RoadCAD

Road and Junction designer

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Road and Junction Designer

The road designer module is ideal for planning individual or connected roads. Joining the sections is realized graphically or by defining their data. Every section has some defining data and characteristic points:

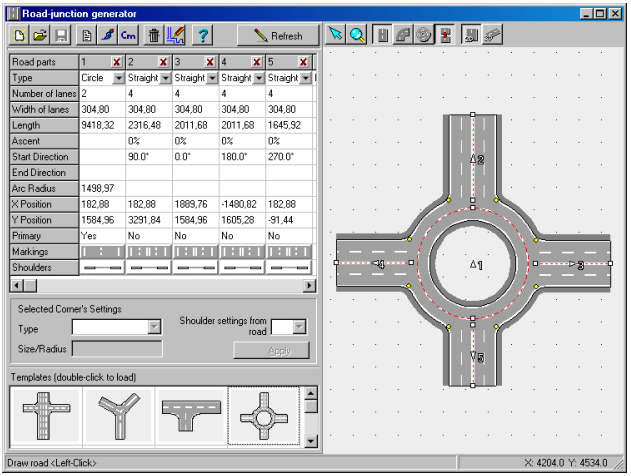
the starting point,
the central and
the ending points of the road.

The characteristic points of the starting and ending point are the length and the direction. With the middle point, the location of the road can be modified. The easiest way to draw the road is by using the graphic icons.
The road can be designed by using straight, curved and round sections.

The following features can also be defined with entering the relevant data:

- the number of lanes,
- the width of the lanes,
- the length and the slope of the road-section,
- the direction of the starting and the ending part of the road-section,
- the radius of the curve,
- the location of the central point of the road by entering its (X and Y) coordinates,
- markings on the road surface,
- the width of the pavement which can be connected to the road-section.

The whole construction can consist of not more than 15 road sections.



The drawing screen of the road designer can be divided into 5 elements:

Upper Icons

Settings Icon: The road-section is drawn according to the basic data which is entered here.

Icon for Defining Colours: The colours of the given road-section, e. g. the color of the pavement, the shoulder and of the road markings can be defined with it.

Cm/Inch: You can set your unit of measure by clicking on the icon.

New Plan: You can start a new project here.

Open: By clicking on this icon you can look for files of already existing road-sections or whole road-sytems. These files carry rhe extension of XDF.

Save: You can save the plan here. The extension of the file is XDF.

Quit without saving.

Back to the 2-D scene designer.

Graphical Editor Window

Here you can see the road-network under construction. When starting to build a road, different types of road-sections can be selected, then drawn graphically, and afterwards each can be modified by selecting their characteristic points. After clicking on “Selection mode” . icon you can change the length and the direction of the road section by grabbing one of the ending points (driving the cursor over it and holding the left mouse button). By holding down the **Ctrl** key while selecting one of the ending points, you can prevent the direction of the section from changing. For example, in case of a straight section the direction of the road will not change at all, while in case of a curve the other ending point will remain stable. The data of the changes are recorded in the appropriate line of the processing area. In the upper line of the graphic design window there may be icons controlling the construction.

Selection Icon **:** After clicking on it you can carry out changes on certain defining points of the road section (i.e. moving with central point, lengthening by selecting a corner).

Zoom Icon **:** By holding the left mouse button down you can zoom on a given area, by placing the magnifier glass shaped symbol over it, then you can move the area by the mouse.

Icon for constructing a Straight Road-Section

Straight Road-Section Icon

You can construct a straight road section according to the data in the settings by defining the two ending points in the Graphic Construction Window. Each ending point can be defined by two separate single clicks (not by holding down the button).

Icon for Constructing a Curved Road-Section

Curved Road-Section Icon

You can construct a curved road-section according to the data in the settings. In case of a new section, and not a continuous drawing, you have to define 3 points of the curve. First the two ending points, then the third curve point. When you are in continuous drawing mode, the starting point and the direction of the curve is given, you only have to define the ending point by clicking with the left mouse button.

Icon for Constructing Round Road Section

Round Road-Section Icon

You can construct a round road section by defining the central point and the radius. The full circle will be constructed only if the radius is long enough for all lanes.

Note: Data chart can be used during graphic construction as well. The modification of a value is recorded by the Enter button. If you would like to finalize the values to avoid redefinition by moving the mouse, click icon, located in the identification line (the upper line of the chart).

Continuous Road Construction Icon

Continuous Road Icon

Switched on this icon will enable continuous road construction. Straight curved road sections can be constructed in alter. The program will record a curved section after each straight one automatically. You can change this by clicking on the icon of the required type of road You can interrupt continuous road construction in the menu appearing after clicking the right mouse button or with the **Esc** key.

