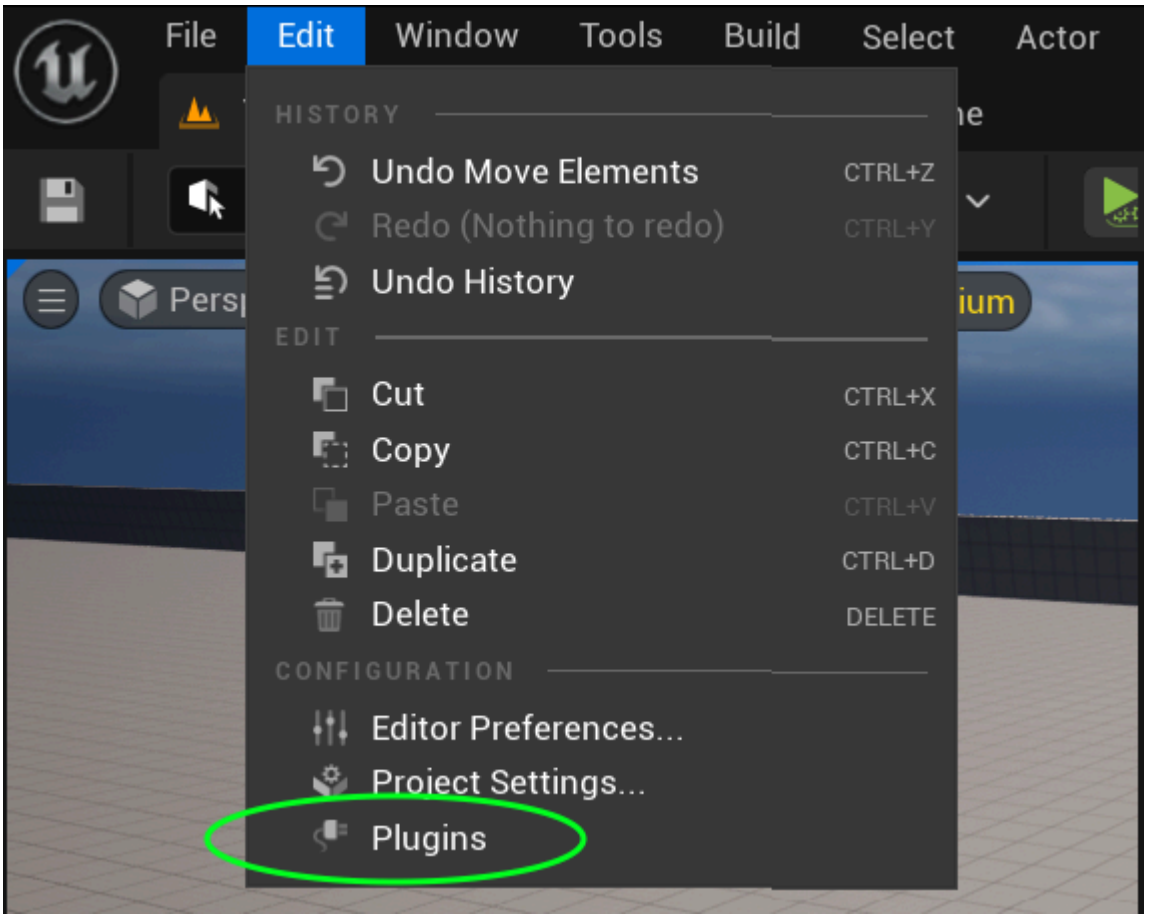
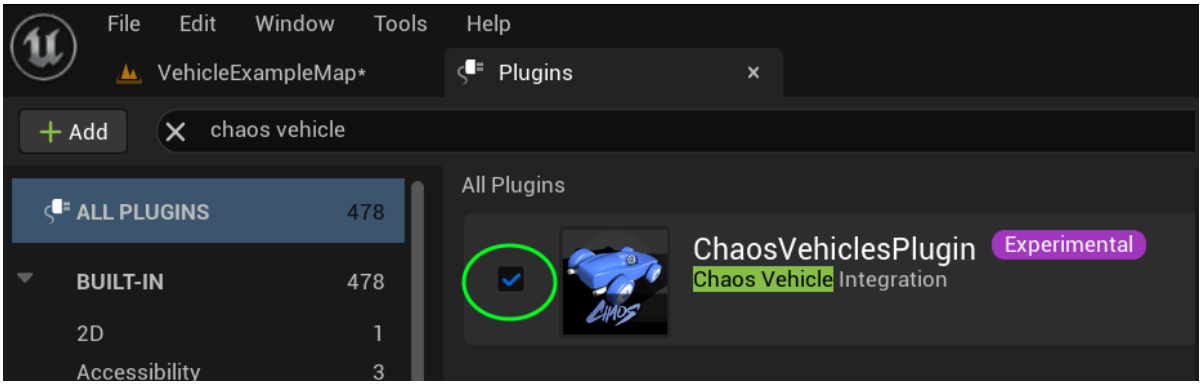
Start setup

