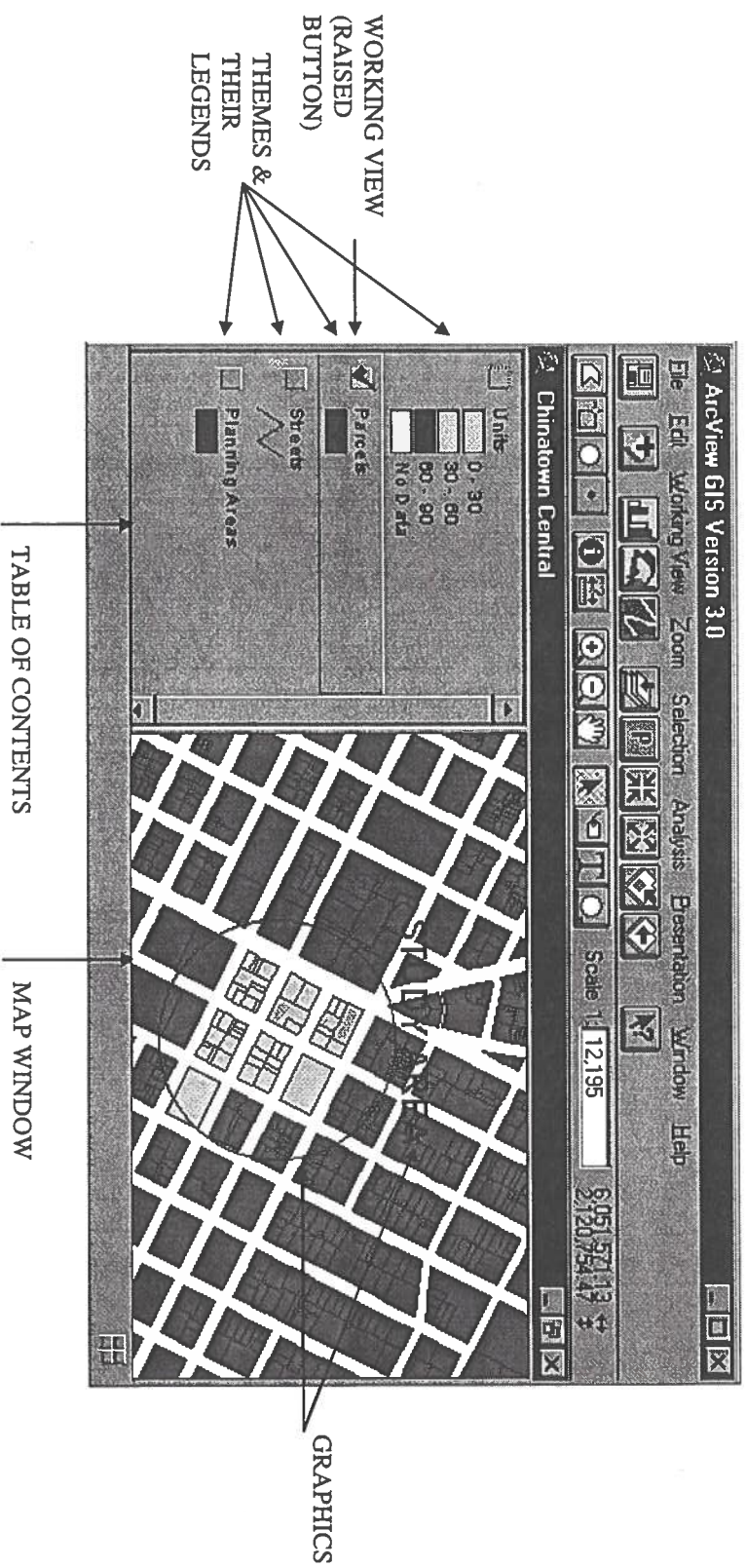
You can choose to work with demographics, the General Plan or parcel databases. When working with parcels, you also need to choose the planning area. If you are already an Arcview user you can find all the Arcview documents (View, Tables, Charts, Layouts and Scripts) below the parcels icon in the initial screen.

HOW TO FINISH

When you finish, save your work by using **Save as** under the **File** menu. The project will be saved with a .apr extension. After saving your work, choose **Exit** under the **File** menu. It is important to realize that your project - what you saved- does not include the data. This means that if you need to move to another computer you need to copy the project file (.apr) plus the data sets. If you are going to continue working in the same computer you do not need to copy the data assuming that nobody else will delete your data.

CONCEPTS

In order to facilitate the understanding of this manual and the application, the user should be familiar with the following concepts and parts of the screen:

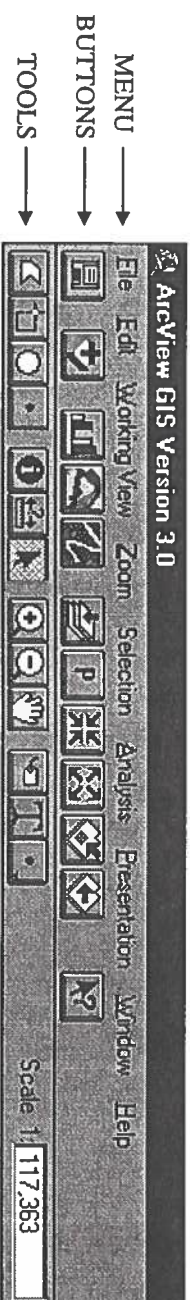


- Check Mark:** It indicates which themes are visible. You can click on the small box near the theme's name to make a check mark appear or disappear. As a general rule, your working view should be always visible. If many themes are visible, the ones at the bottom are drawn first and the themes above will be drawn on top. This means that sometimes you might only be able to see the one at the top of the table of contents. However, you can change the order of the maps in the table of contents by dragging the legend of the theme to the desired position.

- **Features:** The features are the different parts of the map (lines, polygons and points). Each feature represents “something”. A line may represent a street, a polygon, a parcel, and a point a residential care facility, for example.
- **Yellow:** The yellow color on the map features indicates which features of the working view are “selected”.
- **Color of the thematic maps:** You can change the color of the thematic maps by double clicking in the legend of the thematic map. The legend editor window will appear. Double click on the color you want to change. The fill palette window will appear. Click on the color brush . Click on the new color and then click Apply.
- **Order of the thematic maps:** Since Arcview allows you to see different thematic maps at the same time, the order of the thematic maps in the table of contents represents the order in which maps are drawn in the map window. The ones at the bottom are drawn first. This means that sometimes you are not able to see one map because another map is drawn over it. However, you can change the order of the thematic maps in the table of contents by dragging the legend of a particular map to the desired position.

STRUCTURE

The application consists of pull-down menus, buttons and tools. Pull-down menus are lists of possible operations or commands that the application can perform. Commands are conveniently grouped in a way that users can easily find them. The menu bar is located at the top of the screen. Immediately below the menu bar, there are buttons that perform certain operations when the user clicks on them. All these operations can also be done by choosing the appropriate command in the pull-down menus. Buttons are just a faster way to access some of the existing commands. The tool bar is directly below the button bar. Tools are operations that require an action with the mouse. This means that the user is supposed to go to the map and click on the desired location. Menus, buttons and tools have all been customized in order to create a more user-friendly interface.



