# CEDVIEW OPERATING MANUAL

1. MAIN WINDOW

The *Main Window* is the primary display area for the CEDView application. An image of the *Main Window*, with all of its default contents, is shown in Figure 1 below. A key feature of the Main Window is the interactive map. The map presents the major features of Harris County and the greater City of Houston metropolitan area. Although it appears similar to a traditional two-dimensional map, it is actually a three-dimensional geometric model. Because of the three-dimensional capabilities, CEDView supports a variety of features not possible with traditional flat-map software.

Figure 1 CEDView Main Window
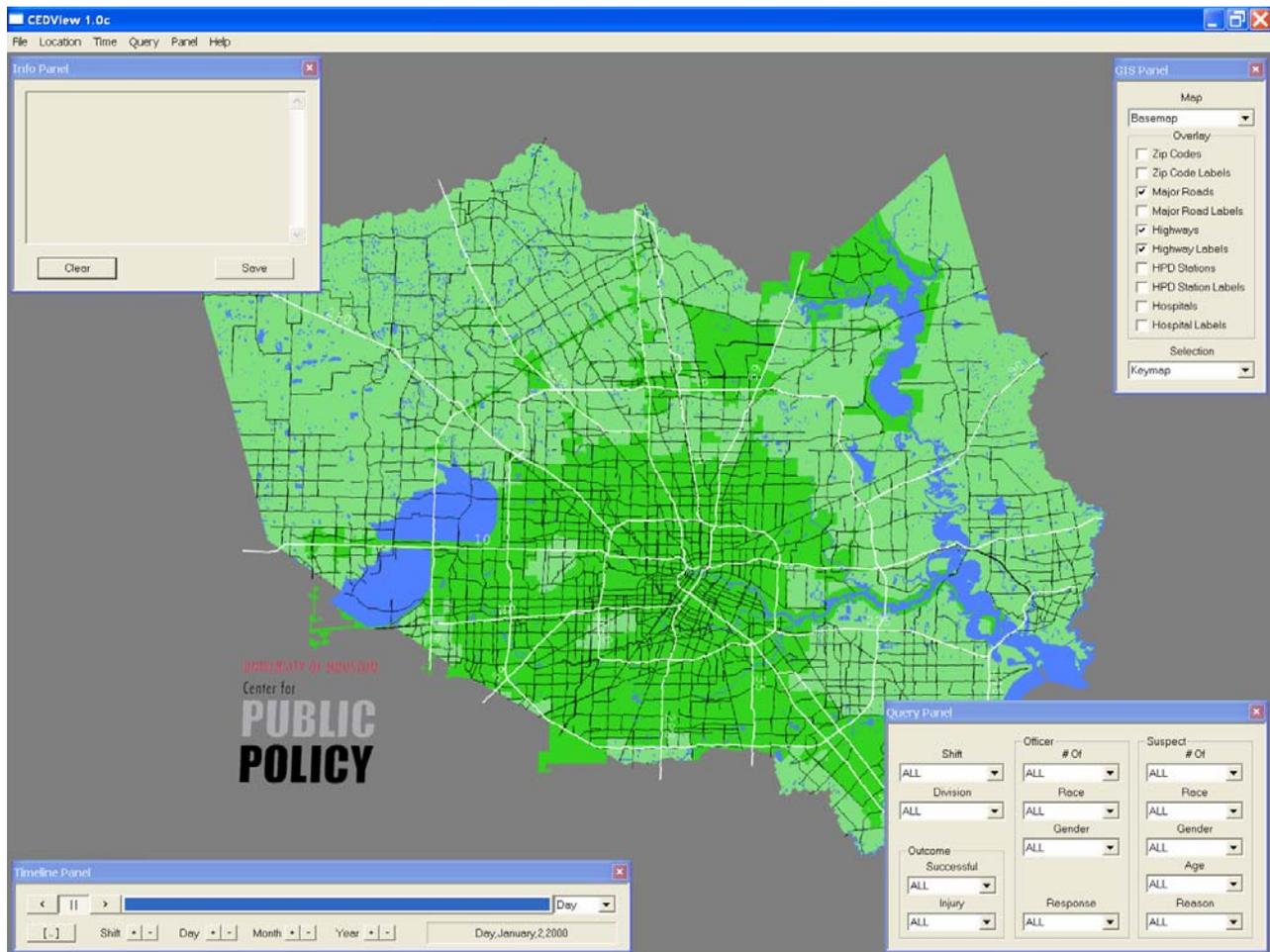
1.1 Navigating the CEDView *Main Window*

