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Geoapplications development
<http://rgeo.wikience.org>

Training 6

Practice: vector processing

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Lane Widening

Because of dramatic traffic increase, the town planners want to widen the lane (highlighted in red). They want to add 40 meters at both sides. Programmatically (using Java and JTS) find buildings that must be demolished. Use “Moscow from Open Street Map (OSM)” data. Save the resulting lane in SHP and visualize it in QGIS.

QGIS 2.18.7 - osm_shp

Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help

boundary-polygon
 4
 6
 building-polygon
 railway-line
 highway-line
 trunk
 primary
 secondary
 tertiary
 water-polygon
 water-line

Identify Results

Feature	Value
highway-line	
OSM ID	182044370
(Derived)	
(Actions)	
OSM_ID	182044370
NAME	Варшавское шоссе (дублёр)
REF	
HIGHWAY	secondary
ONEWAY	yes
BRIDGE	
TUNNEL	
MAXSPEED	60
LANES	2
WIDTH	
SURFACE	asphalt

Mode: Current layer Auto open form

View: Tree Help

Coordinate 4185390,7475898 Scale 1:9,811 Magnifier 100% Rotation 0.0 Render EPSG:3857 (OTF)

Garden or town map

You should use geometric operations to reach part of this (details are on the next slide):



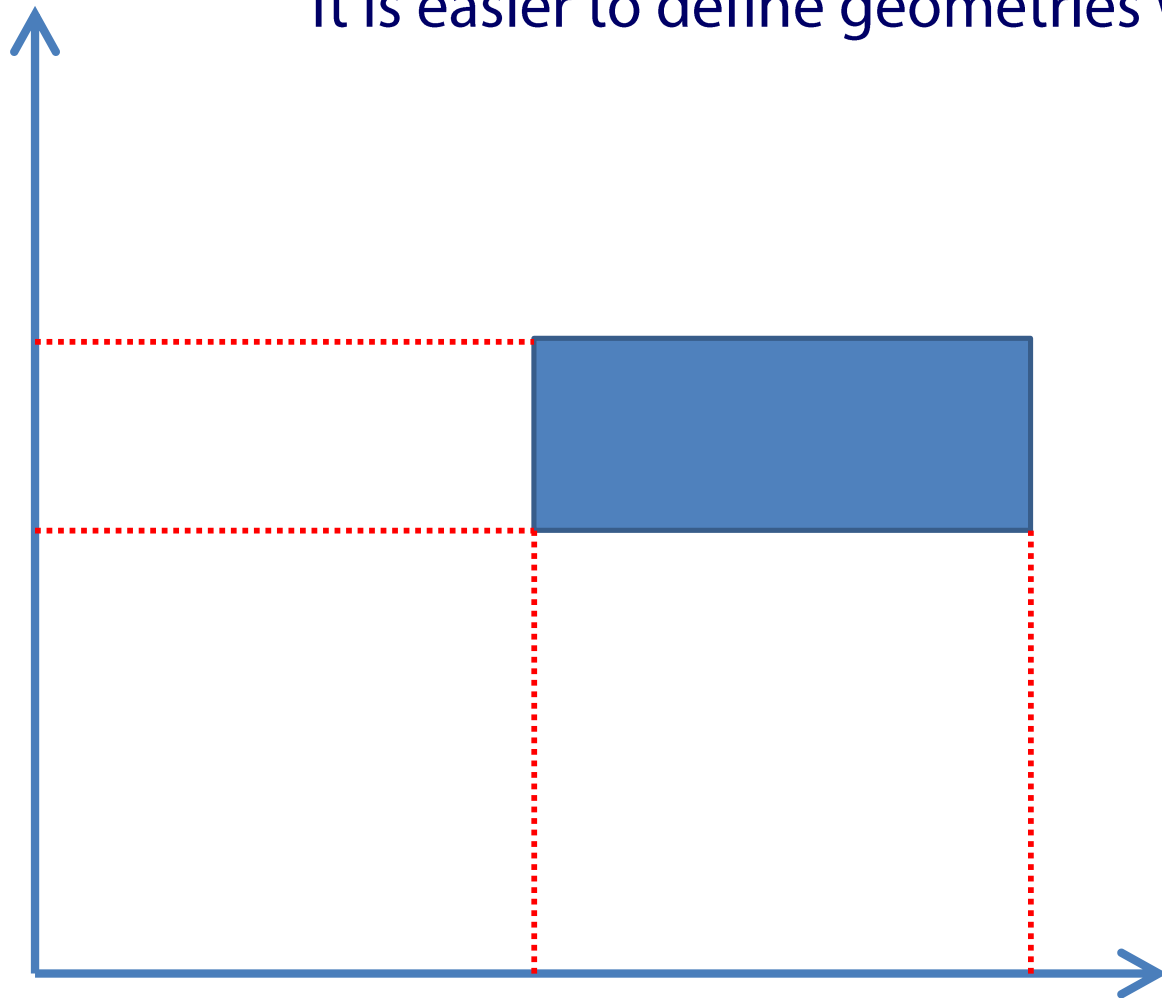
Plan

By your HANDS, not JTS TestBuilder (use it only to view intermediate results, verify operations, etc.):

1. Draw map of garden/town/etc. on PAPER with Cartesian coords.
2. Code geometries in WKT
3. Achieve targeting look applying vector operations (affine transform, intersection, difference, buffer, etc.)
4. Create geometries so that diverse topological relationships are present on your map (covers, touches, etc.)
5. Visually check in JTS TestBuilder (you may save all your map as geometry collection)
6. Scale & translate to get some coordinates in UTM 37N (EPSG:32637), remember that false easting equals to 500000
7. Reproject your geometries to lat/lon CRS (EPSG:4326)
8. Save to KML, view in Google Earth (link to the on-line plugin is somewhere on the slides from prev. lessons) OR to GeoJSON and see at geojson.io

Draw coordinate axes on the paper!

It is easier to define geometries when you have this...





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Thank you
for your attention!