

Urban Land Use

Background. The Urban Land Use product offers a vital tool for the urban planner in the planning and management of cities. Detailed and up-to-date land use information for urban areas provides the essential starting point for the preparation of the plan, for the analysis of land use change and for the specification of land use zoning as a basic tenet of land use planning activity. Such information is now available to anyone on a product basis at the scales of 1:5,000 to 1:25,000, based on the latest satellite imagery, providing up-to-date urban land use information and transport infrastructure networks.



Land Use

Policy §

Policy apart from locally determined policy drivers:

- Local Agenda 21 (LA21)
- Union Strategy for Sustainable Development
- Eco-Management and Audit Scheme (EMAS)
- Urban Audit
- 6th Environmental Action Programme (6 EAP)
- Thematic Strategy on the Urban Environment

Artificial surfaces

Urban fabric

- Residential continuous dense urban fabric
- Residential continuous medium dense urban fabric
- Informal settlements
- Residential discontinuous urban fabric
- Residential discontinuous sparse urban fabric
- Residential urban blocks
- Informal discontinuous residential structures

Industrial, commercial and transport units

- Industrial areas
- Commercial areas
- Technological infrastructure
- Road and rail networks and associated land
- Port areas
- Airports

Mine, dump and construction sites

- Mineral extraction sites
- Dump sites
- Construction sites
- Abandoned land

Artificial non-agricultural vegetated areas

- Green urban areas
- Sport and leisure facilities

Agricultural areas

- Arable land
- Permanent crops
- Pastures
- Heterogeneous agricultural areas

Forests and semi-natural areas

- Forests
- Shrub and/or herbaceous vegetation associations
- Open spaces with little or no vegetation

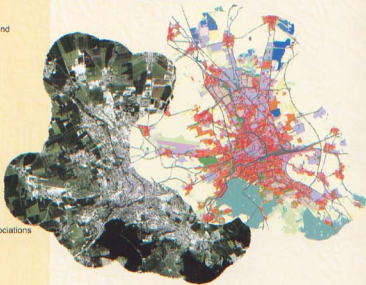
Wetlands

- Inland wetlands
- Coastal wetlands

Water bodies

- Marine waters
- Inland waters
- Water courses (rivers / canals)

- ✓ Mapping of land use changes is essential for monitoring planning activities
- ✓ Land use changes and indicators are widely demanded by urban municipalities of all scales
- ✓ Tool for spatial statistic calculations
- ✓ Revision of urban plans
- ✓ Based on multi-temporal land use



Up-to-date mapping of Land Use structures is of fundamental importance to various planning and management activities concerning urban agglomerations as well as the surrounding area. In order to encourage more sustainable development land use is essential for monitoring and analyzing changes on a geo-located basis.

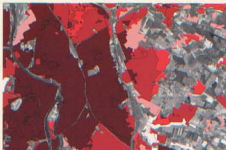
City 3D

- ✓ Visually describing and analysing the form of city in respect of its 3rd dimension
 - Expert tool for urban planners
- ✓ Identifying the impact of new developments in urban areas for the non-expert community
- ✓ To check building permits for height regulations in urban areas
- ✓ Input for applications in noise exposure mapping and microclimate studies
- ✓ Promotional tool presenting imagery or movies for tourism and education ('walk through')
- ✓ Identifying the impact of new developments in urban areas for the non-expert community
- ✓ 3D models for specialised applications (telecommunication, antenna optimisation, etc.)



Plan Monitoring

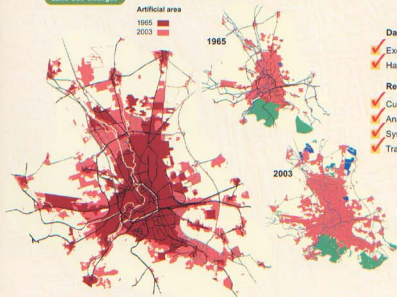
Manmade ratio



- ✓ Proportion of manmade area and/or land use class (two attributes for each polygon of the master plan, plus initial attribute indicating land use rights)
- ✓ Proportion of free area according to customer based rules describing future spreading of actual urban development
- ✓ Accuracy around 90 %

Land Use Changes

Artificial area



Data Exchange

- ✓ Exchange format Raster or Vector – GIS
- ✓ Hardcopy for immediate use

Related Services

- ✓ Customized legend (may include manual post-processing)
- ✓ Analysis of existing systems and databases
- ✓ System integration
- ✓ Training and capacity building

Urban Development Control

Background. Urban Development Control products comparing the development plan with actual change on the ground.

This typically requires a highly detailed specification compared with that of plan monitoring and also a high frequency of observation. Nonetheless there is a fundamental relationship between monitoring for the purposes of development control and monitoring for the purposes of plan making. Monitoring that is undertaken with high frequency and accuracy for development control offers the basis for the development of a broader plan monitoring capability as the essential ingredients for these activities are the same i.e. monitoring change against the plan.

These products allow short term surveillance of the urban environment for the detection of new construction activities based on analysis periods from 4 to 12 months. Urban Development Control products are therefore highly effective plan enforcement tools.

Product range is available at scales of 1:20,000 and 1:5,000.



Change Detection Hot of Spot

Policy § mainly locally determined policy drivers

- ✓ Mapping of new buildings (polygons and/or points) in respect to reference data in vector GIS format
- ✓ Urban contours combined with photo interpretation
- ✓ Ideally suited for identifying specific changes in land use – essential to urban planning
- ✓ Vital tool for urban management, based on a time scale of change detection defined in terms of months rather than years (proposed time range is dependent on user requirements as well as the local dynamic)
- ✓ Classification overlay on reference satellite imagery



Hot Spot (extent)

- New housing site – verified
- New housing site – not verified

Hot Spot (position, link to data base)

- New housing site – verified
- New housing site – not verified
- Roads and buildings (external 1999)



Each year a tremendous loss of cultivated and natural area is caused by expansion of urban structures. Hence monitoring and controlling is fundamental to sustainable planning.



Cross Check with Building Permits

Building permits Building permits – Basic (scale 1:20,000)

- Construction site (paved soil, new roofs, buildings, etc.)
- Demolition or wasteland
- Other

Building permits Building permits – Advanced (scale 1:5,000)

- New urbanisation (new roads, pavement, draining, etc.)
- New building
- Change in existing buildings
- Building demolition
- Road construction (new)
- Road work (change)
- Changes of existing transportation network and associated plots
- Earth-moving in bare plots, wastelands or similar areas

- ✓ Mapping of building activities, mainly in urban agglomerations offers the opportunity to enforce planning law in relation to planning development
- ✓ Thematic input for environmental mapping and analysis, taxation and overall urban governance – assistance in reducing the incidence of unplanned development
- ✓ Identification of areas with visible change but without issued building/demolition permit
- ✓ Required time spacing 4 months to 1 year
- ✓ Crosschecking with administrative information
- ✓ Exchange data contains statistics

Data Exchange

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Related Services

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- ✓ Analysis of existing systems and databases
- ✓ System integration
- ✓ Training and capacity building