There are three primary methods of interacting with the CEDView program:

1. *Mouse Commands* used in CEDView are typical of those found in other, well-known, software packages. These commands include: Clicking the mouse buttons, clicking mouse buttons with keyboard keys pressed, and dragging the mouse. Dragging the mouse involves moving the mouse with one of the mouse buttons held down.
2. *Pop-up Panels* are sub-windows that appear inside of the *Main Window*. They can be relocated or hidden from view by the user. These panels serve a multitude of purposes. They can: Change the way the map looks, determine which types of CED events are displayed on the map, adjust the timeline to show CED activity between specific dates, and present detailed numerical information to users that require it.
3. The *Menu Bar* appears in the upper left-hand side of the *Main Window*, directly under the title bar. Items under each menu heading can be revealed by clicking the left mouse button on the heading. To pick a revealed item, click it with the left mouse button.

1.2 Map viewing

Map viewing is accomplished through the use of a "virtual camera" which, in many ways, is analogous to a film or video camera. Associated with the camera is a "focal point" at which it always looks. When the application starts, the focal point is at the center of the map. The camera can be positioned and oriented through four primary camera controls as follows:

1. Aiming changes the location of the focal point. To aim the camera, place the mouse over the desired location on the map. Next, click the right mouse button with the control key pressed. The focal point will automatically update to the new location.
2. Zooming allows the camera to move closer to, or further away from, the focal point. To adjust the zoom (range), drag the mouse forwards and backwards with the right mouse button pressed and the shift key held down.
3. Panning allows the camera to rotate horizontally (azimuth) about the focal point. To pan the camera, drag the mouse to the left and right with the right mouse button pressed.
4. Tilting lets the camera rotate vertically (elevation) about the focal point. To tilt the camera, drag the mouse forwards and backwards with the right mouse button pressed.

1.3 Key map cells

The map imagery is superimposed on top of a grid of tiles called key map cells. Each cell represents a ¾ mile by ¾ mile area. The Harris County region covers a grid of approximately 84 (east - west) by 66 (north - south) of these cells.

1.4 CED incidents

Centered on each cell is a three-dimensional bar, analogous to those seen in two-dimensional bar charts. The grid, collectively, represents a bar graph spatially distributed across Harris County. The height of each bar is determined by the number of CED incidents that occurred geographically inside the cell. Each bar has one or more tick-marks along its sides. These marks indicate the current number of incidents tallied for that cell.

1.5 Selection

Users can also get detailed information about CED incidents in a cell via *Selection*. To make a *Selection*, point the mouse at the top of a bar on the map. Then, click the left mouse button while pressing the control key on the keyboard. Key map cells are the smallest selectable area on the map.
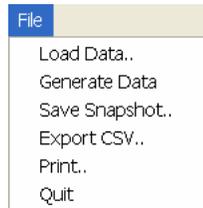
1.6 Quick reference guide

To access an on-line quick-reference guide for viewing and selection controls, choose *About* from the *Help* menu.

2. MENUS

2.1 File Menu

The *File Menu* allows the user to perform CED database input and output related tasks. Figure 2 has an image of the *File Menu* which has six items:

Figure 2 CED File Menu

2.2 Load Data

Selecting *Load Data* brings up an *Open File* dialog box that allows the user to select a CED database to load. The default file, ced_0208.ced, can be found in the data directory of the standard distribution folder. This file is packed and encrypted in a secure format that can only be read by the CEDView software.

2.3 Generate Data

Should a CED database be unavailable, the *Generate Data* item can be selected to have the application randomly fabricate a set of representative CED events. This item allows for a demonstration of the software capabilities without requiring the disclosure of sensitive HPD information.

2.4 Save Snapshot

The user can capture the current contents of the *Main Window* to a Windows Bitmap image file (BMP) by selecting *Save Snapshot*. In addition to saving the map, all open panels are saved in the capture as well if the video display driver supports it. A panel not needed in the output image file can be closed and hidden from display. The saved bitmap image can be printed, shared via e-mail, or used with other software for further processing/analysis.

2.5 Export CSV

Export CSV allows the user to save a Comma Separated Value (CSV) file containing an unencrypted, human-readable, report of all records currently loaded into the program. It will export reports for databases loaded with the *Load Data* menu item as well as databases generated with the *Generate Data* menu item.

