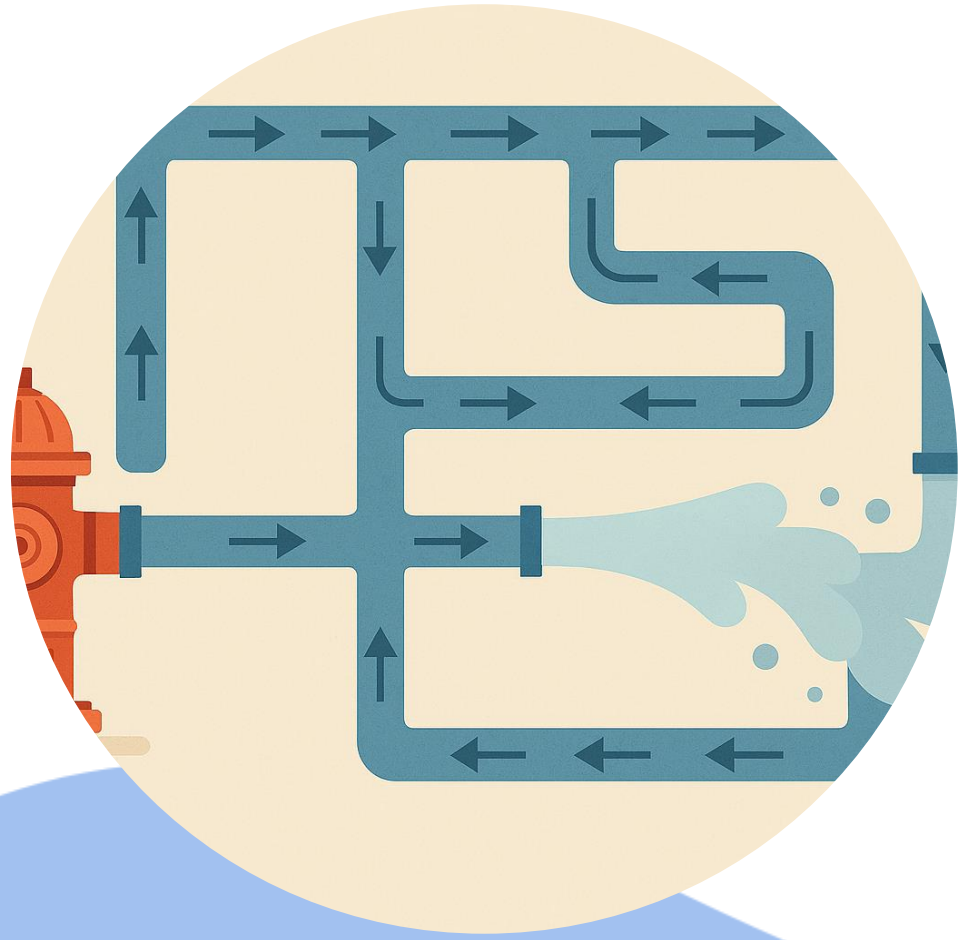
SYSTEM FLUSHING

PROCESSES & BENEFITS

Purpose of Flushing



Flushing maintains water quality by removing sediment, reducing stagnation, and controlling bacterial growth.

Flushing Methods

Regular and unidirectional flushing are distinct techniques used to clean water distribution systems effectively.

Infrastructure Benefits

Flushing extends pipe life by reducing corrosion and buildup, preventing costly repairs and replacements.

Operational and Compliance Goals

Effective flushing supports regulatory compliance, reduces risk, and improves customer satisfaction for utilities.

Characteristics and Purpose of Regular Flushing

Regular flushing maintains disinfectant levels and reduces water age in low-use areas to ensure water quality.

System Functionality Check

Flushing tests hydrants and valves, confirming operational readiness for emergencies without complex planning.

Limitations of Regular Flushing

Low pipe velocities limit sediment removal; flushing circulates water but may stir loose particles causing discoloration.

Cost-effective Routine Practice

Regular flushing is simple, frequent, and cost-effective, helping prevent stagnation and maintain chlorine residuals.