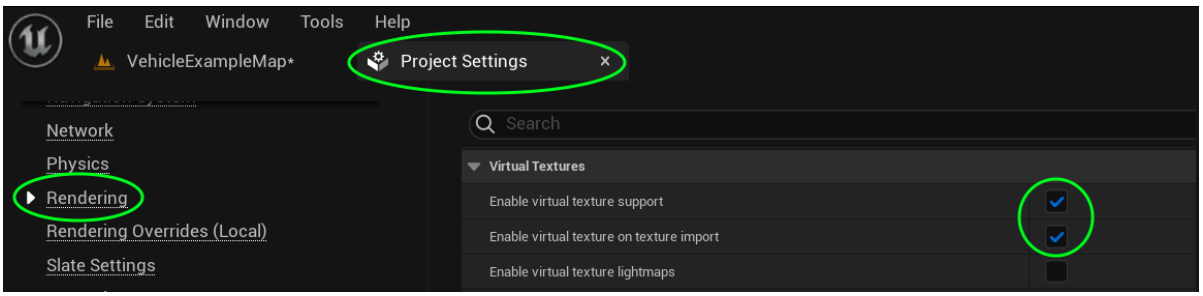
1) First of all, copy the project's folders to the Content folder of your project.

2) To use this product you have to activate the **Chaos Vehicles Plugin**.
Activation steps:





3) Also the product contains the **CitySampleVehicle** folder with slightly modified blueprints (for correct work of indicators, stop lights and automatic random color select).
For the correct display of materials on the cars you have to enable **virtual texture** in project settings.



All the traffic system blueprints are located in **TrafficSystem/Blueprints** (with the exception of AIController_traffic).

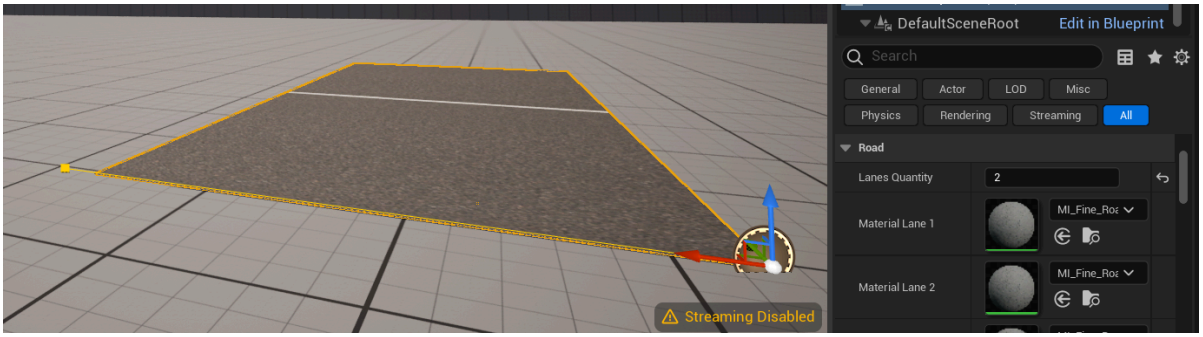
Road

Road Spline setup

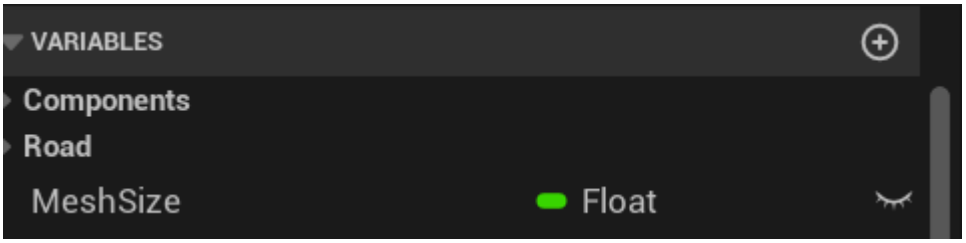
To add the road drag **BP_RoadSpline** to the scene. To control the shape and length of the road use the yellow spline.

Options in details panel:

- Choose **Lanes Quantity** (Max 4).
- Choose **material** for each lane.