2.6 Print

The *Print* menu item captures exactly the same information as *Save Snapshot* but sends the image directly to a printer instead of to a file. The software will automatically scale the image to the printer resolution. In most cases, however, printing in landscape mode results in a better quality hardcopy.

2.7 Quit

The program can be terminated at any time via the *Quit* menu item.

Location, Time, and Query Menus

Figure 3 is an illustration of the *Location Menu*, *Time Menu*, and *Query Menu*. The intent of the three menus is primarily to provide support for a user who is using the tool as a presentation platform. The idea is to have several events of interest ready to be called upon in rapid succession, assisting in situations where a presenter must provide a great deal of information in a short time.

Figure 3 Location Menu, Time Menu, and Query Menu

2.8 Location menu

The *Location Menu* allows a user to set the "virtual camera" focal point to a predefined location on the map. Selecting *Default Location* restores the view to the center of Harris County. *Saved Location* is a temporary placeholder for the first user-defined location (currently undefined).

2.9 Time menu

The *Time Menu* gives a user the ability to skip forwards or backwards to preset times in the timeline. Choosing *Default Time* resets the current time to the first time in the currently loaded CED incident database. *Saved Time* is a temporary placeholder for the first user-defined time (currently undefined).

2.10 Query menu

The *Query Menu* allows a user to rapidly set the fields of the *Query Panel* to a predetermined query. Picking *Default Query* sets each of the fields in the *Query Panel* to the value ALL, thus returning it to its default state. *Saved Query* is a temporary placeholder for the first user-defined query (currently undefined).

3. PANEL MENU

The *Panel Menu* allows the user to show panels that are currently hidden from view. Figure 4 is an image of the *Panel Menu* which has four items.

Figure 4 Panel Menu

By default, all panels except for the *Info Panel* are visible when the program starts. To hide a panel, click the small red box () in the upper right hand corner of the panel.

3.1 Show GIS Panel

To reopen the *GIS Panel* select *Show GIS Panel* from the *Panel Menu*.

3.2 Show Query Panel

To reopen the *Query Panel* select *Show Query Panel* from the *Panel Menu*.

3.3 Show Timeline Panel

To reopen the *Timeline Panel* select *Show Timeline Panel* from the *Panel Menu*.

3.4 Show Info Panel

To reopen the *Info Panel* select *Show Info Panel* from the *Panel Menu*, or make a *Selection* with the mouse.

Each panel can be moved around inside the *Main Window*. In many cases, panels must be moved to uncover parts of the map they obscure. To drag a panel, place the mouse over the panel name and move the mouse while holding down the left mouse button. For a layout that works well, place *GIS Panel* in the upper right, the *Query Panel* in the lower right, and the *Timeline Panel* in the lower left of the *Main Window*. Panels will remember their positions when hidden.

4. GIS PANEL

The *GIS Panel* allows the user to modify the map displayed in the Main Window.   Figure 5 is an image of the *GIS Panel* which consists of three major components: The *Overlay* check-box group, the *Map* drop-down menu button, and the *Selection* drop-down menu button. By default, the panel is configured to show the base-map with major roads, highways, and highway labels displayed.

Figure 5 GIS Panel
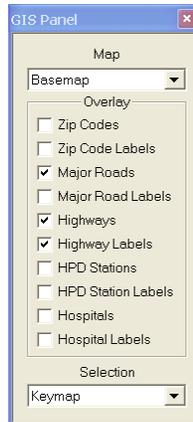
4.1 Overlay check-box group

As seen above, the *Overlay* check-box group allows the user to add additional map information to either the base-map or City Council District map. The user can add a feature to the map by clicking the left mouse button on its check-box. Currently supported features include: ZIP codes and ZIP code labels, major roads and their labels, highways and their labels, HPD station locations and their labels, and finally, hospital locations and their labels. The term "label" is synonymous with "name".

4.2 Map drop-down menu button

The *Map* drop-down menu button, shown in Figure 6, allows the user to select between a base-map and a City Council District map. The base-map shows the major topographic features of Harris County. These features include: the county boundary, major bodies of water, and the urban areas of the City of Houston. The City Council District map contains the same features as the base-map, but also includes labeled and color coded Houston City Council Districts.

Figure 6 Map drop-down menu button
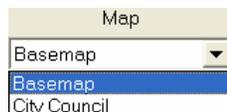
4.3 Selection drop-down menu button

The *Selection* drop-down menu button allows the user to choose the type of highlighting they want to see on the map when a selection is made. The drop-down menu button has three options: Key map, City Council District, and ZIP code. Figure 7 shows the Selection drop-down menu button. When a key map cell, City Council District or ZIP code is selected, it will appear darker on the map.