View Icons

View Icons

2D view icon: Used to construct the roads.

3D view icon: Used to view the constructed road(s). By holding the left mouse button, you can change your view.

Note: you can not construct your network in this mode.

Chart displaying the data of the road section

This chart offers an opportunity for you to define the road sections with specific data. The modifications of the data will appear in Graphic Editor Window at once when you push **Enter** or click on **Refresh** button.
Road sections can be defined by the following data:

Type

The type of the road can be chosen from the scrolling menu. A section can be straight, curved or round. There is a maximum for the number of sections. Each section can be deleted by clicking on the icon next to identification number.

Number of lanes: You can define the number of lanes within the section.

Width of lanes: You can define the width of the lanes.

Length: You can define the length of the road measure along the axis.

Ascent: The pitch or angle of the road can be defined. – *under development (not yet available)*

Starting and ending direction: The angle between the starting and ending point can be defined.

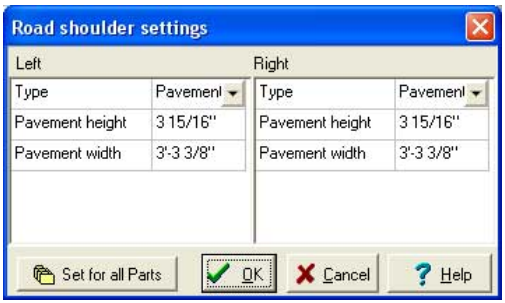
Radius: The radius of a curved road section can be defined.

X,Y position: You can define the X and Y ordinates of the starting point of a section. 0,0 is in the middle of the window.

Road marking

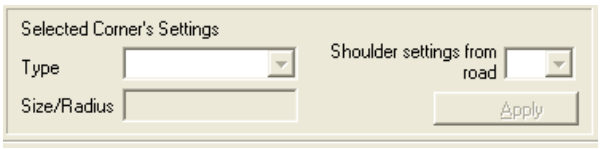
You can put markings between the lanes and the two sides of the road. These marking can be chosen from the graphic menu appearing after clicking on the icon. Here you can give the colour of the markings as well. The outline on the right will show the actual state. Clicking on the appropriate cell of the chart, the marking on one side of the lane will change. This change can be erasement of the marking, or choosing another, frequently used one.

Shoulder



You can define the height and the width of the pavement connected to the road separately either on the left or on the right side.

Set Corner Parameters Field



In the corner of junctions a small yellow bullet appears. After selecting it the bullet becomes red and data appear for definition.

Type

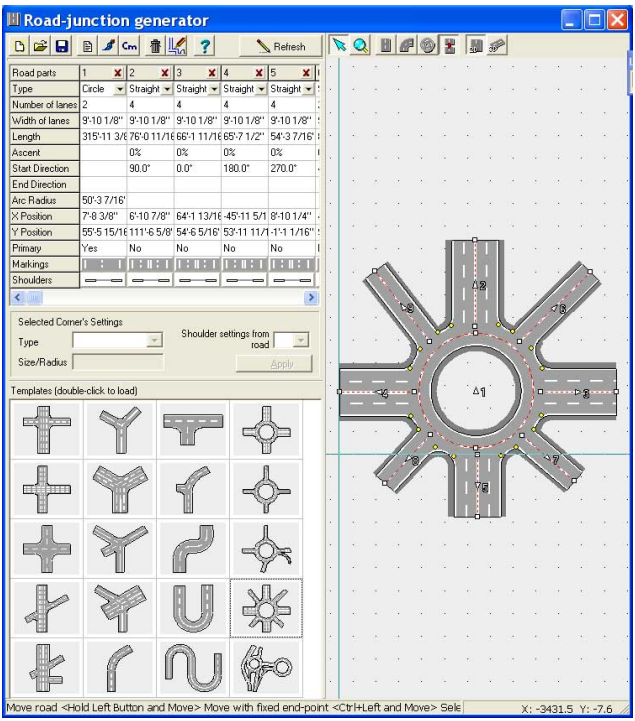
You can define the type of the corner.

Sharp Turn: There is no extra turning area added, the corner is given by the two roads meeting in a sharp turn.

Curved Turn: After giving the radius, a turning area is added to the corner at the meeting point of the roads to create a curved turn.

Shortcut Turn: After giving the length of the connecting area, an angular turning area is added to the corner.

In the scrolling menu you can choose which shoulder parameters shall the program use.

Template

Junctions designed in advance make your work more effective. It is easier to create a required plan by modifying these patterns than starting with a blank plan. The template to be loaded can be selected by double clicking. After making your selection you can change the parameters of the pattern in the graphical editor window and the data chart as usual.