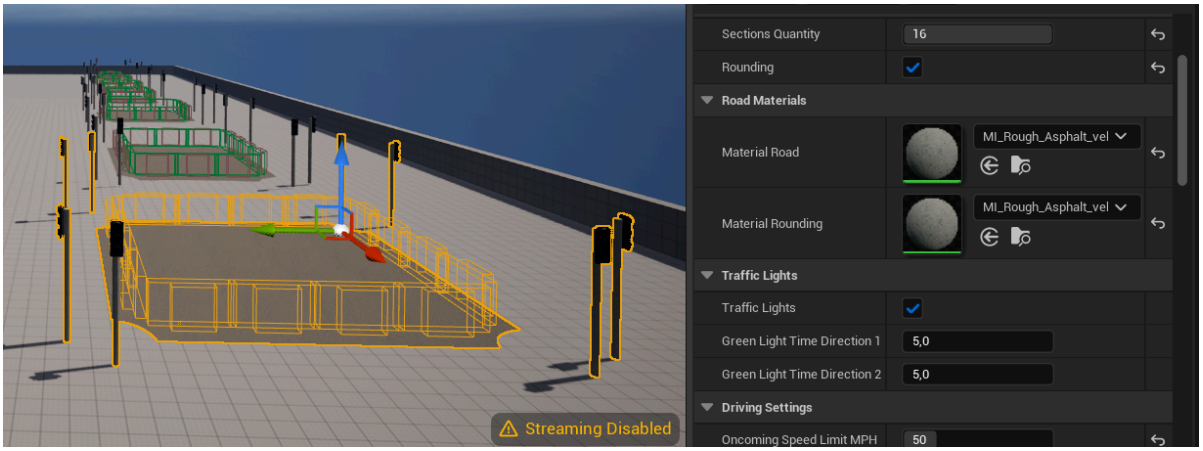
Also an important variable in this blueprint is **MeshSize**. It Affects quality of the road and quantity of draw calls. Higher value = lower quality and less quantity of draw calls. Also it affects the UV tiling of road texture.



Junction

Junction setup
To add the junction drag BP_Junction to the scene.
Options in details panel:

- Choose the size of the junction by changing the **Sections Quantity** parameter. Use one of these values: 1, 2, 4, 6, 9, 12, 16.
- Choose to make rounded borders by the **Rounding** bool variable.
- Choose **Material Road.**
- Choose **Material Rounding.**
- Change the speed limit by **Oncoming Speed Limit MPH** variable**.** It affects the cars that are coming to the junction and cars that are already on the junction.
- Choose to make traffic lights by **Traffic Lights** variable.
- Change **Green Light Time Direction 1** and **Green Light Time Direction 2** to set up intersection timings.



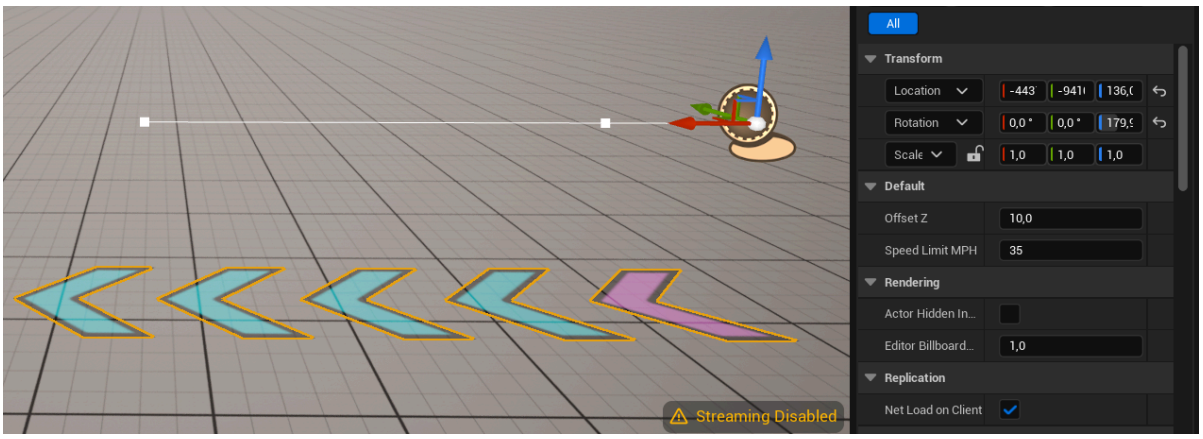
Traffic ways

Traffic ways setup

One direction:
To create a way for traffic drag BP_TrafficWaySpline to the scene. To control the traffic way use the white spline. You will see the result on the blue arrows spline.