Figure 7 Selection drop-down menu button
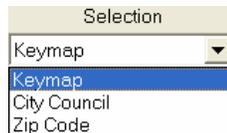
4.4 Keymap Selection

A *Key Map* selection highlights only the key map cell selected by the user. Key map is the default highlighting method.

4.5 City Council Selection

City Council District selections highlight all of the key map cells in the selected City Council District.

4.6 Zip Code Selection

ZIP Code selections highlight all of the key map cells in the selected Zip Code.

5. QUERY PANEL

The *Query Panel* provides the user with options for selecting which CED events are displayed on the map. An image of the *Query Panel* is illustrated in Figure 8. The *Query Panel* has four major sections: The *Shift* and *Division* drop-down menu buttons, the *Outcome* group, the *Officer* group, and the *Suspect* group.

Figure 8 Query Panel
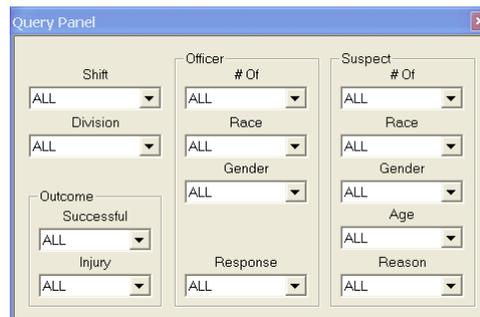
There are several special values than can be selected in the drop-down menu button items of the query panel. A field with value "ALL" will match any value for that field in the database of CED incidents. Its use is to indicate that the user has no particular preference for a field. It is also the default value for all fields in the panel. The value "Dog" is used when a dog or other animal is involved in a CED incident. Fields with a value "Duplicate" imply that a CED event was recorded more than once in the database. This is due to the fact that some events involve multiple officers reporting the deployment of a CED. Finally, the value "Officer" is used when an officer is involved as the suspect in a CED incident.

5.1 Shift drop-down menu button

The *Shift* drop-down menu button, shown in Figure 9, allows the user to select CED events based on the shift in which they occurred. It has three possible values: Day, evening and night.

Figure 9 Shift drop-down menu button

5.2 Division drop-down menu button

The *Division* drop-down menu button, shown in Figure 10, lets the user restrict displayed events to only those involving officers from one of 19 HPD divisions.
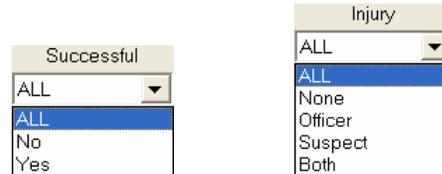
Figure 10 Division drop-down menu button

5.3 The Outcome group

The *Outcome* group provides a method for filtering displayed events based on their outcome. The *Outcome* group contains two drop-down menu buttons, depicted in Figure 11

Figure 11 Outcome group drop-down menu buttons

5.4 Successful drop-down menu button

Incidents where a CED unit was successfully deployed, or where one was not, can be seen using the *Successful* drop-down menu button.
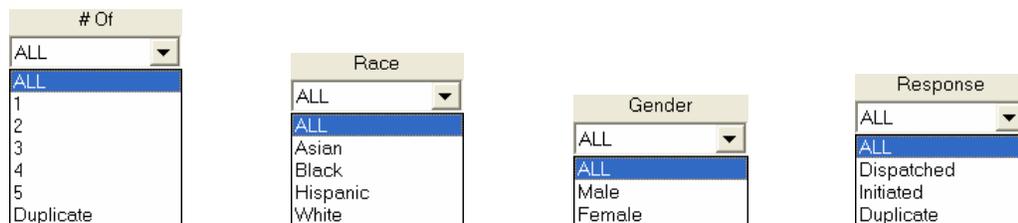
5.5 Injury drop-down menu button

The *Injury* drop-down menu button provides a way to view instances where either an officer, suspect, or both sustained injury due to the use of a CED.

5.6 The Officer group

The *Officer* group allows a user to display events based on the demographics of the officer(s) involved. The *Officer* group contains four drop-down menu buttons, shown in Figure 12.

Figure 12 Officer group drop-down menu buttons

5.7 # Of drop-down menu button

The *# Of* drop-down menu button selects incidents by the total number of officers present at a scene where a CED was used.

