



## INTEGRATED MASTER PLANS FOR ABOVE – AND UNDER- GROUND

underground or aboveground? Making the choice for future's cities.

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### GENERAL ISSUES

During the last years underground constructions and infrastructures have been playing an extremely relevant role in the development of cities. As a consequence, all the levels of urban planning (Master Plan, large-area plans, general municipal plans, sectoral or infrastructural plans, etc.) have to take into account the underground space as a new urban sustainable solution.

What can we underline from the UG planning experience ?

- the city is not able to force an investor to build its project on a land, even less in the underground... he can go elsewhere
- Dedicated plan of the underground space + integration in the city master plan
- Too detailed (and rigid) plan is risky – need flexibility to improve projects
- Long term plan should not prevent adaptation to the rapid changing reality & competitiveness of the city
- A municipal government should give favourable conditions or incentive measures (not financial) to attract investors to develop in the underground...
- The shallow layer of the underground space (0 to -15 m) should be well regulated with guidelines & zoning by-laws
- Increase the demand for underground facilities.
- The development of commercial and leisure activities in the down town underground, easily linked to mobility nodes and associated to the diffusion of pedestrian districts, could mitigate the attitude of resident population and large commercial centres to migrate towards decentralized areas. The development of many technical tools (3D and GIS visualisation and CAD software) offers additional and powerful capability for planning purposes.

keep in mind that

[Suitable integrated planning approach of the surface and subsurface space assessment and use is required but users of the underground spaces should be the priority number ONE](#)

### ACTIVITIES

#### Guidelines for the underground city expansion:

- 1) Ensure that buildings connected to the network maintain street interaction and maximize openings and direct access from the sidewalk
- 2) Define and apply standards to harmonize the form and the business hours of the network
- 3) Introduce a signage system throughout the network in order to improve user orientation
- 4) Aim to provide universal access for mobility impaired persons.
- 5) Determine directions and development guidelines that encourages public transportation use.

### OPEN POINT QUESTIONS AND PROJECT IDEAS

- Which is your concept of “underground”?
- Which are priority actions? Which is the role of energy planning?
- How to actively include citizens in the planning process?



## REFERENCES

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