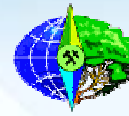




AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY
Faculty of Mining Surveying
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Department of Geomatics



Using Geographic Information System Software For A Digital City Map Construction

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Purposes

- Capabilities test of GIS software
in field of a digital city map construction
- Creation of the city map
- 2D presentation
- 3D visualization



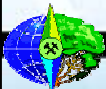
Software

- ArcGIS ArcInfo
- Extensions
 - ArcGIS Network Analyst
 - ArcGIS 3D Analyst
- Photoshop



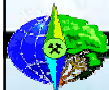
Data

- **Vector Data**
 - Building contours
 - Axis of streets and rivers
 - Landuse contours
 - Set of points with address information
 - Digital Terrain Model (TIN)
- **Raster Data - Topographic Map**
- **Reconnaissance**
 - Information about buildings
 - Photos



Steps of research

- **Gathering Data**
- **Geodatabase**
 - import/export data
 - topology
 - adding attributes into objects
 - creation relationships between tables
 - geocoding
 - creating routes
- **2D and 3D presentation of the city map**

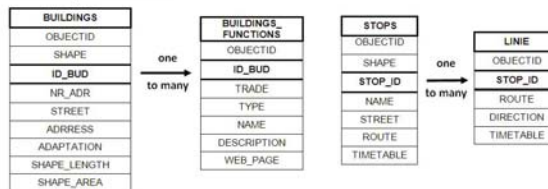


Geodatabase structure

BUILDINGS	STREET	STOPS	SYMBOLS	FUNKCJE BUDYNKÓW
OBJECTID	OBJECTID	OBJECTID	OBJECTID	OBJECTID
SHAPE	SHAPE	SHAPE	SHAPE	ID_BUD
ID_BUD	NAME	STOP_ID	NAME	TRADE
NR_ADR	TYPE	NAME		TYPE
STREET	ONEWAY	STREET		NAME
ADDRESS	TIME	ROUTE		DESCRIPTION
ADAPTION	SHAPE_LENGTH	TIMETABLE		WEB_PAGE
SHAPE_LENGTH				
SHAPE_AREA				

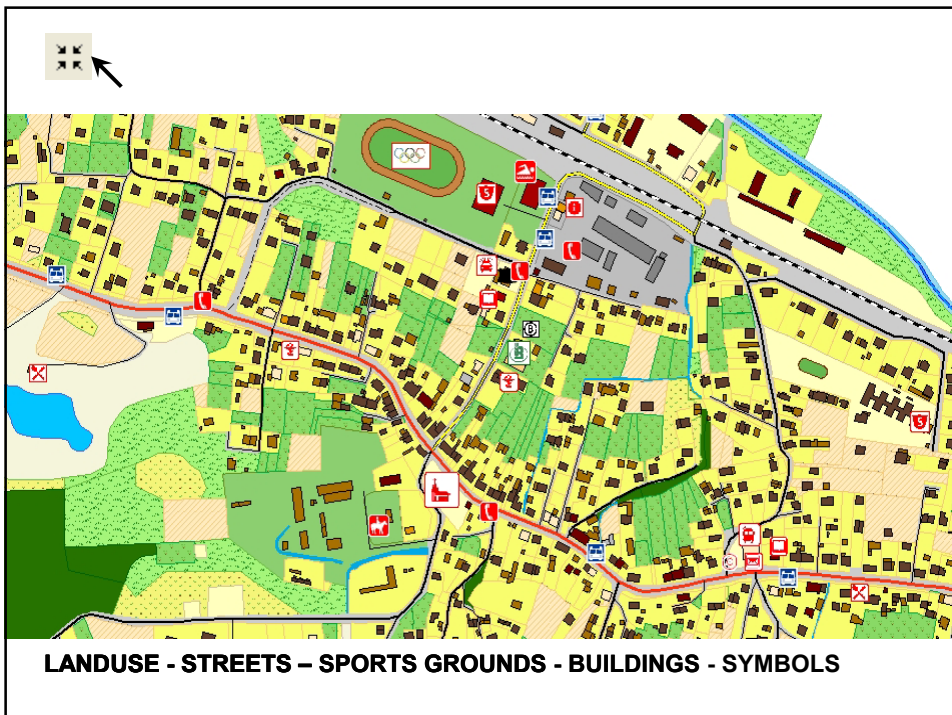
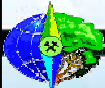
ARABLE LANDS	SPORT	SZLAKI	RAILWAY	LINIE
OBJECTID	OBJECTID	OBJECTID	OBJECTID	OBJECTID
SHAPE	SHAPE	SHAPE_LENGTH	SHAPE	STOP_ID
AR_LAND	NAME	TYPE	COLOR	ROUTE
CLASS	SHAPE_LENGTH			DIRECTION
SHAPE_LENGTH	SHAPE_AREA			TIMETABLE
SHAPE_AREA				