5.8 Race drop-down menu button

The race of the officers(s) involved in a CED event can be selected via the *Race* drop-down menu button.

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5.9 Gender drop-down menu button

The *Gender* drop-down menu button filters events based on the gender of the officer(s).

5.10 Response drop-down menu button

CED events in which the officer(s) initiated action, was/were dispatched to the scene, or both can be viewed by changing the *Response* dropdown.

5.11 The Suspect group

The *Suspect* group offers a way of choosing events to display based on the demographics of the suspect(s) involved. The *Suspect* group consists of five drop-down menu buttons depicted in Figure 13.

Figure 13 Suspect group drop-down menu buttons
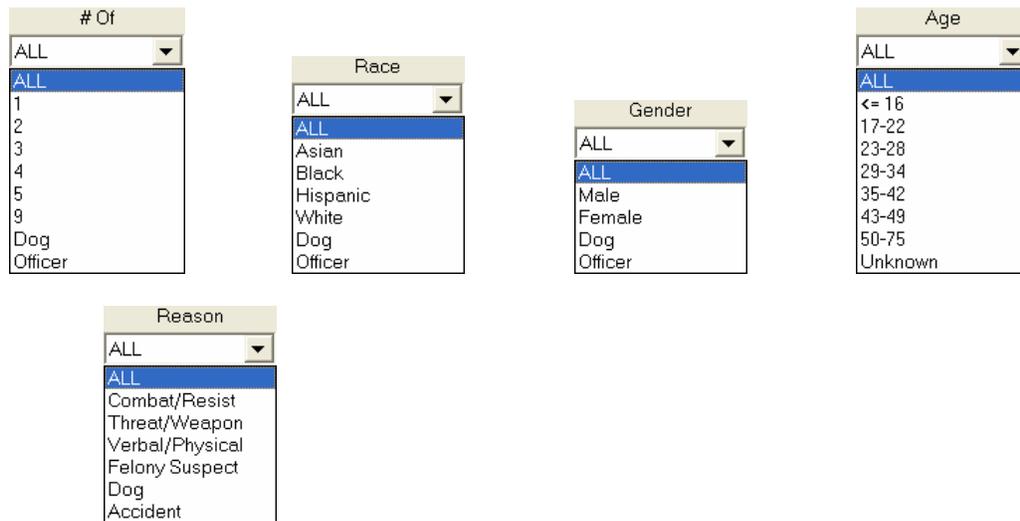
The *# Of*, *Race*, and *Gender* drop-down menu buttons serve the same purpose for suspects as they do for officers in the *Officer* group.

5.12 Age drop-down menu button

The *Age* drop-down menu button groups suspects involved in CED incidents into one of eight age ranges.

5.13 Reason drop-down menu button

The *Reason* drop-down menu button filters incidents based on the reason provided by the officer(s) for deploying CED devices on the suspect(s).

6. TIMELINE PANEL

The *Timeline Panel* allows users to dynamically display CED incidents that occur between two specific points in time on the map. These two times are known as the "start time" and the "current time". By default, the start time is set to the first time present in the database. Figure 14 is an image of the *Timeline Panel*, which has three primary areas of interest: The *Time/Date Display*, the *Tape Deck*, and *Fine-Tuning Controls*.

Figure 14 Timeline Panel

6.1 Time/Date display

The *Time/Date Display* is visible in the lower right-hand corner of the *Timeline Panel*. It shows the current date and time the software is using to select CED incidents for display on the map. It has the following format: Shift, month, day, and year. The current date and time are updated by user interaction with the mouse, *Tape Deck* or *Fine-Tuning Controls*. The *Time/Date Display* will rollover if the user attempts to set it to anything beyond the night shift of December 31, 2031. It will also roll-under if the user attempts to set it earlier than the day shift of January 1, 2000.

The user can control forward and reverse playback with the mouse. Dragging the mouse to the left, with the left mouse button down in the main window, controls reverse playback. To drive the timeline forward, drag the mouse to the right in the main window with the left mouse button down.

6.2 Tape deck

The *Tape Deck* derives its name from its similarity to an audio/video cassette player. It consists of: a set of three radio-buttons, a *Timeline Indicator* bar, and a variable *Playback Rate* drop-down menu button.