MENUS

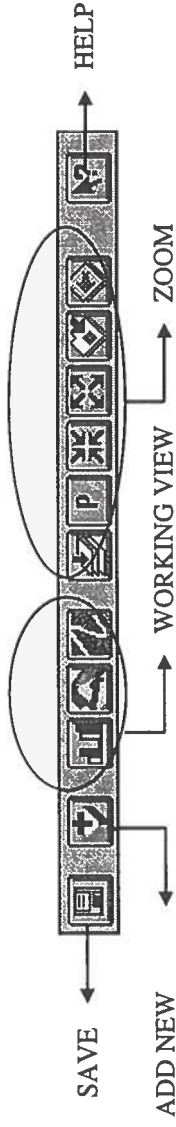
The menu-bar is composed of the following options:



The menu bars follow a “left to right” logic. This means that the user generally chooses a command in a pull-down menu and then goes to the next pull-down menu to perform another operation. **Working View, Zoom, Selection, Analysis, and Presentation** are the core menu of the application. First you have to select the **Working View**, which is the map and unit of analysis you want to use, i.e. parcels, census tracts, general plan. Then you **Zoom** into the area of analysis in order to see the part of the map that interest to you. Next, you perform a **Selection** and choose the area you want to analyze according to some criteria. i.e. zoning classification, census tract, planning area, assessor parcel number, etc. After making a selection, you perform the desired **Analysis**. For example, you can obtain the land use distribution, the demographics of the area, create a land use map, etc. After that, you are ready to produce a **Presentation** and create a layout to present the map or produce a report with the information. Left of the core menu you can find two more menus: **File** and **Edit**. **File** allows you to save your work, print, exit, etc. While **Edit** enables you to copy and paste elements, change colors and legends, etc. Right of the core menu there are three more pull-down menus: **Geocoding, Windows** and **Help**. **Geocoding** allows you to map your own databases in order to integrate them into the system. **Windows** allows you to switch from window to window or to see different windows at the same time. **Help** is just for getting information about commands and procedures.

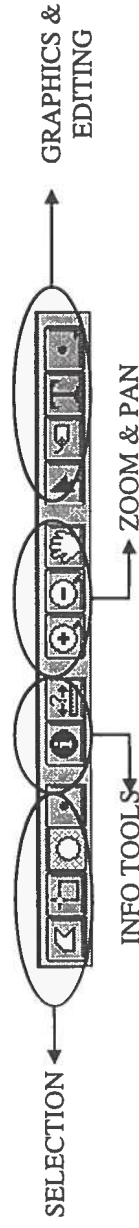
BUTTONS

Buttons allow you to access certain commands in a faster way. You can use them for choosing the **Working view** (Demographics, General Plan, Parcels), **Zooming** into the area of interest, getting **Help** and **Saving**. The organization of the button bar is as follows :



TOOLS

Tools provide you additional operations that require an action in the map using the mouse. They allow you to select a specific region in the map, to obtain the available information of a specific feature in the map, to measure distances from two given points, etc. The organization of the tool bar is the following:



- **Selection Tools:** They provide other mechanisms of selection that allows the user to select a specific area of the map. They allow you to select an area by drawing a polygon or a square in the map, by clicking on the feature, or by giving a point and a radius.
- **Info Tools:** They provide information associated with the map. The **Identify tool**  gives the information associated with a specific feature in the map. After clicking on , you should click on the desired feature in the map (for example, a parcel). Then, a small screen with the information associated with that feature will appear. The **Measure tool**  allows you to measure the distance between to given points.

- **Zoom tools:** The zoom tools allow you select which part of the city you want to see in the map and enlarge it by drawing a square around the area, or by just clicking on the center. The **Pan** tool  allows the user to move the map to a new position.
- **Graphic tools:** These tools allow you to incorporate graphics into the maps. Examples of graphics are streets names, text, a circle etc. These tools are discussed in more detail in the **Edit** menu section.

If you want to know what a button or tool does, move the cursor over the button but do not click on it. A flag will appear describing the button's function.



FILE

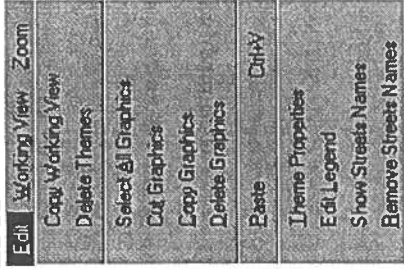


The File menu allows you to save your work, to close windows, to print and to exit the application.

- **Close:** Close the current window. This is the same as pressing X in the upper right-hand corner of the window.
- **Initial Menu:** Close all the windows and return to the initial screen.
- **Set Working Directory:** All the new maps and tables you create will be saved to this directory, unless you specify another directory when saving your work. It is a good idea to set your working directory to your personal folder before starting.
- **Save Project:** To save your work. If you want to save it with another name you need to go to the initial screen (choose **Initial Menu** under **File** menu) and in the initial screen choose **Save as** under the **File** menu.
- **Print:** To print the current window.
- **Print Setup:** To select your print options and setup the printer.
- **Export:** For exporting the current window to another format for use with another program.

- **Exit:** To end your work session

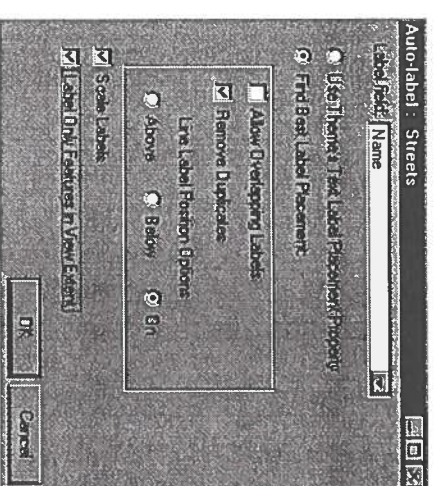
EDIT



The **Edit** menu and the **edit tool buttons**  give you the possibility of adding text, labels, figures, etc. to your map. The edit menu consists of the following options:

- **Copy Working View:** This option allows you to copy the current working view to another working view. For example, you can copy a parcel selection and show it with the demographic information stored in a different working view. After using **Copy Working View**, switch to another working view and then select **Paste** under the **Edit** menu.
- **Delete Themes:** Allows you to delete certain themes. A list of themes will be provided and you can select the ones you want to delete. You are not allowed to delete the following themes: Streets, Census Tracts, Blocks, Block Groups, General Plan and Parcels. If for any reason, the name of the themes you create is equal to the cited names and you want to delete it, use **Theme Properties** under the **Edit** menu to change the name of the theme before trying to delete it. Otherwise, you will not be allowed to delete it.
- **Select all Graphics:** Select all the graphics of the map window. Text, figures and street names are all graphics.
- **Cut Graphics:** Cut all the selected graphics from the map view. Use **Paste** to retrieve them even if you are in another working view. Use **Select all Graphics** or the select graphics tool  to select the graphics you want to cut.
- **Copy Graphics:** Copy all the selected graphics of the map view to another working view. After copying, use **Paste** to retrieve the graphics. Use **Select all Graphics** or the select graphics tool  to select the graphics you want to copy.
- **Delete Graphics:** Delete the selected graphics from the map window. You can use the select graphic tool  to select the graphics you want to delete or use **Select all graphics** if you want to delete all of them.

