

## Geodesign for a Sustainable Neighborhood

Planning a “green” neighborhood for Utrecht

**Location:** Rijnenburg Polder, Utrecht, Netherlands

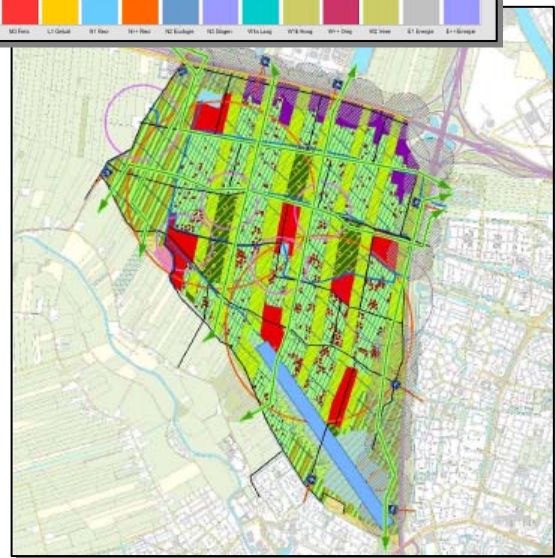
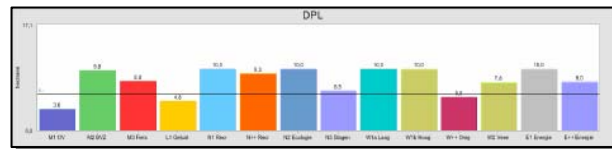
**Partners:** Province of Utrecht; City of Utrecht; Hoogheemraadschap De Stichtse Rijnlanden (Regional Water Board); IVAM, University of Amsterdam; MAPSUP



**Context:** Early in 2008, the City of Utrecht began shaping plans for a “green” neighborhood in Rijnenburg, an agricultural polder<sup>1</sup> on the southwest side of the city. “Sustainable Geo-design in Rijnenburg” calls for building some 7000 homes to meet an expected housing shortage, along with developing about 90 hectares (222 acres) of industrial and commercial building sites. The goal is to create an environment where it is pleasant to live, work and recreate, now and in the future. Planning for Rijnenburg is a special challenge because it is bordered on two sides by motorways, it enjoys special agricultural landscape qualities, and it has important water and soil considerations. As a first step in this project, a draft plan was created together with an environmental impact assessment. The Dutch consulting firm MAPSUP and IVAM were enlisted to engage stakeholders in the analysis of various plan scenarios.

**Project Description:** MAPSUP used CommunityViz on a MapTable to compare alternative scenario designs by looking at

indicator scores. Indicators were based on the Sustainability Profile of a Location (DPL), developed by IVAM. DPL is a computer model which quantifies the sustainability of a district and indicates its strengths and weaknesses. It can be applied to both existing and planned districts, and the model makes it easy to give sustainability a prominent position in the planning process.



The MapTable was used in several meetings with key stakeholders, including representatives of the Province of Utrecht, the City of Utrecht, and the regional water board—a government body charged with managing water barriers, waterways, water levels, and water quality in its region. Stakeholders sketched on the table with a touch pen, and a GIS record was made for each, point, line or area feature. The CommunityViz model provided a visual representation of the impacts of each sketch or scenario, and alternative scenarios were compared. Indicators appeared on the screen as colored bar graphs that updated dynamically in response to sketches on the map. Working

<sup>1</sup> A polder is a low-lying tract of land typically enclosed by dikes.

with the MapTable automatically led to discussions among the stakeholders about their objectives and feasibility of each plan design. The MapTable proved to be an important communication tool, adding a spatial language to discuss sustainability.

**Technology and Tools:** The Sustainable Geodesign project combined DPL (Sustainability Performance of a Location) developed by IVAM and CommunityViz Version 3.x on a custom-made MAPSUP 'MapTable,' a digital drawing board that is linked to a computer. By combining these tools for Rijnenburg, a methodology was developed that enabled stakeholders to visualize and quantify the sustainability and climate-proofing of a geodesign.

**Outcomes:** The project fully satisfied the objectives outlined in an earlier Climate Workshop. Out of fourteen indicators that were set for sustainable design, seven indicators scored "high" and four scored



“sufficiently high.” Three indicators scored as “inadequate,” leading planners to review housing

locations relative to noise. The project also led to the realization of the need for further discussions on landscape conservation and space to meet water storage requirements. The project is ongoing; the next step will be a version that takes into account new study results with regard to water management and energy. Afterwards, the area will be divided into smaller areas, while at the same time the number of GIS layers to choose from will grow to add further detail. Last but not least, the financial consequences will be added. The goal is to start building the neighborhood in 2013.

*“Sustainable design with Scenario 360 and the MapTable offers an interesting way to have multiple stakeholders think and talk about their ambitions. It works as an important communication tool by giving a spatial language for a discussion about sustainability and climate change.”*

— Dymph Hoffmans (Project leader 'Environment and sustainability', Utrecht City Planning Department)

#### KEY LINKS

CommunityViz  
<http://placeways.com/communityviz>  
Province of Utrecht  
<http://www.provincie-utrecht.nl>  
City of Utrecht  
<http://www.utrecht.nl/smartsite.dws?id=13353>  
Regional Water Board  
<http://www.hdsr.nl>  
IVAM, University of Amsterdam  
<http://www.ivam.uva.nl/index.php?id=51&L=1>  
MAPSUP  
<http://www.mapsup.nl>