Relationships between tables

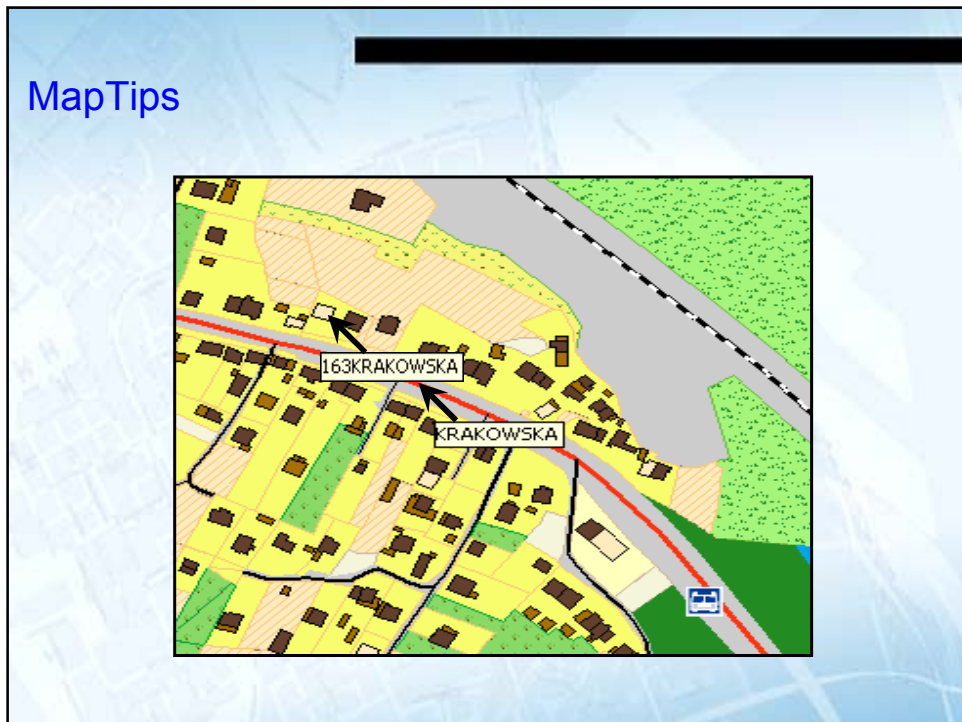
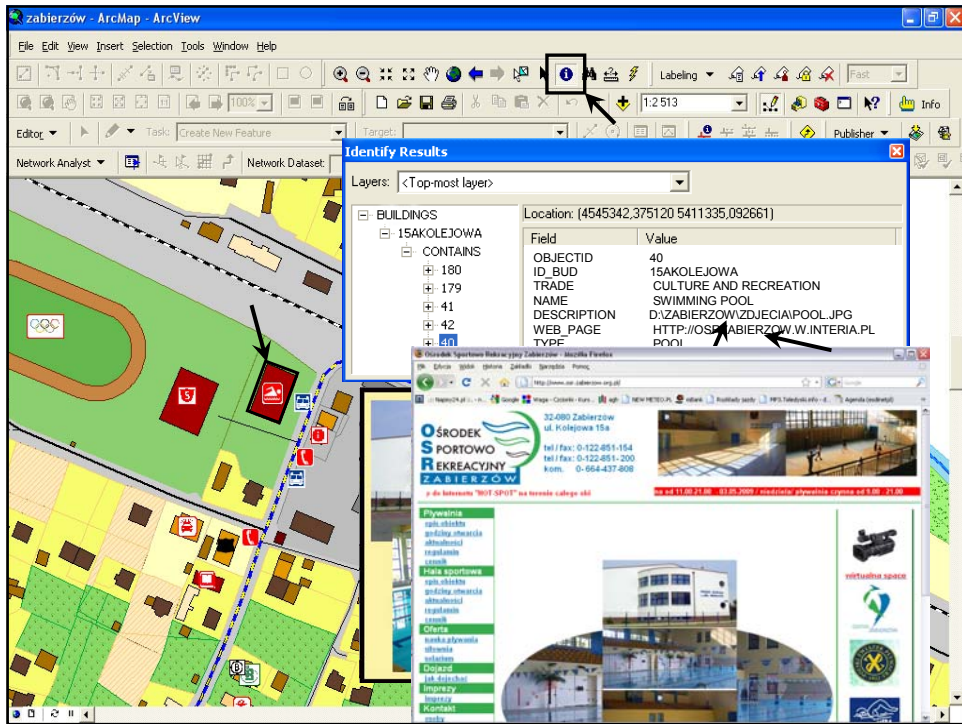


