Additional Material

Example Configuration

We present the example configuration which we used to produce most of the results in the paper. The used land use types including short descriptions and their percentages are listed in table 5. Below we describe how the valuation functions for these land use type have been modeled. Figure 9 shows the resulting land use values of the example from figure 4.

Land use type	Description	%
Low d. residential	One or two family houses	40
High d. residential	Blocks, apartments, condos	20
Low d. industrial	Service industry, offices	8
High d. industrial	Heavy industry	10
Commercial	Retail sales, offices, inns	15
Parks	Recreation, memorials	4
Public	Schools, communal, transp.	3

Table 5: *The land use types and percentages used in the example simulation depicted in figure 4.*

Low density residential: We evaluate the suitability for low density residential using three factors: Residential land use prefers little traffic. This is weighted with $\lambda_1 = 0.45$ and modeled by a linear down ramp (ldr) on the lot traffic value:

$$valuation_1(lot[i]) = ldr(lot[i].traffic, p_{min} = 0, p_{max} = 1)$$

One and two family homes like to be in calm areas with few emissions. This is weighted with $\lambda_2 = 0.4$ and modeled with a ldr on the influence of high density industrial land use:

$$valuation_2(lot[i]) = ldr(lot[i].infl._{hdi}, p_{min} = 0, p_{max} = 10\%)$$

Shopping possibilities should exist. This is weighted with $\lambda_3 = 0.15$ and modeled with a linear up ramp (lur) on the influence of commercial land use

$$valuation_3(lot[i]) = lur(lot[i].infl._{com}, p_{min} = 0, p_{max} = 20\%)$$

High density residential: Suitability for high density residential land use is computed using four factors: distance from high density industrial land use ($\lambda_1 = 0.3$), proximity to the city center ($\lambda_2 = 0.25$), little traffic ($\lambda_3 = 0.25$), and proximity to commercial land use ($\lambda_4 = 0.2$).

Low density residential: Suitability for low density industrial land use is computed using two factors: proximity to the city center ($\lambda_1 = 0.3$) and a constant value 1 weighted with ($\lambda_1 = 0.7$). The constant value helps to offset the land use value.

High density industrial: Suitability for high density industrial land use is computed using four factors: distance from residential land use ($\lambda_1 = 0.35$), distance from city center ($\lambda_2 = 0.25$), slope ($\lambda_3 = 0.25$), and distance from public buildings ($\lambda_4 = 0.15$).

Commercial: Suitability for commercial land use is computed using two factors: much traffic ($\lambda_1 = 0.75$) and proximity to residential land use ($\lambda_2 = 0.25$).

Parks: Suitability for parks is computed using two factors: proximity to public buildings ($\lambda_1 = 0.2$) and proximity to city centers ($\lambda_2 = 0.2$).

Public: Suitability for public buildings is computed using three factors: proximity to parks ($\lambda_1 = 0.2$), proximity to city center ($\lambda_2 = 0.2$) and distance from heavy industry ($\lambda_{fi} = 0.2$).

Figure 15: *A close-up view of the final state of the simulation shown in figure 1. Please note the effect of the land use simulation, e.g. the industrial buildings on the other side of the river.*

Figure 16: *Land use editing is shown on the left and street network editing on the right. These edits can be done interactively during the simulation.*

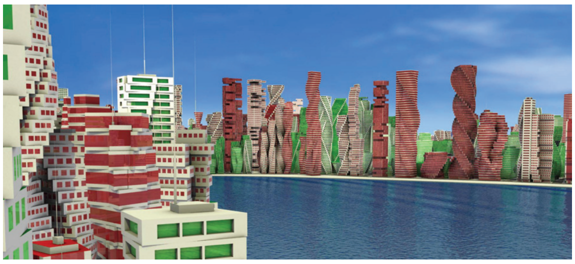

Figure 17: *The simulation system can be integrated into a professional production pipeline. We generated a growing city for an art project and rendered individual frames using offline rendering. The figure shows a frame of a simulation.*