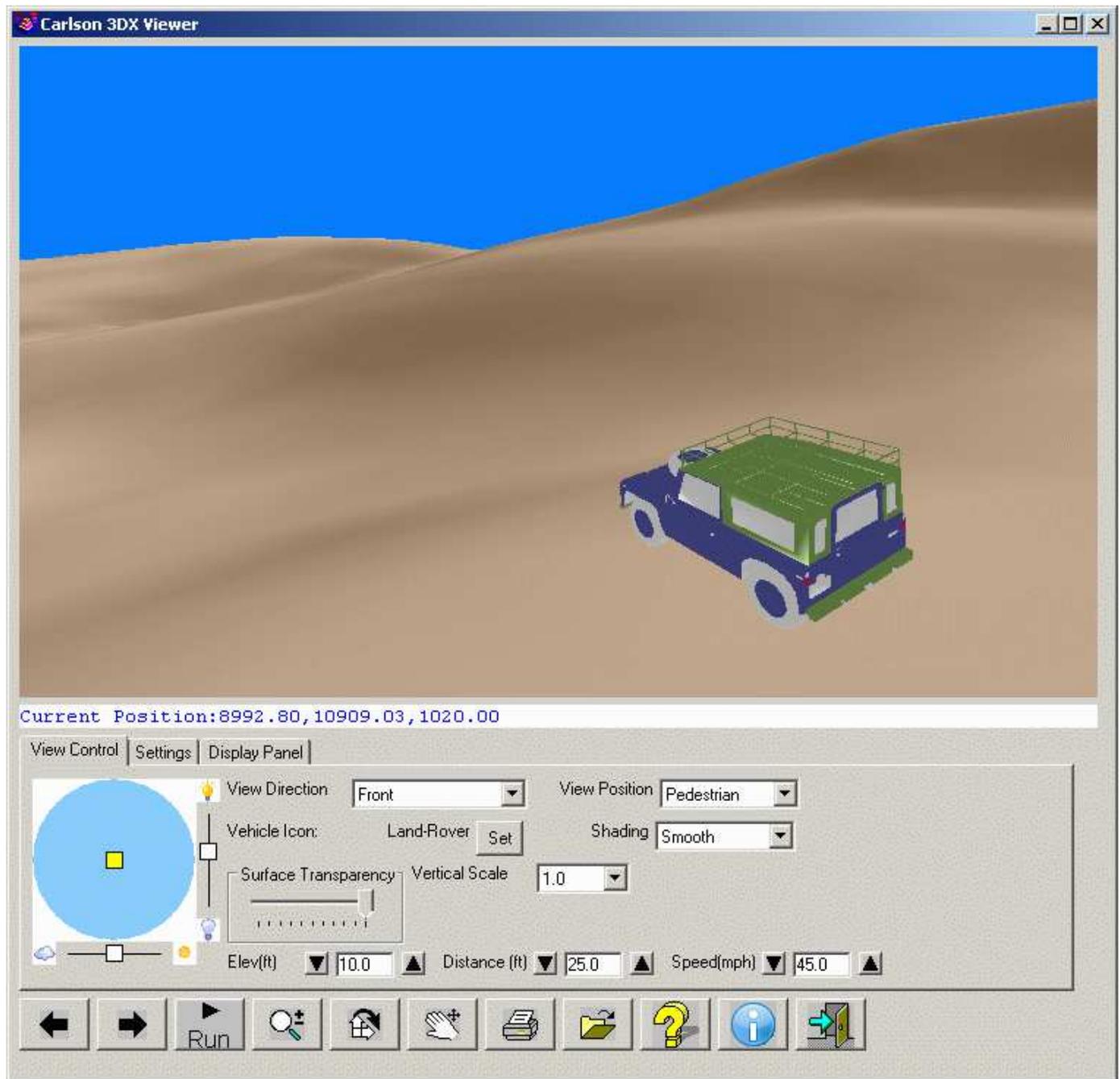


Carlson 3DX Viewer

This program allows you to view a 3D surface in a simulated drive- or fly-over mode. There are options for different types of surface shading, direction of travel, viewpoints, vehicles, light position, color schemes, vertical exaggeration and more.

The 3D model to view is stored in a 3DX file. The program starts by prompting for the 3DX file to view. After selecting the 3DX file, the 3D graphics window is opened to display the various controls for the drive simulation. 3DX files are created in the Surface 3D Flyover command in the Carlson Civil and Carlson Construction programs.



View Control tab

View Direction: This determines the direction that you look "out of" the vehicle based on the direction of travel. This setting does not change the direction of travel. There are four different view directions: Front, Back, Left and Right.