- **Paste:** Use paste to retrieve the themes or graphics you have previously cut or copied.
- **Theme Properties:** This command provides you with the possibility of changing certain properties of the themes such as the name and the label. You need a password if you want to change the following themes: Census Tracts, Block Groups, Blocks, Streets, Planning Areas, General Plan and Parcels.
- **Edit Legend:** This command allows you to change the colors or the labels and classifications of the legend of a the working view.
- **Show Street Names:** Use this command to add the street names to your map. For better results, choose the following options in the auto-label streets screen:
 1. Field name: Choose Name to show the name of the street.
 2. Click on "Find best label placement"
 3. Do not allow duplicates. Click on remove duplicates
 4. In the "Line Label Position Options" click "ON"
 5. Click on "Scale Labels"
 6. Click on "Label Only Features in View Extent"
 7. Click the OK button.
- **Remove Street Names:** Use this option to delete the street labels.



The following editing tools are also available:

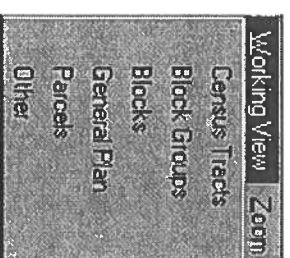
-  Use the pointer to select the graphic you want to edit or delete. The four corners of the graphic will appear in the screen. Then, you can drag the graphic to another position. It is also possible to change the size of the graphic by pointing at one of the corners of the graphic and then dragging it while holding down the left button of the mouse.

-  Use this button to label a feature in the map window. The label text will vary with the working view. In the demographics working views, the label is the census tract, block group or block number. In the parcel working views, the label is the APN number. In the General Plan Working View the label is the zoning classification.
-  The text button provides you with the possibility of adding text to your map window. You only need to click on the place where you want the text.
-  If you want to add figures such as lines, squares, polygons, circles, etc., click on the figures tool. If you hold down the button, a menu of figures will appear. Click on the kind of figure you want to use and then draw it using the mouse. For polygon features, click at each point where you want a vertex and double click when you finish.

CHOOSING YOUR AREA OF ANALYSIS

WORKING VIEW

The **Working View** Menu allows you to select the map you want to work with. The application consists basically of three main components:



Demographics (which includes census tracts, block groups and blocks)



General Plan

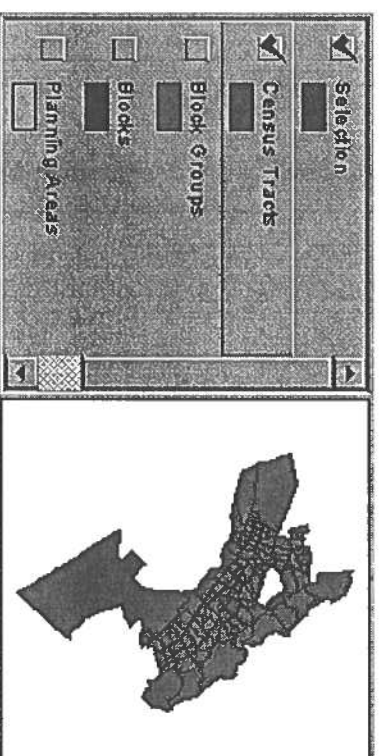


Parcels (12 parcels maps, one map per planning area)

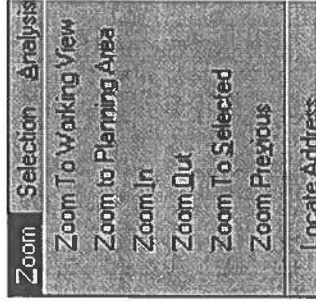
The **Working View** pull-down menu and the **Working View** buttons  allow you to change from

one working view to the other. The **Working View** you select is the one that will be used for a particular analysis.

You can also add new working views when you use **Save Selection** under the **Selection Menu**. All the selections you have saved will be available when you choose **Others** in the **Working View** pull-down menu. The **Working View** will be always raised in the table of contents, which is the table with all the legends located left of the map. This is very important because you should be aware of which working view you are using before analyzing your data.



ZOOM



The **Zoom** Menu allows you to select which part of the City you want to see in the map window. In addition to the zoom menu, you can also use the zoom buttons for performing the same operations. The **zoom** menu consists of the following commands:

 **Zoom to Working View:** Displays the complete area of the working view.

 **Zoom to Planning Area:** Zoom to the selected planning area.

 **Zoom In:** Zooms in on the center of the map.

 **Zoom Out:** Zooms out from the center of the map.

 **Zoom to Selected:** Zooms to the selected area. (If this command is not available, that is because you have not selected any area yet.)

 **Zoom Previous:** Returns to the previous display.

Locate Address: Use this command to locate a specific address in the map.

In addition, the following tools are available:

 **Zoom In:** Allows you to click on what you want to be the new center of the map or to draw a square in the map while holding down the left button of the mouse. The area inside the square will be displayed in the map window.

 **Zoom Out:** Allows you to click on what you want to be the new center of the map or to draw a square in the map while pressing the left button of the mouse. The current display will be redrawn inside the square.

 **Pan:** Allows you to move the map by dragging it in any direction to a new position. You can do that by holding down the left button of the mouse while you move it to the new position.

SELECTION

The main purpose of the **selection** menu is to allow the user to select the areas of your **Working View** to be analyzed. Since the selection commands allow you to select features of your working view, it is very important to be aware of what your working view you are using. The **Working View** will be always raised in the table of contents, which is the table with all the legends located left of the map.

All the areas you select will temporarily change their color to yellow to indicate that they have been selected. There are two variations of this menu: one for demographics and general information and another for parcel analysis. Note that if you have features colored yellow you might not be able to identified the selected features.

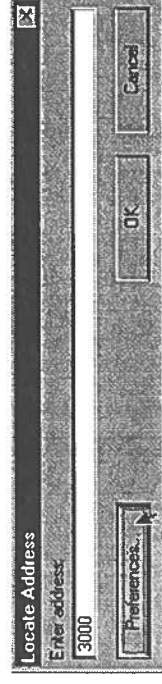
DEMOGRAPHICS & GENERAL PLAN



When working with demographics  or with the General Plan , the **selection** menu, consists of the following options:

- **By Planning Area:** This command selects all the areas inside a given planning area. It will select only those polygons whose center is inside the planning area. For example if a block is exactly on the limit between Fruitvale and San Antonio but its center is in Fruitvale, this block will be selected only when the Fruitvale area is chosen.
- **By Census Tracts:** This commands allows you the possibility of selecting areas according to their census tracts. A list of census tracts will appear in the screen and you can select as many as you want. You just have to click on the ones you want to use and a black background will appear on the list in those you have selected. If for any reason, you want to de-select a census tract, just click on the number again and the black background will disappear.

- **By Surrounding Region:** This command gives the possibility of selecting the area around a specific address. First you have to enter the address and then the distance of the radius in feet. All polygons within that distance will be selected even if the polygon is not completely inside the area. For example, if part of a specific census tract is within the given radius, then the entire census tract will be selected. For better results on small study areas, it is better to use the **Block Working View**. If the address can not be found, it is recommendable to click on **Preferences** and decrease the spelling sensitivity, the minimum match score and the minimum score to be considered as a candidate. However, be careful because if those values are decreased significantly there is the risk of matching your data to the wrong addresses. A point will always appear at the location of the given address. If you want to delete that point, click on it using the pointer  and then use the command **Delete Graphics** under the **Edit** menu.