Capabilities of the city map

- Zoom In/out and pan view
- Show/hide layers
- Set a layer's visible scale range
- Identifying
 - ✓ Identify tools
 - ✓ Hyperlink
 - ✓ MapTips
- Searching
 - ✓ Find
 - ✓ Select
 - By attribute
 - By location
- Network analysis
 - ✓ Finding the best route
 - ✓ Finding the closest facilities
- Print



LANDUSE - STREETS - SPORTS GROUNDS - BUILDINGS - SYMBOLS



Searching

Find

Features | Route Locations | Addresses

Find

Stop

New Search

Cancel

Choose an address locator:
BUILDINGS

KeyField: 10KOLEJOWA

Options... Show Standardization Show all candidates

Right-click a row to show context menu.

Score	KeyField
100	10KOLEJOWA

One object found.

- Flash Candidate Location(s)
- Zoom to Candidate(s) and Flash
- Add as Graphic(s) to Map
- Set Bookmark
- Add as Stop to Route

zabierzów - ArcMap - ArcInfo

File Edit View Insert Selection Tools Window Help

1:20 559

100%

Task: Create New Feature

Target:

Select By Attributes

Layer: ARABLE_LANDS

Only show selectable layers in this list

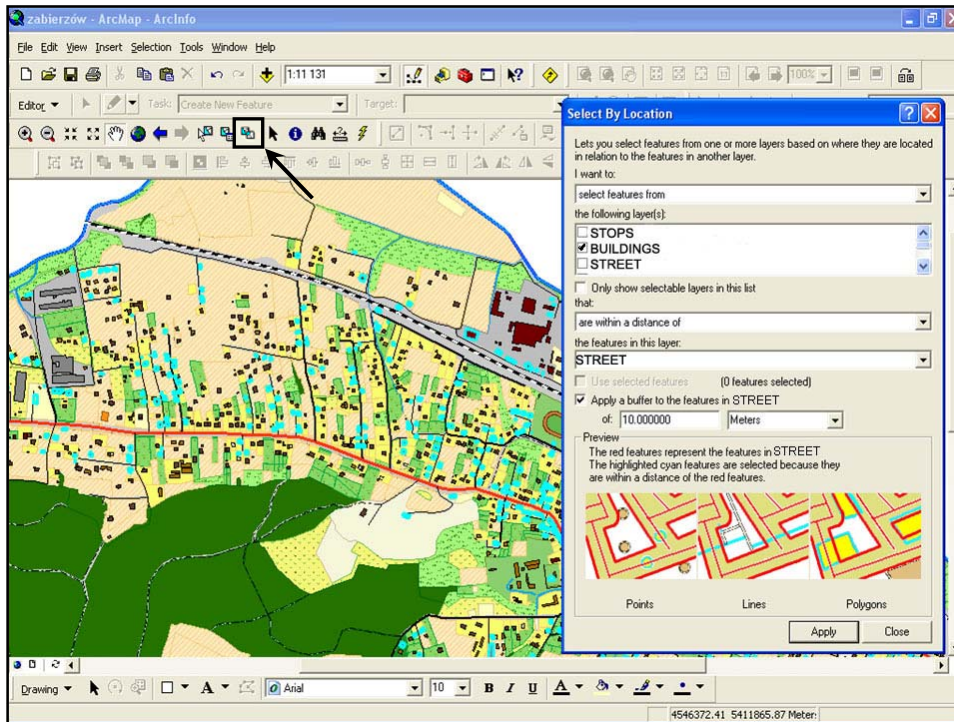
Method: Create a new selection

Fields: [OBJECTID], [SHAPE], [AR_LAND], [CLASS], [SHAPE_LENGTH], [SHAPE_AREA]

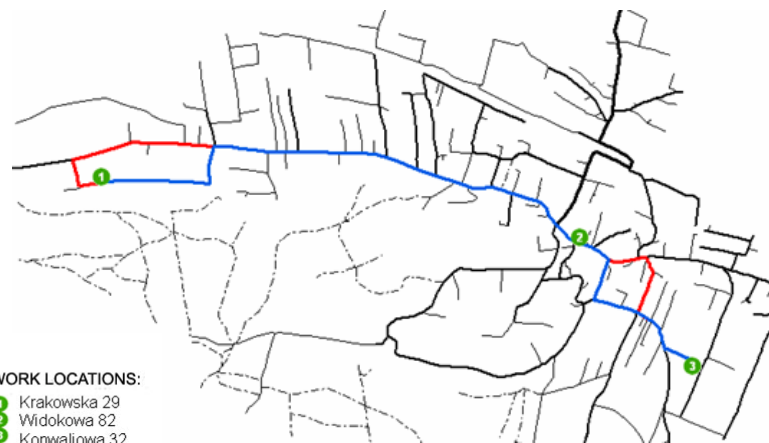
Unique Values:

SELECT * FROM teren.kkuz WHERE:
[AR_LAND] = "ORCHARD"

Clear Verify Help Load... Save... Apply Close



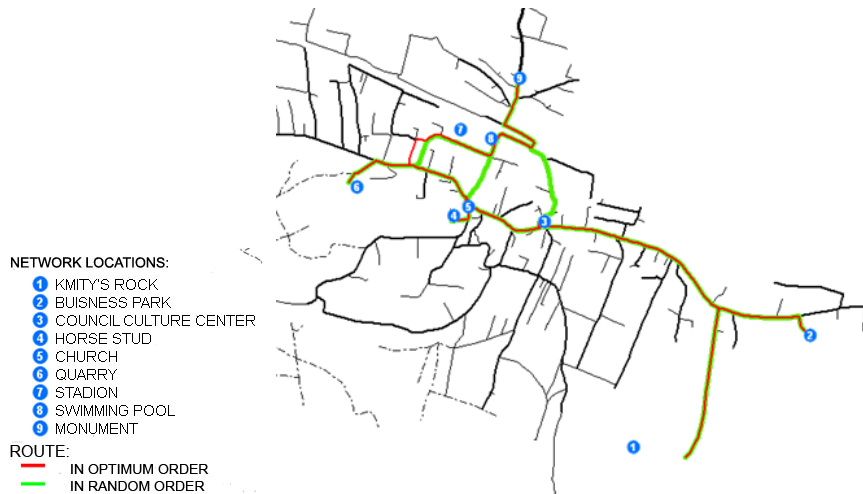
The quickest and the shortest route between three locations comparison



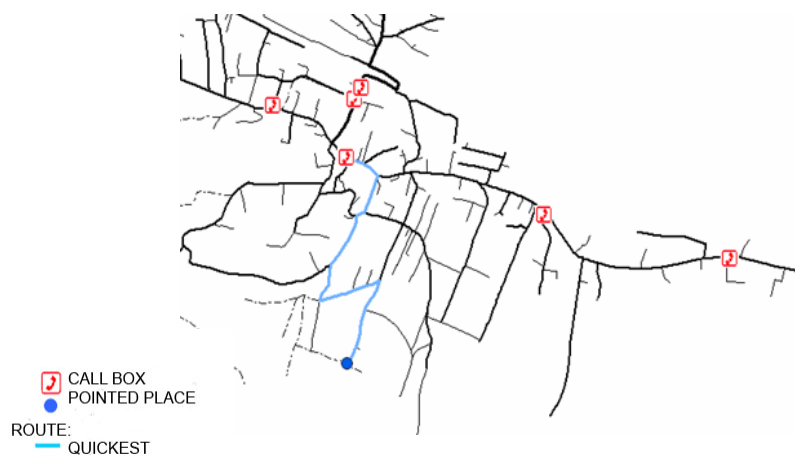
- NETWORK LOCATIONS:**
- 1 Krakowska 29
 - 2 Widokowa 82
 - 3 Konwaliowa 32
- ROUTE:**
- QUICKEST
 - SHORTEST

The most attractive tourist route

The shortest routes between several locations
in random order and in optimum order – comparison



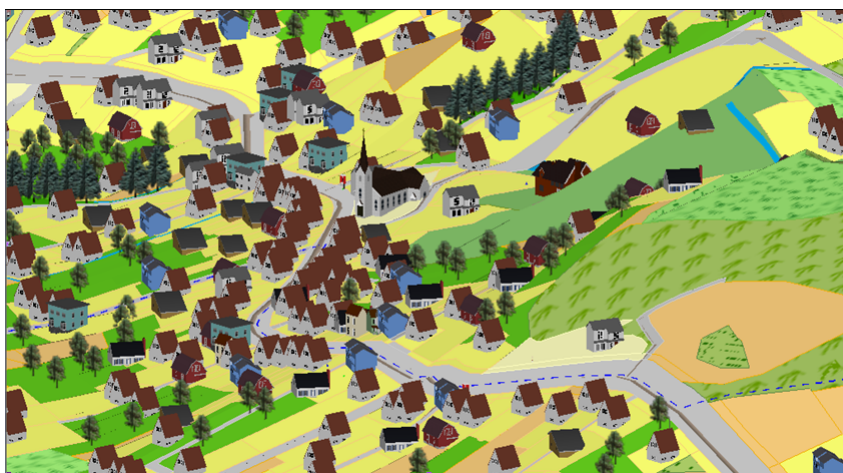
The quickest route from pointed place to closest facilities



3D visualization



3D view on Zabierzów



3D view on Zabierzów



Thank You

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A small, colorful globe icon is located in the bottom-left corner of the slide, below the contact information.