View Position: This determines the relative position of the viewpoint in relation to the vehicle. There are three

different view positions:

1. Driver - The Driver position puts you inside of the simulated vehicle. **NOTE:** The Vehicle Icon option is not available when Driver is used.
2. Pedestrian - The Pedestrian position puts you behind and above the vehicle when view direction is set to front, above and to the left when the view direction is right, and so on.
3. Bird - The Bird position puts you further behind and higher above the selected vehicle.

Vehicle Icon: Determines the type of vehicle to be used in the display. There are many options available, including dozers, sport-utility vehicles, emergency vehicles and others. You also have the option to not display a vehicle (None).

Elevation: This determines the height of the viewer vantage point above the surface. Clicking the up arrow will elevate further from the surface; clicking the down arrow will take you closer to the surface. The Left/Right arrow keys on the keyboard will also control the elevation.

Distance: This determines the horizontal distance from the viewers vantage point (behind) to the actual focal point on the surface. Clicking the Up arrow beside the control will increase the distance from the focal point; clicking the Down arrow will decrease the distance.

Speed: This determines the rate of travel across the surface in miles per hour. Clicking the Up arrow beside the control will increase speed; clicking the Down arrow will decrease speed.

Vertical Scale: This option allows the user to specify a vertical exaggeration factor to aid in viewing flat surfaces with little relief.

Surface Transparency: Use the horizontal slider control to indicate the desired level of opacity that should be applied to a surface. A lower opacity results in increased surface transparency and is helpful for viewing sub-surface utilities such as Storm Sewer pipes and manholes.

Shading: Determines the type of shading to be applied to the surface when the surface source is from a file. This option is not active when the surface is defined by screen entities. There are several shading options, including:

- None - Does not produce shading.
- Flat - Uses one color per 3D Face.
- Smooth - Blends colors together.
- Elevation - Generates colors based on the vertical position of the surface entities.
- Cut/Fill - Generates colors based on depth of cut or height of fill between two surfaces. This option is only available when the Surface Source is defined by a File and a Reference Surface has been specified.
 - Cut is denoted by hues of red.
 - Fill is denoted by hues of blue.

Settings tab

Surface Color: This setting will determine the color of surface entities when the shading mode is set to either flat or smooth. The color functions are only available when the Surface Source is defined by a File. If the Surface Source is defined by screen entities, color is determined by the properties of the screen entities.

High Color: When using the "Elevation" mode of shading, this sets the color of surface entities that are in the higher elevation ranges of the surface.

Low Color: When using the "Elevation" mode of shading, this sets the color for the surface entities in the lower elevation ranges of the surface.

Set View/Target Points: Provides a dialog box interface that permits the precise location of the viewer vantage point and the precise location of the target view. These coordinate locations are helpful for "view-shed" studies.

Ignore Zero Elevation: Ignores zero elevation entities in the scene.

Surface Texture: When enabled, a material (*e.g.* grass) can be applied to the view simulation.

Display Sky: Creates a sky dome of 3D faces around the site that is colored blue with some clouds. In order to see the sky, your view point must be below the sky dome. This feature is only available when Use Software Rendering mode is turned off.

Display Triangle Edges shows lines along the triangle edges in the scene.

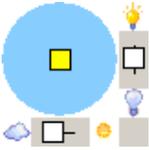
Display Contours shows contours for the surface using the specified Interval.

Display Axis Icon shows an x/y/z axis icon in the scene to help visualize the view angles.

Display Panel tab

The window on the left shows the overall plan view and the location of the vehicle of the surface. The middle window displays the elevation, slope (in relation to the direction of travel) and azimuth. The right window indicates the amount of roll or cross slope (in relation to the direction of travel) at your current position.

Additional Visualization Controls

Control	Action
	This control represents position of the sun in the sky if looked from above. Therefore, the position of the sun in the center means that the sun is in a zenith, and position near the edge of the circle means that the sun is near the horizon. To move the sun, simply drag it to a new location, or click on the new location. The slide bars on the sides are the intensity and brightness of the display.
	When using "Free Flight", this icon turns the direction of travel to the left.
	When using "Free Flight", this icon turns the direction of travel to the right.
	Starts (or "runs") the animation in the main window. While running, this button becomes the Stop button.
	Stops the animation. When stopped, this button becomes the Run button.
	When using a 3D polyline for the travel direction, this button returns you back to the original starting position. The simulation must be in the Stopped mode for this to be active.
	When using a 3D polyline for the travel direction, this button will reverse the direction of travel at the current position. The simulation must be in the Stopped mode for this to be active.
	Converts the left mouse button to a zoom function.
	Rotates the main animation window in any X, Y or Z direction by holding down the left mouse button.
	Converts the left mouse button to a "pan" function. Holding down the middle mouse button (commonly the scroll wheel button) will also pan.
	Toggles shading on and off. This is only active when the surface has been defined with Screen Entities.
	Permits the current view to be "printed" to a portable document format (PDF) file for easy distribution to interested parties.
	Exits the 3DX Viewer command.