Recommended Address Formats:			
3000 Telegraph Ave	22 E 14th St		
140 Sunnyhills Rd	1000 Macarthur Blvd		
100 MLK Way	600 Hillgirt Cir		
200 Lakeside Dr	5000 Hedge Ln		

- **By Parcel Selection:** This command allows you to select those polygons (Census tracts, blocks, etc depending on your working view) that intersect those parcels you have selected in the **Parcel Working View**.  In order to use this command, you should have previously selected a group of parcels in the **Parcel Working View**. This command allows you to integrate the parcel information with the general plan and demographic information by allowing you to select polygons in different working views according to your selected parcels.

- query to select polygons from your previous selection.

Census Tracts

Fields

- [Centract.i]
- [Fipsc0]
- [Cbnas9]
- [Persons]**
- [White]
- [Black]
- [Am.Indian]

Values	
8	
13	
34	
351	
775	
783	

☒ Update Values

New Set

Add To Set

Select From Set

- **Save Selection:** This command allows to save your selection. It saves the selected polygons and their corresponding information. This is useful for many reasons. First, it allows you to continue working with the same selection any other time. In addition, the saved selection will be a new theme (a new map) so you can decide whether to show it or not by clicking on the name of the theme (map) in the table of contents. In addition, a saved selection can be the **Working View**. When you select **others** in the **Working View** menu, the names of your previously saved selections will appear and you can select one of them. This is very useful when you need to sub-select areas of your selection.
- **Clear Selection:** Use clear selection when you want to cancel the selection. All the selected features will change their color from yellow to their original color.



In addition to the previous commands, it is possible to select features manually using the selection **Tools**:



This tool allows you to draw a polygon and select all the features that intersect that polygon. For drawing the polygon in the map, click on each place where you want a vertex to be. Double click when you finish drawing the polygon.



With this tool you can draw a square and select all the features that intersect it. For drawing the square, click on one point of the map and then drag the mouse. A square will appear. Stop dragging the mouse when the square has the size you want. This tool also can be used to select specific features when you click on them. You are able to select many features if you hold down the shift button while you click on the different features.

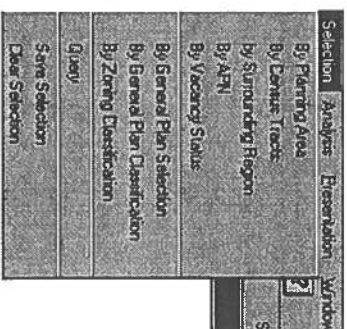


This tool allows you to select all the features within a certain distance of a given point. First you have to input the center point with the mouse and then the program will ask you for the radius of the circle in feet. All the features that intersect the circle will be selected.



This tool allows you to select different features, one by one. You only need to click on each feature. Hold down the shift button if you need to select many features.

PARCELS

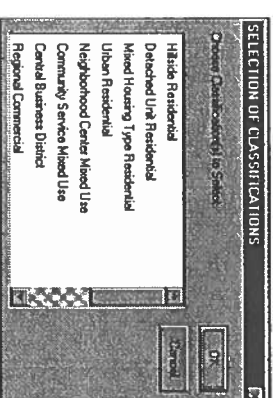


The Selection menu when working with **parcel**  **working views** offers the previously described ways of selection plus some additional ones. You still can select parcels according to the planning area, or census tracts, or those parcels within a certain distance of a specified address, etc. but in addition to these operations, the **selection menu** in the parcel  **working view** offers the following selection possibilities:

- **By APN:** This command allows you to select one or more parcels according to the Assessor's Parcel Number (APN). You only need to input the APN number. The recommended format is as follows: 009 074603700 or 009G074603700. It is important to observe that if the APN does not include a letter after the three first digits, there should be a blank space. However, the program will recognize the APN number even if you don't leave that blank space. Make sure you do not enter extra spaces or hyphens (-) as part of the APN.
- **By Vacancy Status:** This command selects all the parcels that are vacant according to the Office of Planning and Building Land Use field in to the assessors database. If you need to select the vacant parcels of a selected area, first save your selected area with **Save Selection** and make the saved selection your **Working View**. In this way, you can use this command to sub-select parcels from a previous selection.

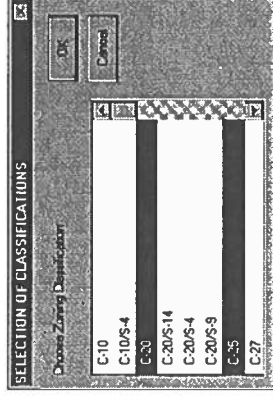
- **By General Plan Selection:** This command allows you to select those parcels according to the previous selected features in the **General Plan Working View** . All the parcels that intersect the selected polygons in the **General Plan Working View** will be selected. In order to use this command, you should have previously selected a group of parcels in the **General Plan Working View**.

This command is very useful for obtaining parcel information (i.e. unit density) for a specific area in the general plan map. In other words, this command allows you to integrate the parcel maps with the general plan.



- **By General Plan Classification:** You can use this command to select parcels according to the General Plan classifications. You are allowed to select as many classifications as you want. All the parcels that intersect the selected uses will be selected. If you want to see the General Plan classifications that affect a selected group of parcels, go to the **Analysis Menu** and choose **Show General Plan**. If you want to select the parcels of the existing selection that are under a specific general plan classification, first save the previous selection with **Save Selection** and make it your **Working View**. Then, you will be able to select the parcels of the selection that are under specific general plan classifications.

- **By Zoning Classification:** You can use this command for selecting parcels according to general plan classifications. You are allowed to select as many classifications as you want. All the parcels that intersect the selected uses will be selected. This means that if a parcels lies on the line between two zoning classifications: C10 and C20, it will be selected when choosing either one of those two zoning



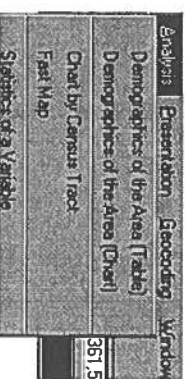
- classification. If you want to see the zoning classifications in the map, use the **Show Zoning** command under the **Analysis Menu**. If you want to select the parcels of the existing selection that are under a specific zoning classification, first save the previous selection with **Save Selection** and make it your **Working View**. Then, you will be able to select the parcels of the selection that are under specific zoning classifications.

ANALYZING YOUR SELECTED AREA

ANALYSIS

The analysis menus permit you to work with the data of the selected areas and produce summaries, charts, tables, maps, etc. The analysis allowed is different depending on whether you are working with demographics, the General Plan or parcels. When performing analysis you should have selected the area of analysis with the **Selection** menu or tool. Otherwise, the analysis will be done for the entire city.

DEMOGRAPHICS



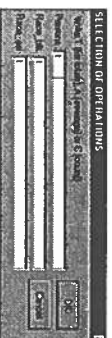
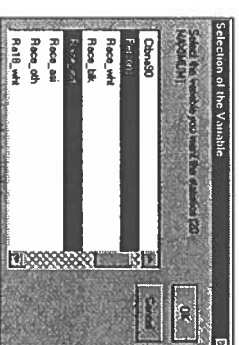
The **Analysis** menu in the demographics working view allows you to obtain aggregated demographic information (1990 Census) for a selected group of census tracts, blocks or block groups. It is also useful for analyzing the distribution of a variable between census tracts, blocks or block groups. This menu offers the following possibilities:

- **Demographics of the Area (Table):** Use this command for obtaining aggregate information (1990 Census Information) for your selected area.

1) First, you have to define the variables you want to use. You can select 20 variables at the most.

