

# Collaborative Web-Based 3D Masterplanning

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**Abstract.** This paper describes an approach to empowering heterogeneous groups of people to share the tasks of digitising and updating buildings that may convey a credible sense of presence. We argue that more effective tools are required to clearly display alternative and ad-hoc local planning proposals in web based interactive 3D, free at the point of access. Initial workshops have shown that such tools are only likely to be used if those so doing can influence the outcome. Consensus needs to be obtained among a broad group to exert strong influence. Tools are therefore needed to share concerns, examine alternatives, and propose solutions through collaborative citizen based proposals, examination and discussion. Consequently the VEPs Interreg project has been examining how to optimise shared web based collaborative digital 3D modelling and discussion, focused on urban and rural environments, where the increasing availability of LiDAR laser scanning offers appropriately accurate remote sensed data.

## 1 Introduction

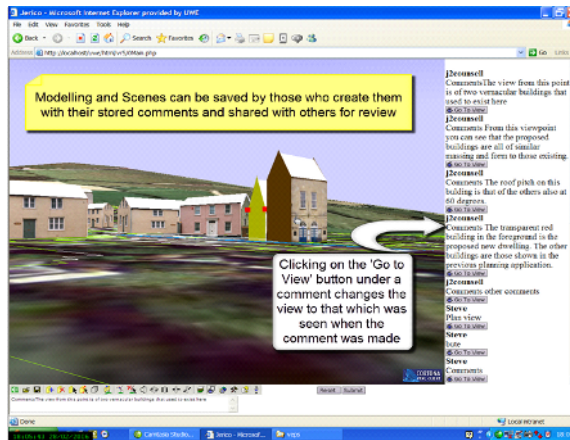
This paper discusses recent work in the VEPs Interreg project [1] that has been examining how to optimise operator based digital 3D modelling of urban and rural environments, where the increasing availability of highly accurate Light Detection and Ranging (LiDAR) laser based scanning offers appropriate remote sensed data, and opportunities to automate parts if not all the process. The automation process was described in Richman et al 2005 'Remote Sensing, LIDAR, automated data capture and the VEPS project' [2]. The extent of this automation depends on the precision of the intervals at which the data is captured. We would argue that Master Planning is an inherently collaborative process, and that enhanced public participation in the process requires consensus. Web tools have been prototyped to examine how citizens can upload their own modelling into this context for exploration of 'what-if' alternatives without requiring explicit CAD skills, and to share their modelling with others, or to download and modify modelling by others, to generate interactive discussion. These will where possible be based upon existing digital city or countryside modelling in the VRML or emerging X3D international standards.

## 2 The VEPs ePlanner

VEPs, the ‘Virtual Environmental Planning System’, is an Interreg IIIB funded European project focused on the North West Europe region [1]. The project and its goals were described in our paper in last year’s CDVE conference [3]. Initial workshops that were held in the UK, France and Germany, focused on Planners, Architects, Citizens and Politicians, invited open discussion about needs and issues. These identified (among other requirements) that collaborative use of such a system should facilitate:

- free access to tools and data to ensure that it is available for all;
- the visual representation of comments /objections;
- search functions and queries;
- users enabled to set their own visualisation preferences;
- public participation with optional playback of the complete argumentation chain or just with results;
- interaction with other users and particularly with decision makers;
- tools for leaving comments; rating / ranking comments; peer group moderation of commenting; replying to comments;
- the freedom to choose and explore different options.

It was particularly stressed that while use of the system may possibly be facilitated by decision makers, it must be seen as independent / unbiased.



**Fig. 1.** In the VEPs ePlanner toolset, invoking the comment tool captures the viewport (camera) coordinates, and stores them for retrieval with the comment. The comments of others can be retrieved with their modelling, clicking on the comment buttons on the right invokes each view in turn, forming the basis of a narrative explanation of the originators ‘point of view’.

### 2.1 Block Extrusion Models vs Credible Presence Models and LiDAR

The most widespread current use of LiDAR, in England and Wales, is undertaken by the Environment Agency, primarily for flood analysis. In practice it has been found