Options in details panel:

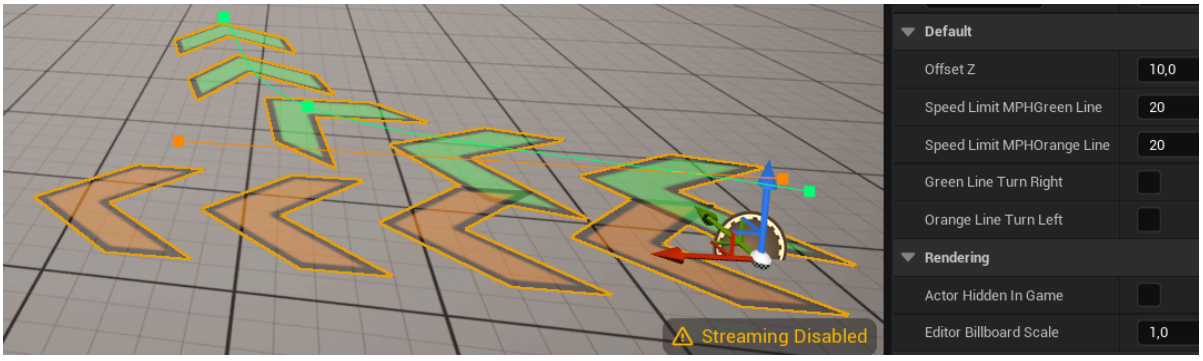
- Change the height of the blue arrows spline by the **Offset Z** variable. It affects the appearance only.
- Change the **Speed Limit MPH**.



Two directions:
If you need to have a fork for the traffic, choose **BP_TrafficTwoWaysSpine**. Use green and orange splines to control the ways.

This affects the car's **indicators**:
Use green if the way turns to the **right**. In this case check the box **Green Line Turn Right.**
Use orange if the way turns to the **left**. In this case check the box **Orange Line Turn Left.**
Use green or orange if the way goes **straight**.

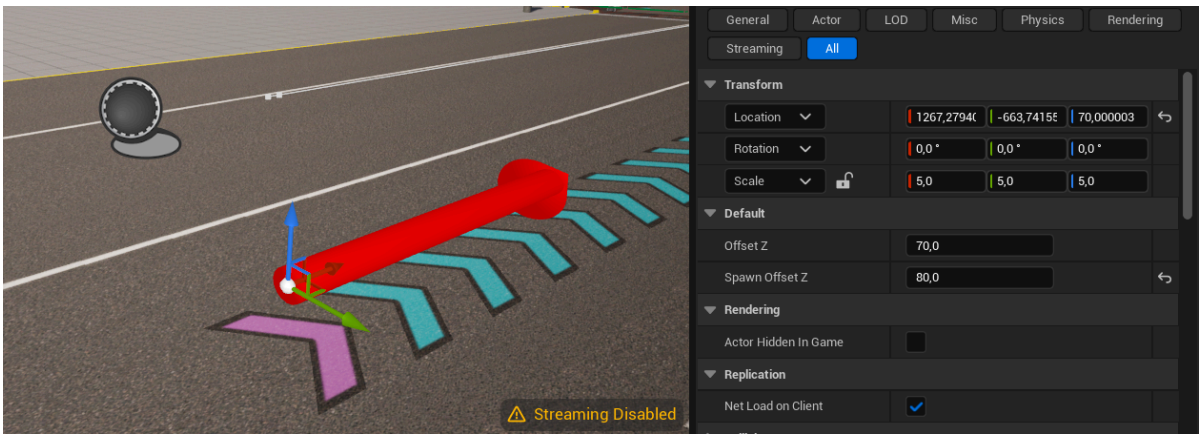
Options in details panel:
Change the height of both arrow splines by the **Offset Z** variable. It affects the appearance only.
Change the **Speed Limit MPH** variables for each line (green or orange).



Tip 1: end of the one traffic way and start the next one should not be very close to the junction to prevent a bug when the car selects the wrong next way to follow.

