Public participation in urban planning and design is becoming increasingly important in achieving publicly accepted projects or policies. Including the public in the planning process allows for their needs and concerns to be communicated to developers and decision-makers. Public participation in planning often requires proper visualization tools for planners and decision-makers to communicate potential designs or policies to the public. Today’s emerging online mapping application programming interfaces (APIs) such as Google Maps and Google Earth, along with online data structures (i.e. KML, XML), are offering ways of matching powerful 3D modeling and visualization software with the accessibility and reach of the Internet. These APIs provide highly customizable development (programming) environments where functionalities can be designed to offer the public interactive ways of participating in planning issues. This thesis presents the development potential of the Google Earth Plug-in API in creating a 3D online application for public participation to aid in decision-making processes.