1) After selecting the variables, you need to input for each of them the kind of operation you want to perform. If you want the total, enter “t” but if you want the average enter an “a”. Most of the time, you will probably want the total, which is the default option. However, sometimes it will be useful to have the average of a variable within census tracts, blocks or block groups.

2) The output will be a table with the information you requested for the selected area. You will be asked to choose the name of the file under which to save the table. This table is a dBase file and therefore



you can use it later in Excel or any other spreadsheet software. The variable “Count” in the table indicates the number of census tracts, blocks or block groups in the selected area.

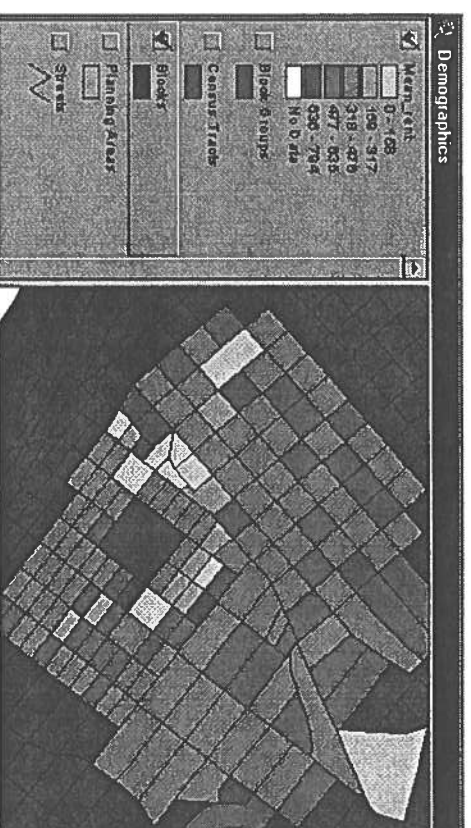
Region	Count	Sum_Foreign	Sum_Black	Sum_ASI
Selection	4	9865.0000	7494.0000	741.0000

- **Demographics of the Area (Chart):** This command works much like the previous command, the difference being that the output is a chart (either pie or bar chart) showing the percentage distribution of the selected variables. When doing a pie chart, you should be very careful when selecting your variables. You should select only those variables with which you can create a percentage distribution that totals to 100%. For example, you can select all the variables related with race to create a race distribution chart or you can select the number of rental-occupied units and the number of owner-occupied units to create a chart with tenure distribution. When creating a bar chart you should make sure to include comparable variables.



- **Chart by Census Tract:** This option works in the same way as **Demographics of the Area (Chart)** option described before with the only difference that a chart will be produced for each census tract, block or block group. This option is useful for comparing different census tracts, blocks or block groups. When using this command, it is recommendable to have selected areas with not so many census tracts, block or groups.
- **Fast Map:** This option allows you to create a “thematic map” to show the distribution of a specific variable in the selected region. For example, you can produce a map that shows the number of housing units, Hispanic population, or rental units. The procedure is as follows:
 - 1) Select the variable you want to map
 - 2) Enter the name of the file under which you want to store the map
 - 3) Enter the number of categories or groups. This number indicates into how many categories you want to distribute your results. A color will be assigned to each category.

4) The output is a thematic map.



If you want to change the colors, double click on the name of the map, then double click on the color you want to change. After that, click on the color brush  and then click on the new color. After changing the colors you need to click on Apply in the lower right hand corner of the legend editor window.

categories are calculated using an equal interval. This means that the amplitude or range of each group will be the same. If you want to change the type of classification or the number of groups, click on the name of the map to get the legend editor. Then, click on Classify in the right hand of the window and select the new type and number of groups. When you are done, click on Apply in the right hand of the window.

If you do not want to see the map anymore you can click on the check mark near the name of the map in the table of contents. If you want to delete the map, go to **Edit** and choose **Delete Maps**. The map will be deleted from your map window but you still will have you in your hard disk. If you want to use it again, you can use the button **Add New Map**  to add it to your map window again. You need to use Window Explorer or File Manager to delete it permanently.

- **Statistics of a Variable:** This command gives a list of different statistics and measurements for a selected variable in the selected region. (When using this option, you should previously have selected a specific area, otherwise you will obtain the proposed land use distribution for the whole city). The statistics displayed are:
 - total
 - count: this is the number of census tracts, blocks, block groups or parcels (depending on the working view) selected.
 - mean
 - maximum and minimum
 - range
 - variance and standard deviation
 - Total Area (in square feet and acres)
 - Density

For example, if you select the variable Housing in the Census Tract working view, the statistics list will provide you with the total number of housing units for the selected area, the average number of housing units per census tract, the total area of analysis and the density, which is a gross density.



The **Analysis** menu in the general plan Working View provides the following two options:

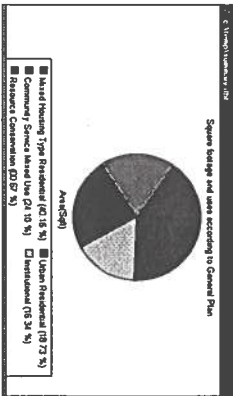
- **Land Use Distribution:** Use this option for obtaining the proposed land use distribution of a selected area according to the General Plan. (When using this option, you should previously have selected a specific area, otherwise you will obtain the proposed land use distribution for the whole city). The procedure is very simple but very useful:

- 1) The application will ask for the name of the file in which the land use distribution table will be saved. It will be saved as a dBase file, which means that you can later open the file in Excel or any other spreadsheet program.

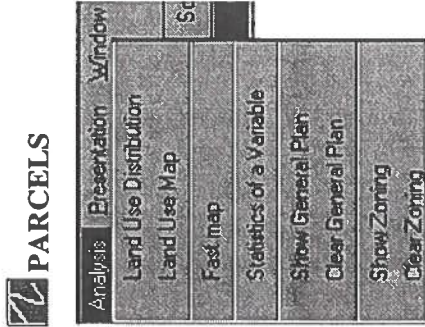
summary.dbf			
Order#	Area	AreaSQM	LandUse
3	6	6526266.0346	Mixed Housing Type Residential
4	4	3043514.2233	Urban Residential
6	3	3916061.9864	Community Service Mixed Use
12	2	2655502.9375	Institutional
14	1	108937.3454	Resource Conservation

- 2) The table will appear on your screen.
- 3) Select whether you want a pie or a bar chart.

- 1) The chart will be displayed on your screen. The name of the chart will be the name of the file under which you save the table. You can print the chart with the **Print** option under the **File** menu or you can close the chart window by clicking on the X in the upper right hand corner of the chart window. The chart has been already saved. You can call it up later with the command **Get Chart** under the **Presentation** menu.



- 2) You can close the table window and return to the map window. If you want to see the table again you need to go to the **Presentation** menu and choose **Get Table**.
- **Statistics of a Variable:** This commands gives a list of different statistics and measurements for a selected variable in the selected region. For general plan analysis, probably the most important variable is Area. With statistics you can obtain the total area in square feet and acres for the selected area.