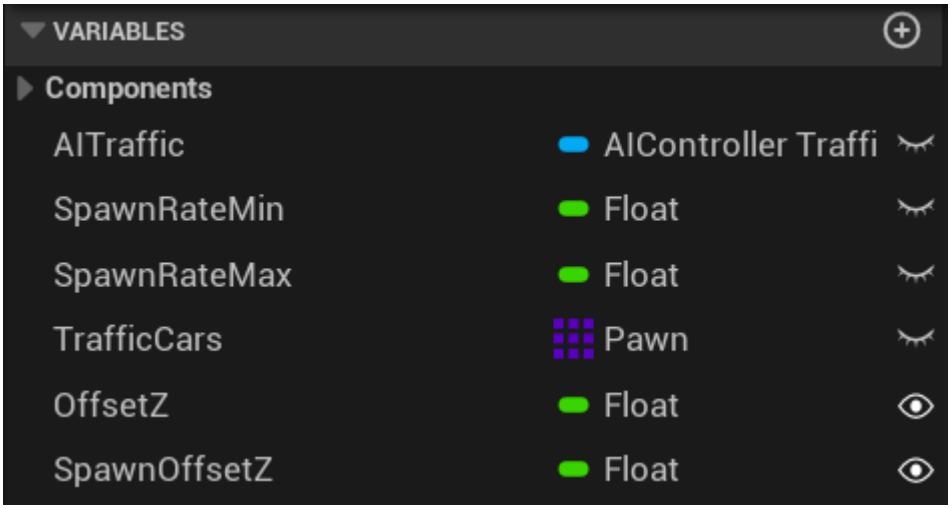
Spawn Point

Spawn Point
To add Spawn the point select **BP_TrafficSpawn** and add it to the scene. Make sure Spawn arrow direction is the same as the traffic way direction.

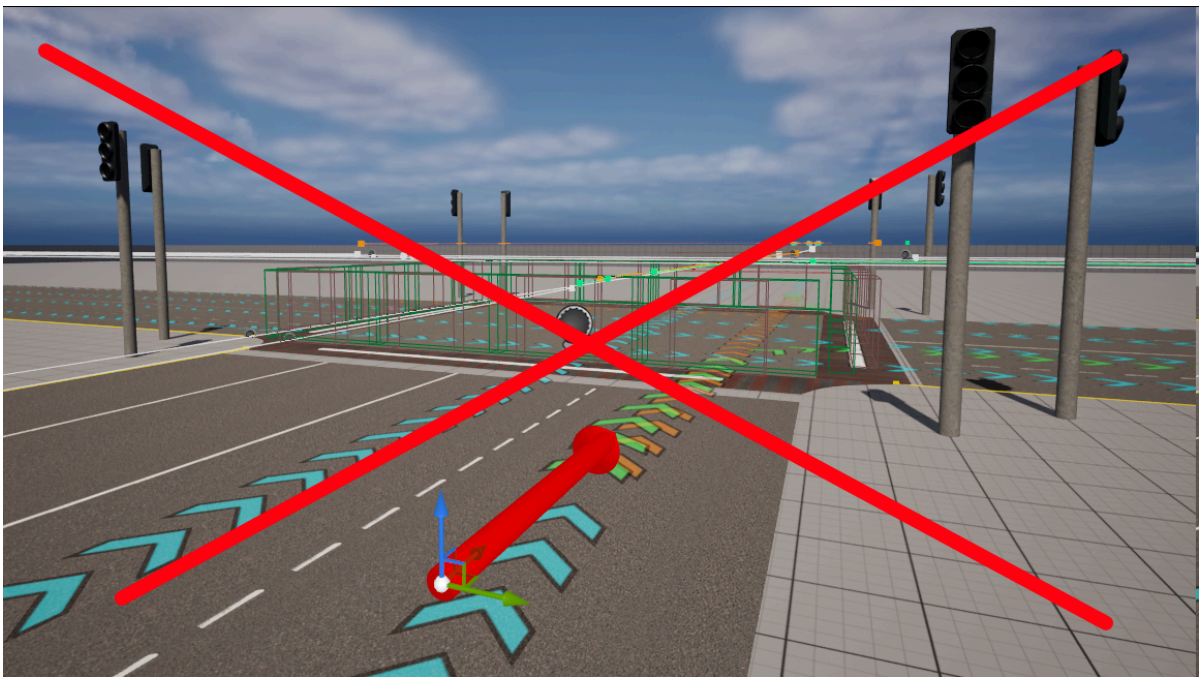


You can change these variables in Blueprint:

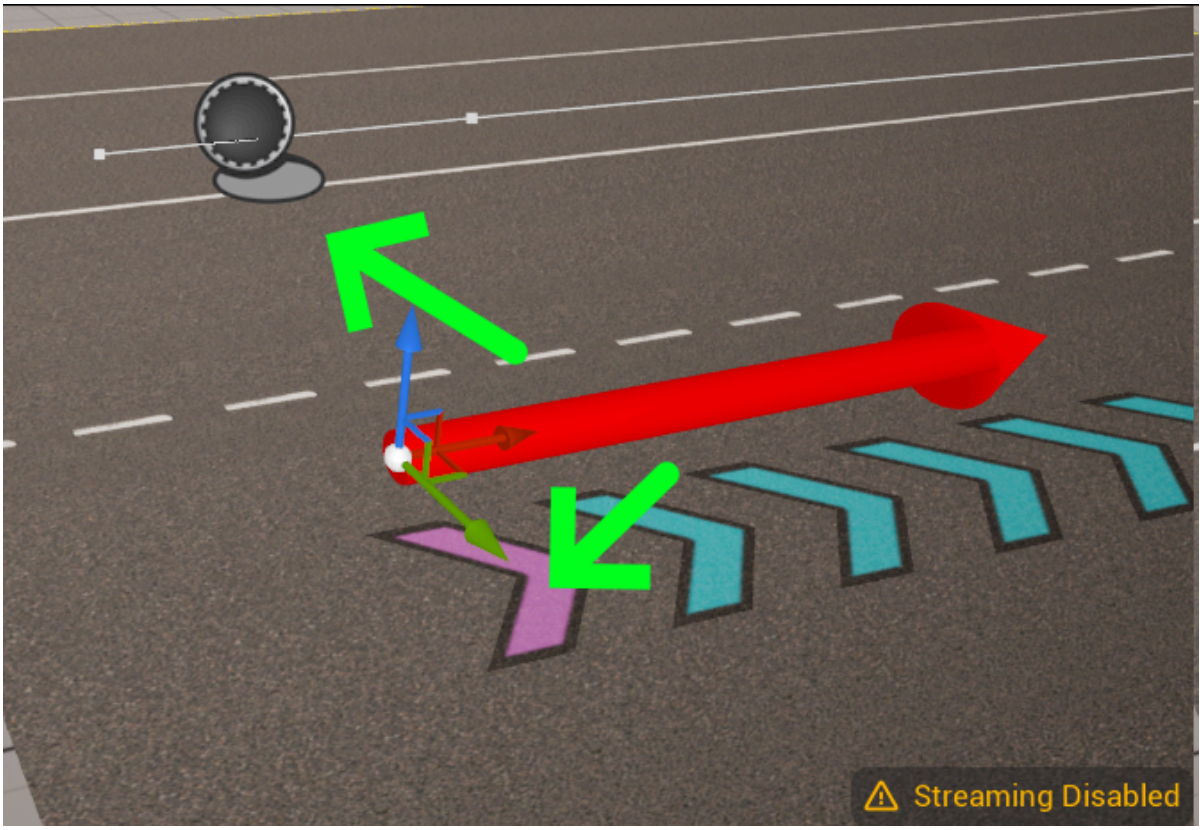
- **Traffic Cars** variable is an array of cars that will spawn on spawn points. You can remove or insert new ones. But it should be Chaos vehicles only for correct work of the traffic system.
- **SpawnOffset Z** variable affects the height of cars spawn.
- **Offset Z** variable affects the height of the red arrow appearance.
- **SpawnRateMin** and **SpawnRateMax** variables affect the time intervals between spawns.



Tip 1: better not to locate the spawn point right in front of the junction. Spawned cars have some start speed (that depends on speed limits of the traffic way and junction). So locating it right in front of the junction may lead to crossing the junction on the red signal because the car will not have enough distance to stop.



Tip 2: Very important to add a spawn point as close as possible to **DefaultSceneRoot** of Traffic Way Actor that spawned cars should follow. It prevents the bug when the car spawns and selects the wrong way to follow. Usually DefaultSceneRoot is close to the start of the spline and to the purple arrow.



Tip 3: If you want to add new traffic cars, the best way to do this is to make them child of **BP_Vehicle**. You can find it in CitySampleVehicles/Blueprint. Just fit the indicators and lights

