

Optimized hydrant placement in municipalities saves money, increases efficiency, and improves safety

Experience from water infrastructure operators shows that a well-designed strategy for positioning and using fire hydrants can bring municipalities several key benefits—from faster and more efficient fire suppression, to protecting water infrastructure, to significant cost savings.



Hydrants in a water supply network serve for venting, flushing, draining, and pressure relief in specific pipeline sections. However, the public most often perceives them as a source of firefighting water, since this function has visible and immediate consequences for residents.

When filling fire engines from a hydrant located within a built-up area, significant fluctuations in pipeline flow and pressure surges may occur. These can release deposits into drinking water and, in some cases, damage the pipelines. The consequences of such intensive withdrawals

range from resident complaints to serious breakdowns requiring shutdowns and costly excavation works.

A proven solution is to establish withdrawal points on larger-diameter water mains, ideally on transmission pipelines outside built-up areas. These locations are not only away from the main consumer zones - minimizing the risk of deteriorating water quality for residents - but also allow for the installation of high-capacity standpost hydrants with multiple outlets. In practice, this can mean more than five times the flow capacity compared to commonly used standpost hydrants DN 80.

DN 100 and 150 hydrants allow simultaneous filling of multiple fire trucks or connection of a single truck with multiple hoses. Their location on supply lines makes them more accessible to fire trucks and eliminates the risk of complications with the arrival or departure of heavy equipment in streets with parked vehicles.

However, the location of "refill" hydrants outside built-up areas does not mean that municipalities are not legally obliged to provide water sources for firefighting directly in the vicinity of buildings. Hydrants in the streets must be maintained and kept in continuous working order.

This may be different by each country. From a cost perspective, municipalities benefit from Czech legislation, which favours the use of standpost hydrants as

reflected in the permissible distances from buildings. While underground hydrants may be placed at a maximum distance of 200 meters from a structure, standpost hydrants may be as far as 600 meters away—covering a significantly larger area in Czech Republic.

A properly placed standpost hydrant can, in terms of coverage, replace at least seven underground hydrants. A well-designed hydrant network can thus reduce the total number of devices without compromising fire safety.

This translates into savings in acquisition, regular inspections, and long-term maintenance—expenses that often represent a significant item in municipal budgets.

For municipal leaders, the recommendation is clear: when planning fire protection and water supply network development, prioritize withdrawal points on transmission mains outside the built-up area, choose standpost hydrants with larger nominal diameters (DN), and optimize their number in line with legislation and the fire code. This approach increases resident safety, reduces firefighter response times, and at the same time delivers long-term financial savings on acquisition and maintenance of the entire hydrant network.

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