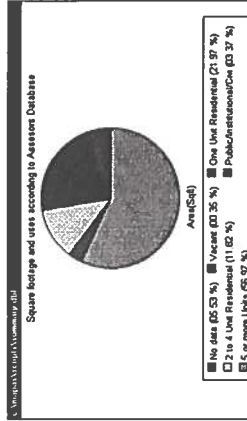
The Parcel Analysis menu allows you to get the land use distribution of a specific group of parcels, to map or get statistics of certain variables of the assessors databases, and to see the zoning and general plan classification for the selected region. Before running any of the analysis, make sure that you have selected a group of parcels, otherwise the analysis will be done for the whole planning area. The analysis menu in the parcel working view offers the following options:

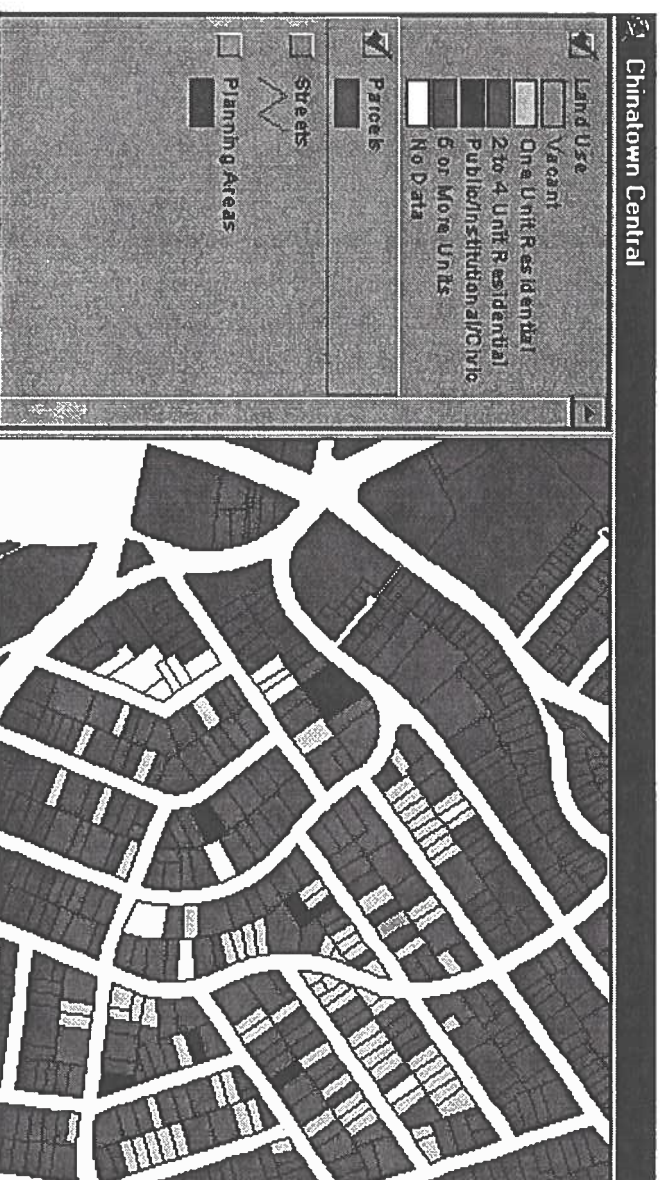
- **Land Use Distribution:** This option gives you the existing land use distribution of the selected parcels according to the assessors database and the land use variable provided by the Office of Planning and Building. The output is a table with the land use distribution and a chart with the percentage distribution. The table is a dBase file so you can use it later in Excel or any other spreadsheet software. The chart is stored in the application with the same name as the source table. Press X in the upper right hand corner to close the chart and the table windows and return to the map window. If you want to use the chart or the table later you can go to the **Presentation Menu** and use the commands **Get Table** and **Get Chart**. It is also important to note that the tables and charts include a category called "no data" in order to show the number of parcels without land use information.

- **Land Use Map:** This option allows you to create a fast land use map for the selected area. The application will ask you for the file where you want to store the map. Then, the existing land use will be shown in your map window.

A screenshot of a summary table titled 'summary.dbi'. The table has four columns: 'Unit', 'Parcel', 'Area(SqM)', and 'Land Use'. The data is as follows:

Unit	Parcel	Area(SqM)	Land Use
0	13	117911.2843	No data
10	1	7429.2039	Vacant
11	86	468870.2504	One Unit Residential
25	44	252245.6728	2 to 4 Unit Residential
64	6	71946.5198	Public/Institutional/Civi
77	113	1215734.6858	5 or more Units





If you want to change the color double click on the legend of the land use map in the table of contents, then double click on the color you want to change. After that, click on the color brush  and then click on the new color. After changing the colors you need to click on Apply in the lower right hand corner of the legend editor window.

If you do not want to see the map anymore you can click on the check mark near the name of the map (land use) in the table of contents. If you want to delete the map, go to **Edit** and choose **Delete Maps**. You should note that the map will be deleted from your map window but you still will have it in your hard disk. If you want to use it again, you can use the button **Add New Map**  to add it to the project again. You need to use Window Explorer or File Manager to delete it permanently.

- **Fast Map:** This option allows you to create a “thematic map” to show the distribution of a specific variable in the selected region. For example, you can produce a map of assessed value, number of units, etc. This is possible because the maps are linked to the assessors database. The procedure is as follows:

- 1) Select the variable you want to map.
- 2) Enter the name of the file where you want to store the map
- 3) Enter the number of groups or categories you want to have. A color will be assigned to each group or category.. This applies only for numeric fields.
- 4) The output is a thematic map (see an example of the output in the **Fast Map** section of the

Demographic Analysis.)

If you want to change the color, double click on the name of the map, then double click on the color you want to change. After that, click on the color brush  and then click on the new color. After changing the colors you need to click on Apply in the lower right hand corner of the legend editor window.

Groups are calculated using an equal interval. This means that the amplitude or range of each group will be the same. If you want to change the type of classification or the number of groups, click on the name of the map to get the legend editor. Then, click on Classify in the right hand of the window and select the new type and number of groups. When you are done, click on Apply in the right hand of the window.

If you do not want to see the map anymore you can click on the check mark near the name of the map in the table of contents. If you want to delete the map, go to **Edit** and choose **Delete Maps**. You should not that the map will be deleted from your map window but you still will have it in your hard disk. You need to use window explorer or file manager to delete it permanently. If you want to use it again, you can use the button **Add New Map**  to add it to the project again.

- **Statistics of a Variable:** This commands gives the list of different statistics and measurements for a selected variable in the selected region. The available statistics are:

- total (total of the values of the selected variable)
- count (number of parcels in the selected area)
- mean of the selected variable
- maximum value and minimum value
- range of values
- variance and standard deviation
- Total Area (in square feet and acres) and
- Net Density.

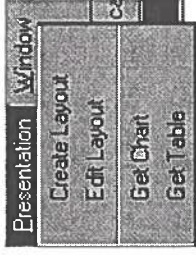
For example, if you select the variable units, density will provide you number of units per acre for the selected area. This is calculated according to the parcel area. Therefore, it is net density.

- **Show General Plan:** This command allows you to see the general plan classifications for a selected group of parcels.
- **Clear General Plan:** This command removes the general plan classifications from your map window.
- **Show Zoning:** This command allows you to see the zoning classification for a selected group of parcels.
- **Clear Zoning:** This command removes the zoning classifications from your map window.

You can combine the commands **Show General Plan**, **Show Zoning** and **Select by General Plan**.

