

Idea for new road system

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Spline and curve tools have already been mentioned. My idea focuses around a spline method, because for usability it is the better option.

Would you rather drag a road and see exactly what it will look like, or drag a road between two points, then have to tweak and play around with control points to make your curve?

Those who have played Railroad Tycoon III, Railroads!, and probably a few other similar games will probably be familiar with the control system I am about to describe. Sorry, no graphics right now - if I can find the time I'll scan in some detailed drawings I have and post them here.

Road Tools

Roads will be defined by a single pathing tool. Choose the Roads tool, choose your options (to define size, type, capacity, speed limits, etc giving you incredible control over your road system), and draw your road. Alternatively, draw default roads, then use an upgrade tool to change them later (with no additional cost, if done before the simulator is unpaused). More on these options later.

Drawing Roads

At almost all times using the Road tool, the following tool-modifier keys can be used:

- **Ctrl** flattens terrain between your two points. (By default the tool will merely lightly smooth your terrain, much as SC4 does)
- **Shift** forces a straight road, at times when the game defaults to curves.
- **Alt** forces your road to cardinal directions (N, NE, E, SE, S, SW, W, NW).
- **Home** and **End** adjust the angle at point B of your drag. This allows you to fine-tune your curved roads with intricate detail. Cannot be used in combination with **Alt** or **Shift**.
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Start by clicking in empty terrain (point A) and dragging to another area (point B).

- When starting in blank terrain, the tool defaults to drawing a straight path between your two points, unless you press **Home** or **End** to change the point B angle and create a curve.

When that road is laid, click at point B and drag to another point (C).

- When continuing off another road, the game defaults to a curve. Pressing **Shift** will force a straight road. When roads run at different angles and **Shift** is used, they merely bend (exactly like SC4 today, except not necessarily at 45/90 degree angles).
- In addition to the 8 cardinal directions, the **Alt** modifier will include the angle of your road at point B. This is to make it easy to create off-axis grids. Draw a road at a 10 degree angle, and you can continue it with a single button press and no fidgeting with the mouse.

Before finalizing the road, you can use the `Home` and `End` keys to change the angle at point C. The way this works is as follows... *I hope this translates well without graphics.*

Say you draw a road straight west (180 degrees on game axis). Next you drag a road from there 100m further east, but also 100m south. You could press `Shift` and have the road bend to another straight road at 45 degrees (225 degrees game axis). You could let the game draw it's default curve, likely to have a point C angle pointing south (270 degrees game axis). Or you could press `Home/End` to change the angle +/- . If you were to adjust the angle further, the road would extend past 100m east and bend around to be at 100m east at the 100m south point. If you adjust the angle less, you will end up with an S-curve. If you take the angle lower than the starting angle (point B, 180 degrees), you'll end up with a curve that extends deeper south then bends back up to point C. Take it too far (say, back towards the starting point) and the universe will implode. 😊

Road Options

Options that can be chosen when drawing a road, or when using a Road Upgrade tool, could include:

- Number of Lanes: 2, 4, 6
- Speed Limit: 30km/h, 50km/h, 60km/h, etc up through 120km/h. Lanes + Speed Limit determines overall capacity.
- Directions: One- or Two-Way
- Curbing:
 - Dirt shoulder (in rural/low density areas) or narrow curbed street (in high density or high wealth areas) (default in rural areas)
 - Paved shoulder (with curbs in urban areas) (default in urban areas). Adds a half-lane (or bicycle lane, with city ordinance?)
 - Parallel parking spaces
 - Diagonal parking spaces
- Center:
 - Nothing (no space between sides)
 - Center Turn Lane
 - Center Median (with options for different types - concrete blocks, bricks, trees, garden, etc)
- Level:
 - Ground Level
 - Raised 5m
 - Sunk 5m

Other options can also be applied, like adding meters to parallel/diagonal parking.

Intersections

The game will draw default 3/4-way stop intersections by default, unless road type rules call for other default intersections (for example, a medium-capacity one-way street could default to having right-of-way through every intersection except higher-capacity roads, much like a street crossing a road in SC4, while two medium-capacity roads crossing each other could default to a basic set of traffic lights).

Intersections can be upgraded with a simple intersection editor.

Basic intersection types can include:

- 3/4-way stops
- Right-of-way for one road (other road gets stop signs)
- Basic traffic lights
- Traffic lights with advance turn for one or more sides

Intersection add-ons:

- Left turn lane
- Dual left turn lane
- Right turn lane (on roads with parking lanes, it would take them over)
- Right turn medians (the curved triangle partition at some intersections)

Interchange systems would be handled separately, I think.

Also available would be the option to "plop" crosswalks, crosswalks w/ped lights, crosswalks w/flashing traffic lights, automated toll booths, traffic data sign, bus stops, bus stops w/ turnout lanes, ped bridges, ped tunnels, ped stairs (to walk down to a sidewalk on roads crossing over each other)... etc. Rather than lots, these would be bits that attach directly to roads.

There is a lot more to go with this, including a heavily detailed, I think advanced, lot system... have some patience with me, and ask lots of questions 😊