# SL-King
*Software design*

# Olympic city Sarajevo with
# Oracle, Autodesk and K-ing solution

## Overview

One of great assets of Olympic city of Sarajevo is it accurate cadastral of all utilities in the city. Zavod za Izgradnju Kantona ('*Institute for City Construction*' - ZIK) was established by the city and one of responsibilities was to manage cadastral of utilities. For 40 years now they succeeded in creating and updating of about 1000 paper sheets of maps of utilities. There is regulation in the city that for every new utility investor has to create an elaborate of surveying of new utilities and bring it to ZIK before they get permission to use it. Also for every new planning of development in the city, investors have to have legacy maps of utilities issued by ZIK.

Managing on paper seven different utilities in the center of city like Sarajevo was no ease job. They invested a lot of energy in creating rules for drawing and annotating these papers, rules for drawing lines, nodes, symbols and labels. These thousand colorful maps, drawn with such accuracy is very big achievement for ZIK and city of Sarajevo.

**Challenge**
Manage cadastral of all utilities for large city.
**Solution**
Solution deployed in ZIK enables multi user editing of data using long transactions with complete history of changes and network topology.
**Products**
Oracle database, Oracle Spatial, Oracle Workspace Manager, Autodesk MAP, Autodesk MapGuide, K-ing InGis.
**Results**
"Even very sophisticated solution it is very easy to use and enables us to cut down editing time from days to hours."

## The Challenge

City of Sarajevo is extensively growing these days and for ZIK it becomes increasingly difficult to maintain updated maps. This maps needs to be transferred to digital form.

Spatial database should be able to handle large volume of spatial data, which can be simultaneously edited. Editing should be done in controlled way so every edit needs to be checked and approved. For every edit of data there should be history who and when was editing. Network topology needs to be created and maintained.

Solutions needs to offer easy and smart way of labeling and annotating so changes on lines or nodes also changes position of labels.

At the same time they need to be able to issue legacy maps of existing utilities and enable access to data for viewing over intranet/extranet.

## The Solution

ZIK solution is based on Oracle database, Oracle Spatial, Oracle Workspace Manager, Autodesk Map, Autodesk MapGuide and K-ing InGis for integration of these systems.

Oracle is used for centralized storing and querying spatial and non-spatial data. Autodesk MAP is used for editing and visualizing data and plotting maps. Autodesk MapGuide is used to enable intranet/extranet access to data.

Specific for this solution is extensive use of Oracle Workspace. Using Oracle Workspace enables entering data trough long transactions and enables that every entry to database is checked and approved before becomes part of main production database. Also it is possible to go back in history of data to see what was situation in some particular point in time.

K-ing InGis based on Autodesk MAP and .NET interface to Oracle enables them to open new workspaces, edit data, merge/cancel workspaces, and go back in history of data. Also network topology is automatically maintained in Oracle. Dialogs for editing non-spatial data are created on-fly based on metadata written in
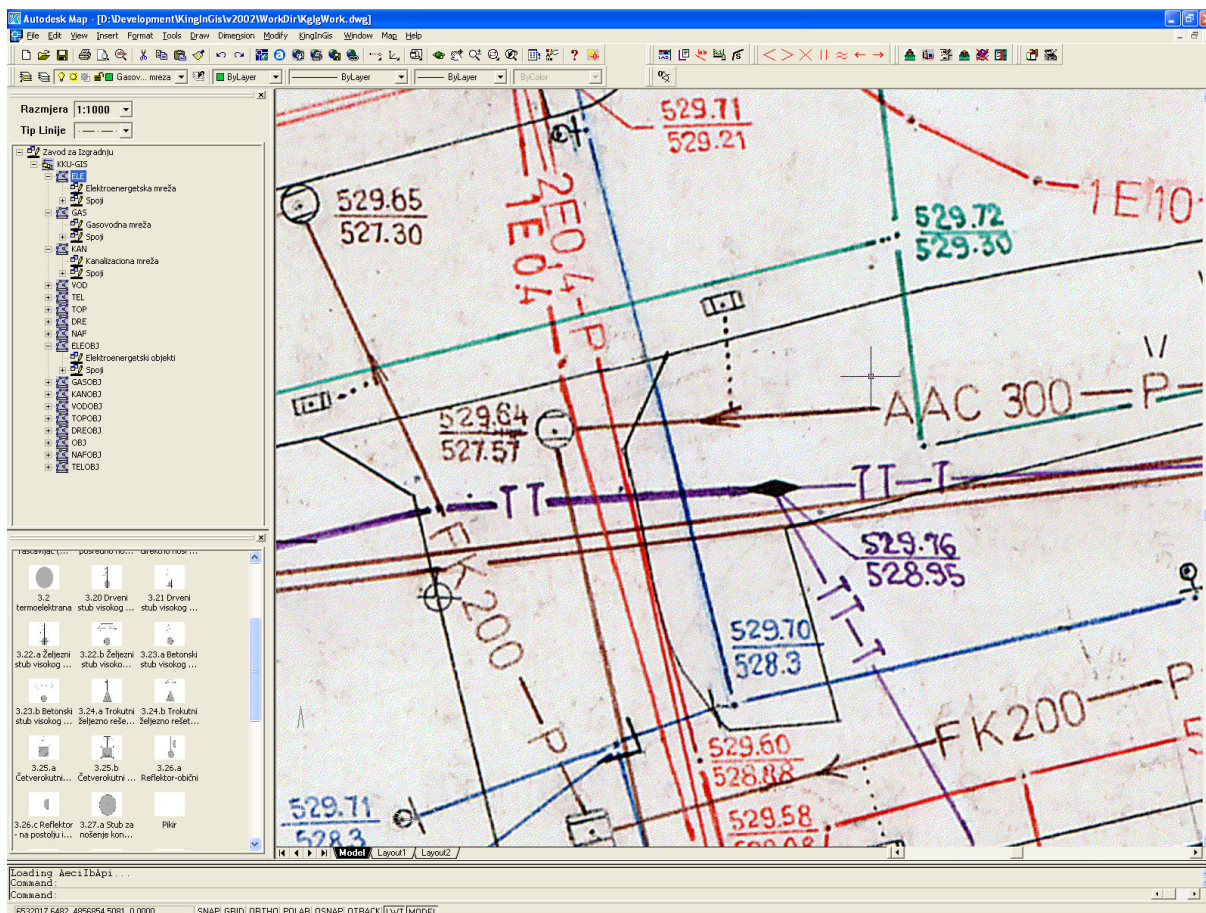
Oracle database. So just by adding new fields in metadata they are able to extend application with some new data.

**Results**

They are able to cut down entering data from days to hours. For every single line or symbol they have evidence who and when entered it, who and when approved it. They can be sure that data is safe and even if some data is accidentally erased it can be easily restored.

They have very sophisticated solution but with Autodesk MAP and K-ing InGis it is very easy to use. Changes in Oracle Spatial database are made just with simple moves of polylines and symbols grip points. With smart polylines and labels they are able to reproduce exact look of printed maps as it were on papers.



*Sample map of utilities in Autodesk MAP and K-ing application*