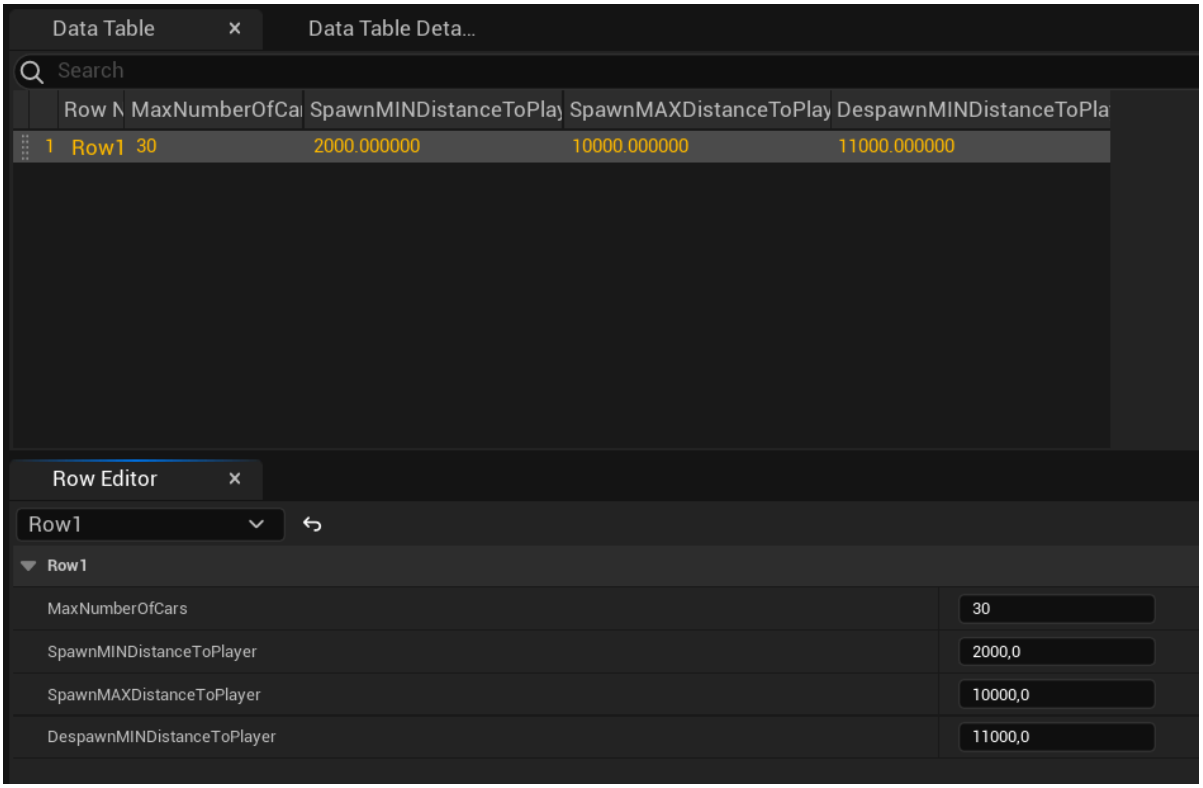
to your model and add your blueprint to the **Traffic Cars** list. It is also a good practice because you can modify BP_Vehicle and affect all of your vehicles at the same time.

Spawn and Despawn Properties

Spawn and despawn parameters can be changed in **DT_TrafficSpawn**. It is located in TrafficSystem/DataStructure.

- **Max Number Of Cars** affects how many cars can be on the map at the same time.
- **Spawn MIN Distance To Player** affects how close to the player cars can be spawned.
- **Spawn MAX Distance To Player** affects how far from the player cars can be spawned.

Tip 1: Despawn distance should be greater than spawn distances at least 10 meters. Otherwise cars will spawn and despawn at once with a high probability.

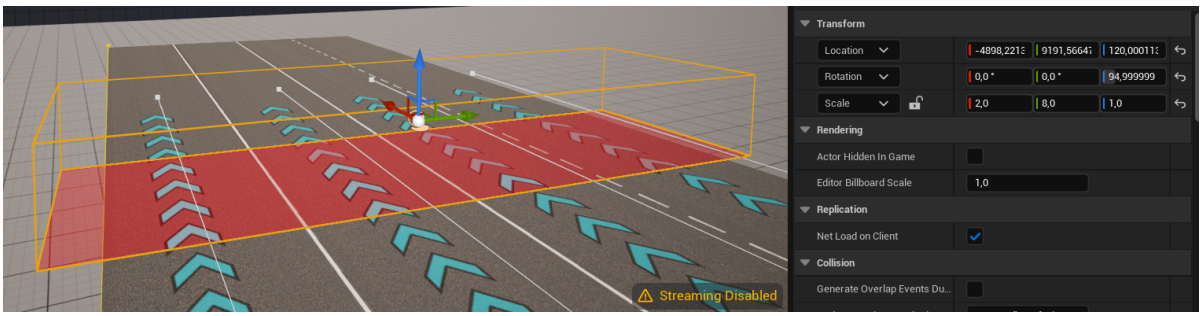


Tip 2: When you start the game in **simulate** mode it calculates the distance to PlayerStart instead of the distance to the player.

Warning: If the cars don't spawn somewhere you expect them to spawn, probably player StartPlayer is too far. You can change Spawn and despawn distance to player or move PlayerStart closer.

