

# Real-Time Mapping of the Network of Waterways and Sewers on Italian Territory

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**Key words:** Engineering survey; GNSS/GPS; Land management; Engineering survey; GNSS/GPS; Landmanagement

## SUMMARY

The technological networks can be water, sewage, gas, electric, telephone, electronic, industrial plants, and fire protection. An essential aspect for the management and maintenance programming and intervention development is an in-depth knowledge of their technological networks. This can be achieved through the proper cataloging and survey of the works present and distributed in the territory and by digitally mapping these networks.

The goal of this work is to provide administrations, planners, information and territorial managers, an appropriate support for the collection of these information, through the georeferenced mapping services of technological networks, the territorial knowledge of works and plants, the direct topographic and GPS survey, and the reproduction of the territorial data acquired on a GIS platform that can be checked and updated in the future and in real time, through the use of dedicated apps and tablets directly on-site.

The Work Group creates mappings using a webGIS based on ESRI's Arcgis, in order to provide the contracting authority with an integrated mapping system that can be updated in real time at any time, using arcgis and the support collector on tablets.

The mapping activity does not consist only in detecting the positioning of the network, but also in the direct survey of the various connections present on it, the sizing of the pipes and the state of maintenance of the same as well as the housing elements, in order to provide a unique and complete tool for managing the entire system, with the possibility of exporting information on hydraulic design software.

In addition, the company assists the contracting authority, through an assistance system with leak

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detection, this type of intervention includes systematic and preventive leak detection on all water supply networks (private - public or industrial), sanitary systems, heating and district heating, industrial distribution networks and fire prevention systems and has the purpose of identifying the points of loss of the systems.

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