PRESENTING YOUR RESULTS

PRESENTATION



The **Presentation** menu allows you to work with and print layouts, charts and tables. A layout is a presentation map. It is composed of the map, the legend, a title, a scale and a North arrow. You can add more elements like text, boxes, etc. The following options are available:

- **Create Layout:** It creates a presentation map . It will consist of the section of the map you are looking at in the map window (use the zoom tools  if you want another section of the map) and it will include all the maps and legends of the table of contents that have a check mark. By clicking on the check mark, you can choose if you want each map to be shown or not in the map window. In addition, if you do not want your selection area to appear on the layout (your selection area is shown yellow in the map window). go to **Selection** and choose **Clear Selection**. After deciding what you want to see in the presentation map, use the command **Create Layout** and the program will ask for the following items:



1. Choose the "template" you want to use. A template is a predefined presentation map. You can choose one of the existing templates by clicking on the name of the template. After that, press OK.
2. The application will ask you for the title of the presentation map. Type in your own title. This title will appear on your presentation map.
3. The application will ask you for the name of the layout. Give whatever name you want. You will need to remember this name if you want to edit your layout. Then, press OK.
4. The layout will appear on the screen. You can edit the layout now or later. If later, you will need to go to the **Presentation** menu and then choose **Edit Layout**.

If you want to print the layout, go to **File** and choose **Print**, or press the print icon . It is recommended that you check the print setup before printing. Make sure that the orientation of the page (portrait or landscape) is consistent with your layout.

Click on the X in the upper right hand corner of the layout window to close the layout.

- **Edit Layout:** Use this command for editing a layout that you have previously created. (You can also edit the layout while you are creating it). This command will give you a list of the layouts you have created. Click on the name of the layout you want to work with and the layout will appear in your screen. The following is a brief summary of how to edit features in the layout.

1. **To move:** Click on the feature you want to edit (the map, the legend, the title etc.) Then a small cross  will appear in the layout. Drag it with the mouse to the new position.
2. **To change the size:** Click on the feature you want to edit (the map, legend, title, etc.) Then place the mouse in one of the four corners. Then, while holding down the left button of the mouse, drag it to the new size. 

3. **To change or edit the title:** Double click on the title. Then, type in your changes.

1. **To enter new text:** Press the text button . Then, click on the place where you want to add the text and enter it.

2. **To add figures:** If you want to add figures such as lines, square, polygons, circles, etc., click on the figures tool . If you hold down the mouse button, a menu of figures will appear. Click on the figure you want to use and then draw it using the mouse.

3. **To delete a feature:** To delete a feature (a title, a figure, a legend, etc.) click on it and then go to **Edit** and choose **Delete**. You can also use the **delete** button on the keyboard.

4. **To print:** Go to **File** and choose **Print**, or press the print icon . It is recommended that you check the print setup before printing. Make sure that the orientation of the page (portrait or landscape) is consistent with your layout.

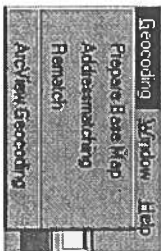
Click on the X in the upper right hand corner of the layout window to close the layout.



- **Get Chart:** This command will provide you with the list of charts you have created. Choose the chart you want to see or print. If you want to change the color of one of the groups, click on the color brush  tool and then when the color palette screen appears, click on the color brush again. Select the color you want and then click on the part of the chart whose color you want to change. If you want to print the chart, go to **File** and choose **Print**, or press the print icon .
- **Get Table:** This command is useful if you want to print the table of one of the maps -or any other table you have previously created- or edit it. You are not allowed to access the original tables of the following maps: Parcels, Census Tract, Block, Block Groups and General Plan. However, you can access the tables of a selected area of those maps (or even the complete map) if you have saved it with **Save Selection** under the **Selection** menu. The following is a short summary of useful operations to create reports:
 1. **To sort:** Click on the name of the variable in the table (it will be highlighted). Then, go to the **Field** menu and select **Sort Ascending** or **Sort Descending**. You can also use the sort icons.  .
 2. **To print:** Go to the **File** menu and then select **print**, or just click the print icon .
 3. **To export to dBase:** If you want to use and modify the table in Excel or any other spreadsheet software, you can use the command **Export** under the **File** menu. Then, choose dbase as your export format.
 4. **To export to a Word Processor:** If you want to see the table in Word or Word Perfect, go to **File**, and then choose **Export**. Choose "delimited text" as your export format. Because the table might have many columns, before exporting to a word processor it is recommendable to choose only the columns you want to export. To do that, go to the **Table** menu and choose **Properties**. You will see check marks in the fields that are currently visible. You should remove the check marks from those fields that you do not want to appear in the table. You remove or add checks by clicking on the check mark box. After you export the table, do not forget to put the checks again in all the fields you want to be visible.

EASY GEOCODING

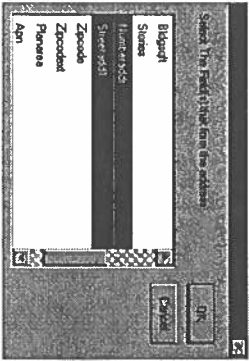
GEOCODING



The geocoding menu allows you to map your personal databases and to incorporate them into the system. You only need a dBase file with an address field or fields. If you are working with a spreadsheet for creating your databases, make sure that the first row contains the name of the variables. Data should begin in the second row. Usually, you can do that by using **save as** and choosing dBaseIV as your type of file. Then, you are ready to geocode your database. The geocoding menu consist of the following options:

- **Prepare Base Map:** This command prepares the street map to be ready to recognize the address of the database. Most of the time, you probably will not need to use this command because the street map will be ready for geocoding. When using the **Addressmatching** command, a message will appear if the base map is not ready for geocoding. If that happens, you should use this command to prepare the base map.
- **Addressmatching:** This command allows you to geocode your databases. The process is the following:
 1. The program will ask you for the name and location of your database in dbase format.
 1. The program will ask you for the name of the field(s) in which the address is stored. For geocoding, you need to have the number and street name. If the number and street name are in the same field, just select that field. If not, select both fields: the one that has the number and the one that has the street name. Then, press OK.
 2. The application will begin locating the addresses.
 3. The application will ask you to choose a name for the geocoded map.
 4. The application will let you know how many records were geocoded and the percentage of the total number of records in your database they represent.

Recommended Address Formats:			
3000 Telegraph Ave	22 E 14th St		
140 Sunnyside Rd	1000 Macarthur Blvd		
100 MLK Way	600 Hillgirt Cir		
200 Lakeside Dr	5000 Hedge Ln		



5. The new theme will appear in your table of contents. It will be a point theme in which each point represents a record in your database.
6. After finishing geocoding, you can use the other menus in the application to analyze your data. You can select by planning area, surrounding region, census tract, etc. You can also obtain statistics of the variables of your database for the selected records. If you copy your geocoded theme to the parcel working view (you can copy by using **Copy** and **Paste** under the **Edit** menu) you can also select records **by zoning classification** or **by general plan classification**.
 - **Rematch:** Use this option to try to match the records which did not get matched automatically during **Addressmatching**. Choose “interactive Re-Match”. A number of addresses will appear in your screen. Choose the one that is more close to the address of your no-matched record. During the process you can click on geocoding “preferences” to decrease the spelling sensitivity, the minimum score to be considered as a candidate and the minimum match score. This will allow more options to be presented for choosing the address that is most similar to the un-matched record.
 - **ArcView Geocoding:** This is the original ArcView program for geocoding. It is provided in case you are already familiar with this option and you prefer to use it.

