Cellular automata (CA) are often used to model traffic flow with the intent to both better understand the internal dynamics of traffic from a statistical physics point of view, and to create virtual experiments which cannot be normally performed on real roads. Many such models in the recent past have had success in these areas, including the NaSch model we use as a generic example. We have written our own traffic CA model with the aim of acquiring physically significant and realistic data for a simple virtual highway, and then applying the simulation to more complicated road conditions in order to test the versatility of the model. In analyzing our results, we have studied space-time diagrams showing the position of all vehicles in each time step, and “fundamental diagrams” showing the relationship between flow and density. We have observed two distinct phases in unobstructed flow caused by the formation of spontaneous jams. An unexpected “creeping” in these jams is observed, which is the result of applying our local rule sequentially rather than simultaneously for all vehicles. We observe that allowing lane changing in multilane highways increases total flow by preventing spontaneous jams to some extent. For multilane highways with off ramps, we conclude that placing a sign well ahead of the exit is crucial in preventing large scale congestion in that it allows for exiting cars to change lanes without decelerating and for onward moving cars to move away from the right lane.