

# How Water Works

ILLUSTRATED PROCESSES, EQUIPMENT, AND TECHNOLOGY

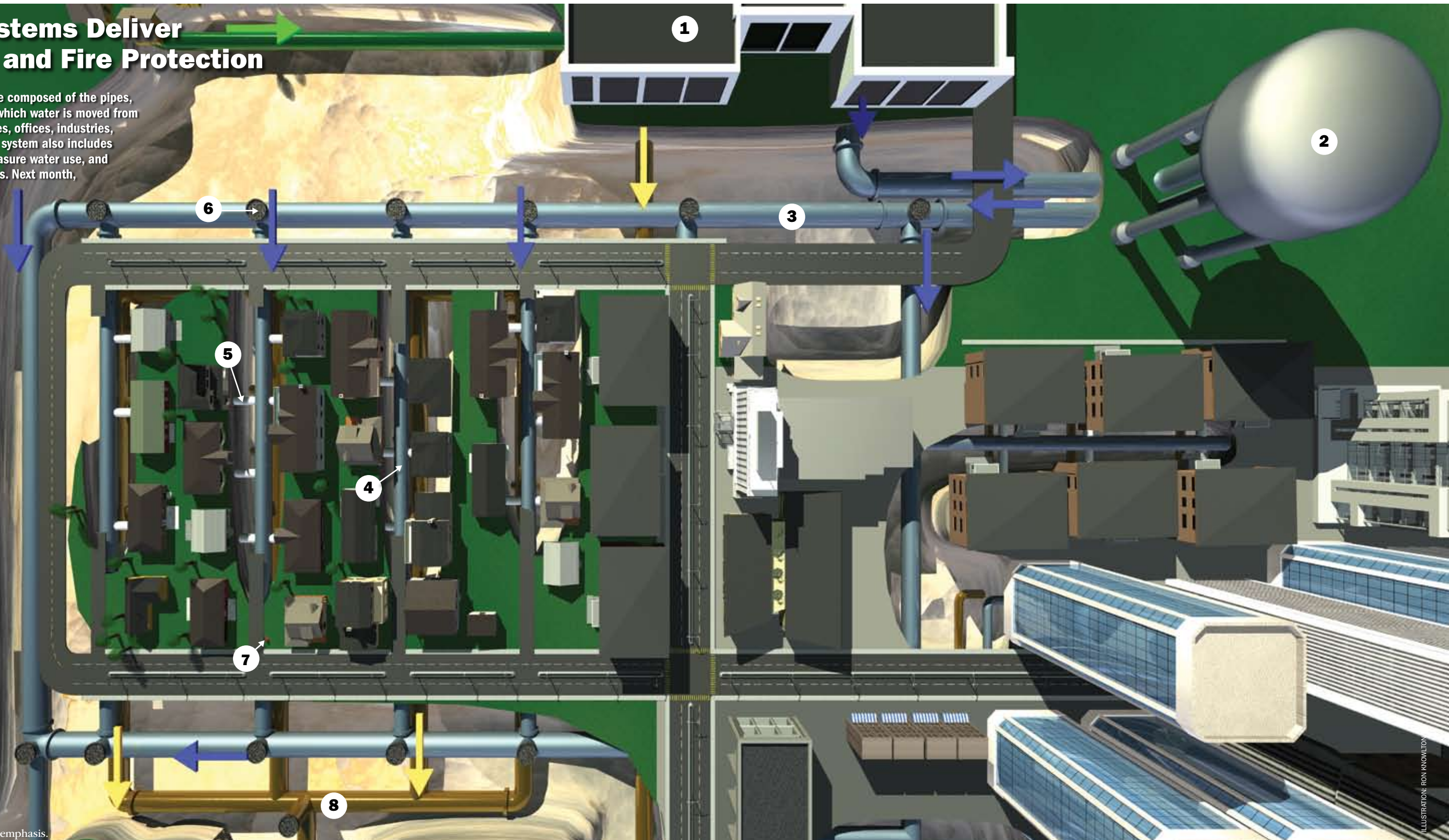
## PIPELINE KEY

- UNTREATED WATER
- TREATED WATER
- WASTEWATER

## Distribution Systems Deliver Drinking Water and Fire Protection

**W**ater distribution systems are composed of the pipes, valves, and pumps through which water is moved from the treatment plant to homes, offices, industries, and other consumers. The distribution system also includes facilities to store water, meters to measure water use, and hydrants for firefighting and other uses. Next month, How Water Works will detail how water flows into a typical home.

1. At the treatment plant, impurities in the water are removed or inactivated.
2. Water storage facilities are sized and operated to provide reserves for firefighting and to meet consumer demands.
3. Transmission lines are large pipes that carry large quantities of water from the treatment plant and storage tanks into the distribution system. Transmission pipes generally run in straight lines, have few side connections, and aren't tapped for customer services.
4. Distribution mains carry water from transmission lines and distribute it throughout a community. These pipes have many side connections and are frequently tapped for customer connections.
5. Service lines are small-diameter pipes that run from the distribution mains to customers' premises.
6. Shutoff valves are located at regular intervals so areas within the system can be isolated for repair or maintenance.
7. Hydrants should be located near street intersections so hoses can be used to fight a fire in any of several directions.
8. Sewage pipes carry used water away from consumers to the wastewater treatment plant.



Some illustration elements exaggerated for emphasis.

ILLUSTRATION: RON KNOX/STON