MANAGEMENT AND UPDATING

MANAGEMENT

In order for the application to work properly, you need the following data and system requirements:



Demographics

- The name of the demographic document has to be Demographics.
- The Demographic View should include the following maps: Census Tracts, Block Groups, Blocks, Streets and Planning Areas and the names of the maps in the table of contents have to be “Census Tracts”, “Block Groups”, “Blocks”, “Streets” and “Planning Area”. For example, if for any reason, the name of the Census tract thematic map is changed to CensusTract -instead of Census Tracts- the application will not recognize it. (This does not apply to the file name)
- The tables associated with the census tract, block and block groups maps (.dbf files) always need to have a field called Region, which needs to be a “string” or text field. The value of this field for all records should be Selection.
- The Planning Area table (.dbf file) must include a field called name which stores the name of the planning area.



General Plan

- The name of the General Plan document must be General Plan
- The General Plan View must include the following maps: General Plan, Streets and Planning Areas and their names have to be the following: “General Plan”, “Streets” and “Planning Areas”. For example, if for any reason, the name of the General Plan thematic map become GeneralPlan -instead of General Plan- the application will not recognize it.
- The General Plan map must include a field called Gplancode, with the numeric values of the different General Plan, a field called classifications with the text of the different General Plan classifications and a field called Zoning with the zoning classification.

- The Legend of the General Plan Classification should be in ascending order which is by Code Number.
- The Planning Area table (.dbf file) must include a field called name which stores the name of the planning area.
- The Parcel Views must always include the following maps: A map called parcels with the parcels of the respective planning area, Streets and Planning Areas. The name of those maps must be “Parcels”, “Streets” and “Planning Areas”. For example, if for any reason, the name of the Parcels map is changed to Fruitvale Parcels - instead of parcels- the application will not recognize it. This does not apply to the name of the file.
- All the parcels maps must be linked to their respective assessor database.
- The parcel tables must include the following fields: APN and Oplu (for the land use).



Parcels

UPDATING

As long as the maps follow the requirements of the management section, you only need to update the old files with the new files using Window Explorer or File Manager. Try to maintain the same names and locations of the files. If for any reason, the name or location of the file is changed, when you start the application, it will ask for the new location and/or names of the files the application was not able to find.

TRAINING

The following set of training exercises has the objective of helping you become familiar with the application.

The exercises consist on real planning questions that you can answer by using this application. Consult the manual when appropriate and try not to spend more than five minutes per exercise.

1. You are in the Fruitvale/San Antonio area team and you need the following:

- Some demographics: Race distribution and housing tenure for the Fruitvale planning area. You want a table but also a chart that illustrates the data.

(Hint: Choose the appropriate working view, select the area you want to analyze and then obtain a demographic table and chart)

- You also want to create a map that shows the Hispanic population by block in the San Antonio planning area. You want to present this map at the next Area Team meeting.

(Hint: Choose the appropriate working view, select your area of analysis, create a fast map with the information and then prepare a presentation map)

2. A new housing project is going to be developed at 3000 Telegraph Avenue. You want to have a map of the mean-rent by block in the area within 700 feet the project.

(Hint: Choose the appropriate working view, select the areas of analysis and then produce a fast map with the required information)

3. There are two proposals for a youth center for the San Antonio area. One site is located at 1200 18th Street. The other site is located at 2000 24th St. You want to select the proposal according to the number of young people (18 years or less) in the service area (1500 feet from the location of the youth center). Based on block data, decide which of the locations you would prefer?

(Hint: Choose the appropriate working view, select one of the areas and calculate the total number of your people -using statistics-, then do the same for the second location and compare your results)

4. You have identified a study area for a rezoning study. It is composed of the following census tracts: 4096, 4097, 4084, and 4085. You want to know the population and number of units per acre (gross density) in that area.

(Hint: Choose the appropriate working view, select that area and then use statistics to obtain the desired information)

5. You need to know the proposed land use distribution according to the General Plan for the Elmhurst Planning Area in order to estimate job and population growth.

(Hint: Choose the appropriate working view, select the planning area and then calculate the land use distribution)

6. For a rezoning study you need to know the current zoning of the area in West Oakland under the "Housing and Business Mix" General Plan classification.

(Hint: Use the zoom menu and buttons to locate the area and then use the label tool to identify the zoning. Delete the labels after you finish)

7. You want to know the zoning and general plan classification of the following parcels of North Oakland: 014 123600302 and 014 123600200. You also want to know the assessors value of the structure and the land use.

(Hint: Select the appropriate parcels, then use the commands "show zoning" and "show General Plan" to see the classifications. Use the Identify tool to get the corresponding information of those parcels)

8. You are having a community presentation and you need to bring the following:

- the land use distribution in the area
- a land use map
- some basic demographics of the area.

Using the selection tools, draw a polygon in the parcel maps that represents your study area (Choose whatever area you are interested in.)

Then calculate the land use distribution, create a land use map and obtain the demographics.

At the end, print your tables and maps.

(Hint: After selecting your area, use the "land use distribution" and "land use map" commands. For the demographics, go to the census tract or block working view and select by parcel selection. After that, obtain the demographics. When you finish, prepare your presentation using the presentation menu)

9. For the General Plan, you need to know the existing land use distribution of the parcels under the "Neighborhood Center Mixed Use" General Plan classification in North Oakland.

(Hint: Select parcels according to general plan classification and then calculate the land use)

10. You are looking for sites with redevelopment potential in the West Oakland area. Select the parcels with redevelopment potential (criteria: Structure Value/ Land Value < 0.75) and then select those parcels whose size is greater than 43560 sqft - 1 acre- . Calculate the land use distribution of the selected parcels.

(Hint: Use the query command twice, the second time use the option "Select From Set". After selecting the parcels, calculate the land use distribution)

11. You want a report that contains the APN and the addresses of all the parcels within 1000 feet of 8500 E 14th street (in Elmhurst) because you want to notify people in that area that a new service is available for them.

(Hint: Select the area and then save the selection. Use the command "Get table" to create the report. Then, print it.)

12. For a rezoning study you need to select all the parcels in West Oakland under the "Urban Residential" General Plan Classification and calculate the number of parcels that are zoned residential and the number of parcels that are zoned commercial.
(Hint: Select the area using Selection by General Plan Selection. Then, save your selection and make it your Working View. After that, use selection by zoning to make a sub-selection of the parcels zoned as "commercial" and the statistics command to calculate the total area and number of parcels. Repeat the same for the parcels zoned as "residential")

13. You want to make a quick General Plan Classification check. What is the actual gross residential density of the Adams Point area? Is it really less than 30 units per gross acre as proposed in the General Plan? Note: The Adams Point Area is the area under the "Mixed Type Housing Residential" located in the Central Business District, north of Lake Merrit.
(Hint: In the General Plan Working View, select the desired area with the selection tools and calculate the gross area using statistics. Then, go to the Parcel Working View and select the same area using the command selection "by General Plan Selection." Then calculate the statistics of the number of units variable)

14. Your area team needs a map of the land assessed value of all vacant parcels in Fruitvale. Produce a nice map with the required information and the streets names. Do not include all the Fruitvale area in the map only a small section of it (probably a section that contains many vacancies).
(Hint: Select the parcels by Vacancy Status and then create a fast map showing the land assessed value. Use the Commands under the presentation menu to create a nice layout and the commands under edit to add the street names)
15. Geocode the Residential Care Facility database located in the following file: _____ and then:
- Calculate the number of facilities and the total capacity in the Chinatown/Central planning area
(Hint: Choose the appropriate Working View, select by planning area and use the statistics command)
 - Create a fast map that shows the different types of Residential Care Facilities in the area.
(Hint: Use the Fast Map Command)