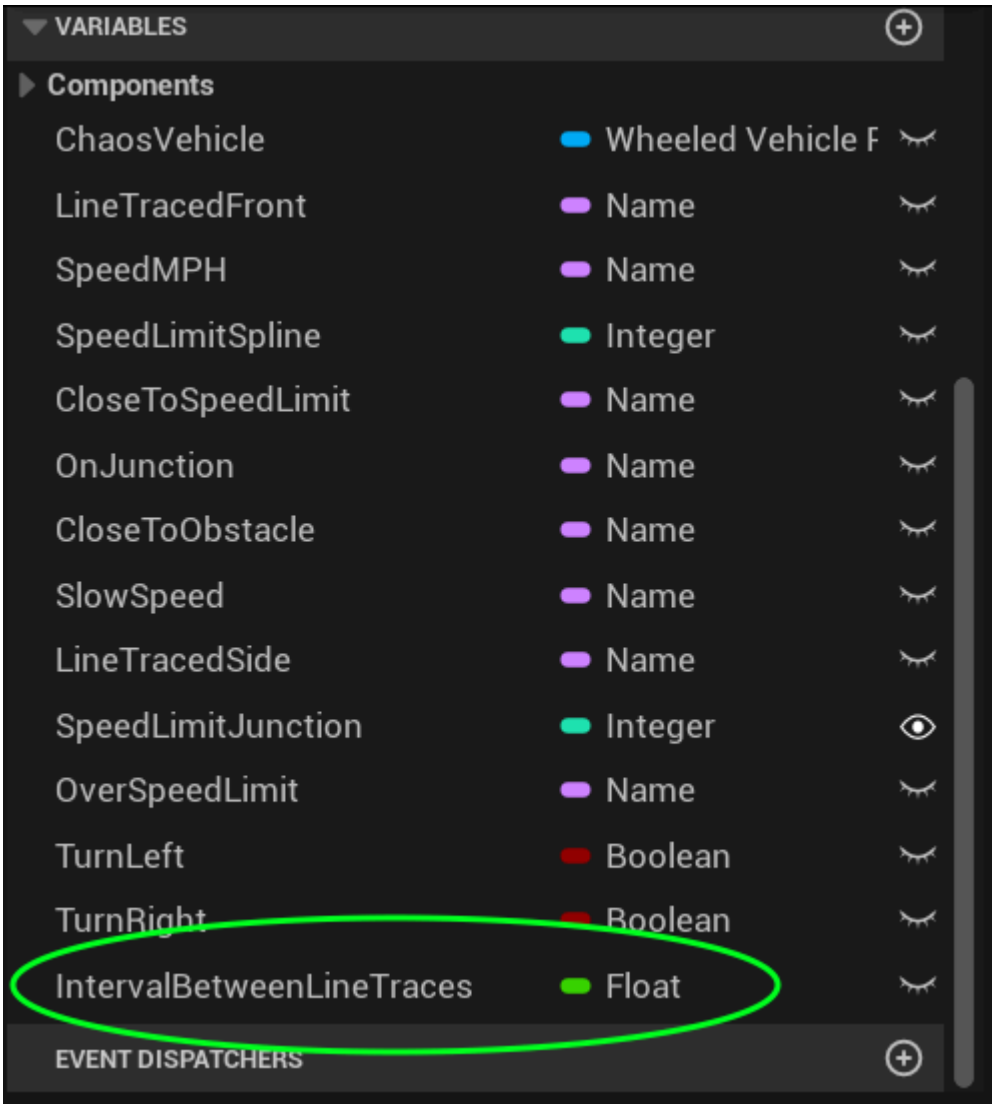
Traffic Despawn Actor

BP_TrafficDestorActor is used when you need to remove traffic cars in a certain place. It will destroy the car actor regardless of the distance to the player. You can change the scale for each actor to fit the road.



AI Controller

AIController_traffic is located in TrafficSystem/TrafficAI. It will automatically possess the traffic cars that are spawned by BP_TrafficSpawn.
You can change the **Interval Between Line Traces** variable in the blueprint. It affects CPU performance and driving accuracy of the traffic cars. Higher value will improve CPU performance but reduce driving accuracy of the traffic.



Common Info

- If a traffic car finishes one traffic way it will try to find another closest traffic way and follow it.
- If the speed limit on the junction and the speed limit on the traffic way are different, the car will choose the lowest speed limit.
- If you run simulate mode in editor, cars will despawn depending on distance to PlayerStart (instead of distance to player).

Tip: You can change the publicity of variables for more accurate setup. For example, you can make the **Traffic Cars** variable public in **BP_TrafficSpawn** and then you will be able to spawn different lists of cars on different spawn points (for example, in different districts).

Splines use: take the spline point and drag it. If you need to create another point, hold Alt and drag the spline point. If you need to rotate the road, select the spline point and rotate it.