6.3 Radio buttons

The three radio-buttons are mutually exclusive and selecting one will de-select either of the other two. By default, the *Pause Button* (‖) is selected indicating that playback of CED incidents is halted. Click the *Forward Button* (›) to play events forwards from the current time. Click the *Reverse Button* (‹) to play events backwards from the current time.

6.4 Timeline indicator bar

The *Timeline Indicator* bar depicts, for the user, where in the timeline the current time/date falls. The user has reached the end of the timeline when the blue bar extends all of the way across its gray container, as shown in Figure 15.

Figure 15 Timeline Indicator bar

6.5 Playback rate drop-down menu button

Playback will occur at the rate specified in the *Playback Rate* drop-down menu button depicted in Figure 16. The drop-down has 4 possible rates: Shift, day, month, and year. The default value is day, and can be changed on-the-fly while either forward or reverse playback is occurring. The *Playback Rate* drop-down menu button also sets the playback rate for mouse-controlled playback.

Figure 16 Playback rate drop-down menu button
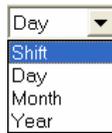
6.6 Fine-tuning controls

The *Fine-Tuning Controls* are provided so that users can make very specific adjustments to the timeline. They consist of a set of: *Increment Buttons* (+), *Decrement Buttons* (-), and a *Range Button* ([..]).

There are four separate increment/decrement button pairs, one for each component of the current time/date. To move the shift, day, month or year forward by one unit, click on the individual *Increment Buttons*. To move them backwards by one unit, click on the appropriate *Decrement Buttons*.

Only CED incidents occurring between the start time and the current time are considered for display on the map. The user can click the *Range Button* to set the start time to the current time indicated in the *Time/Date Display*. When done, only CED events occurring on or after the new start time are considered.

The *Timeline Indicator* bar will turn orange if the user sets the current time to a time earlier than the newly selected start time. To reset the start time to the first time in the database, select *Default Time* from the *Time Menu*.

7. INFO PANEL

The *Info Panel* provides detailed information about each selection made by the user. If the panel is not visible when the user makes the selection, it will automatically be displayed. Figure 17 illustrates an image of the panel which has three components: The *Text Area*, the *Clear Button*, and the *Save Button*. Information displayed in the *Text Area* depends on the time/date chosen in the *Timeline Panel* and the specific query options enabled in the *Query Panel*.

Figure 17 Info Panel

7.1 Text area

For each selection, a series of lines are printed into the *Text Area*:

1. Two lines specifying the start time and current time of the query.
2. The total number of CED incidents occurring, for that query, Citywide.
3. The selected key map cell, along with its count and its percentage of the Citywide total.
4. Totals for ZIP codes contained in the key map cell, along with their percentages.
5. Tallies for City Council Districts present in the key map cell with their percentages.

Some key map cells contain multiple ZIP codes and/or multiple City Council Districts. As a result, there may or may not be multiple listings for each.

Data from multiple selections are recorded in the *Text Area* in the order the selections were made. When the visible portion fills with text, previous data will scroll out of view. A scrollbar will then appear on the right-hand side of the Text Area. To see results from previous selections, drag the scrollbar upwards with the mouse or use the arrow at the top of the scrollbar. Dragging the scrollbar downwards, or clicking the arrow on the bottom of the scrollbar, will bring data from more recent selections back into view. Making another selection will always cause the *Text Area* to jump back to the most recently printed information.

7.2 Clear button

The *Clear Button* removes all selection information from the *Text Area*, returning it to its default state.

7.3 Save button

The *Save Button* allows a user to save information currently recorded in the *Text Area* to a file on disk. Both buttons can be used, in combination, to create a simple data file of CED incident details. This file can be printed, shared via e-mail, or used with other software for further processing/analysis.

8. EXAMPLE

Below is an example that is provided to illustrate some of the concepts and graphical user interface components previously described in detail. As can be seen in Figure 18:

- The user has taken a 3-point perspective, close-up view centered north of City Council District D inside Loop-610.
- The City Council District map is selected in the *GIS Panel.*
- Highways and highway labels are the only overlay items in use.
- Key map is the current selection mode.
- The current query involves all shifts of the South Central division.
- The user is looking for any events in which a Hispanic, female Officer has deployed a CED on an Asian, male suspect 16 years old or younger.
- The current timeline under consideration ranges from the evening of January 4, 2000 to the evening of January 14, 2031.
- Key map cell 533D has been selected which contains ZIP code 77004 and is part of City Council District D.
- There was only one CED event that matched all of these criteria indicated in the *Info Panel*

Figure 18 Example of output from CEDView software