SGWASA

UDF Process Overview

UDF involves high-velocity water flow through isolated pipe sections to remove sediment and corrosion byproducts effectively.

Operational Planning and Control

UDF requires detailed mapping and valve operations to ensure controlled unidirectional flow toward designated outlets.

Benefits of UDF

UDF improves water clarity, reduces discoloration complaints, enhances hydraulic performance, and supports regulatory compliance.

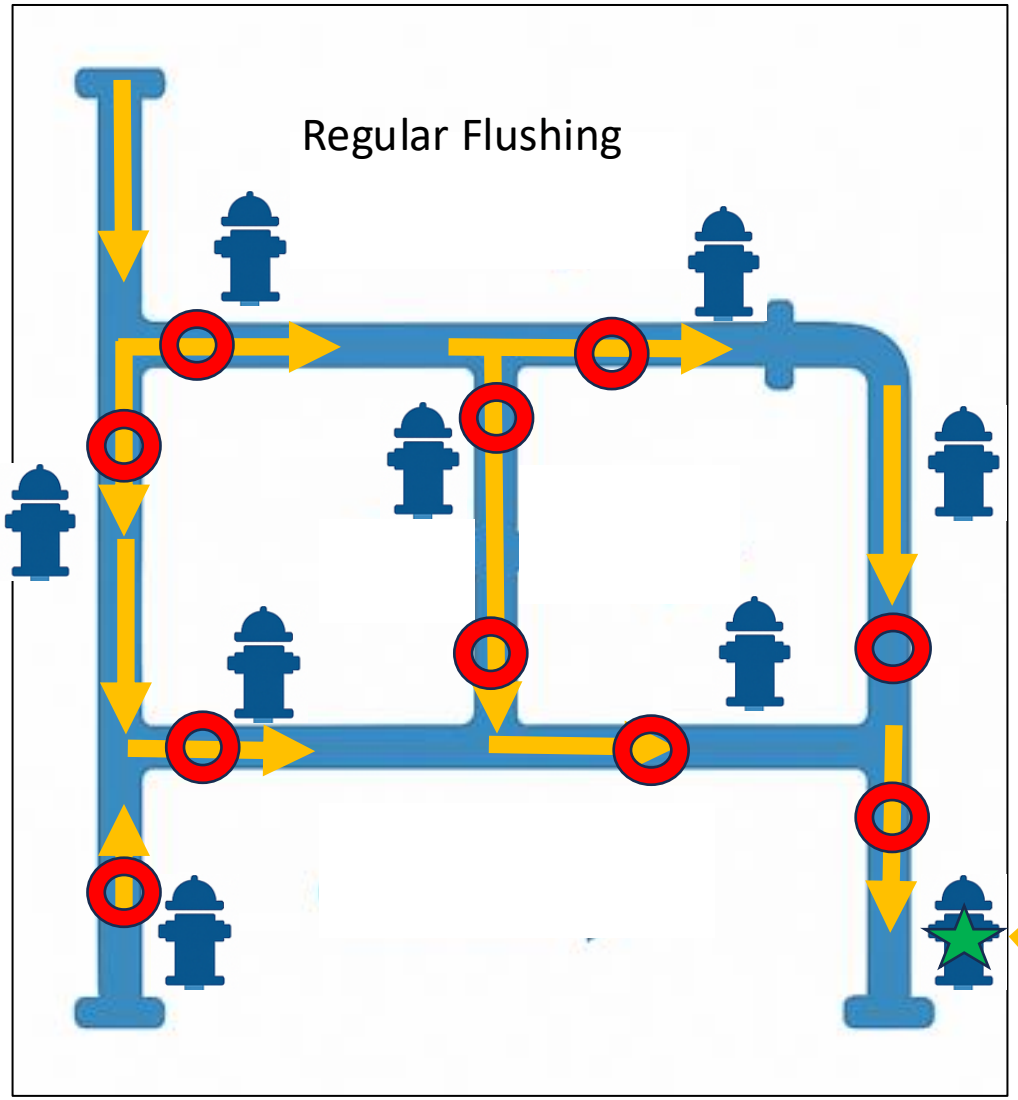
Challenges and Considerations

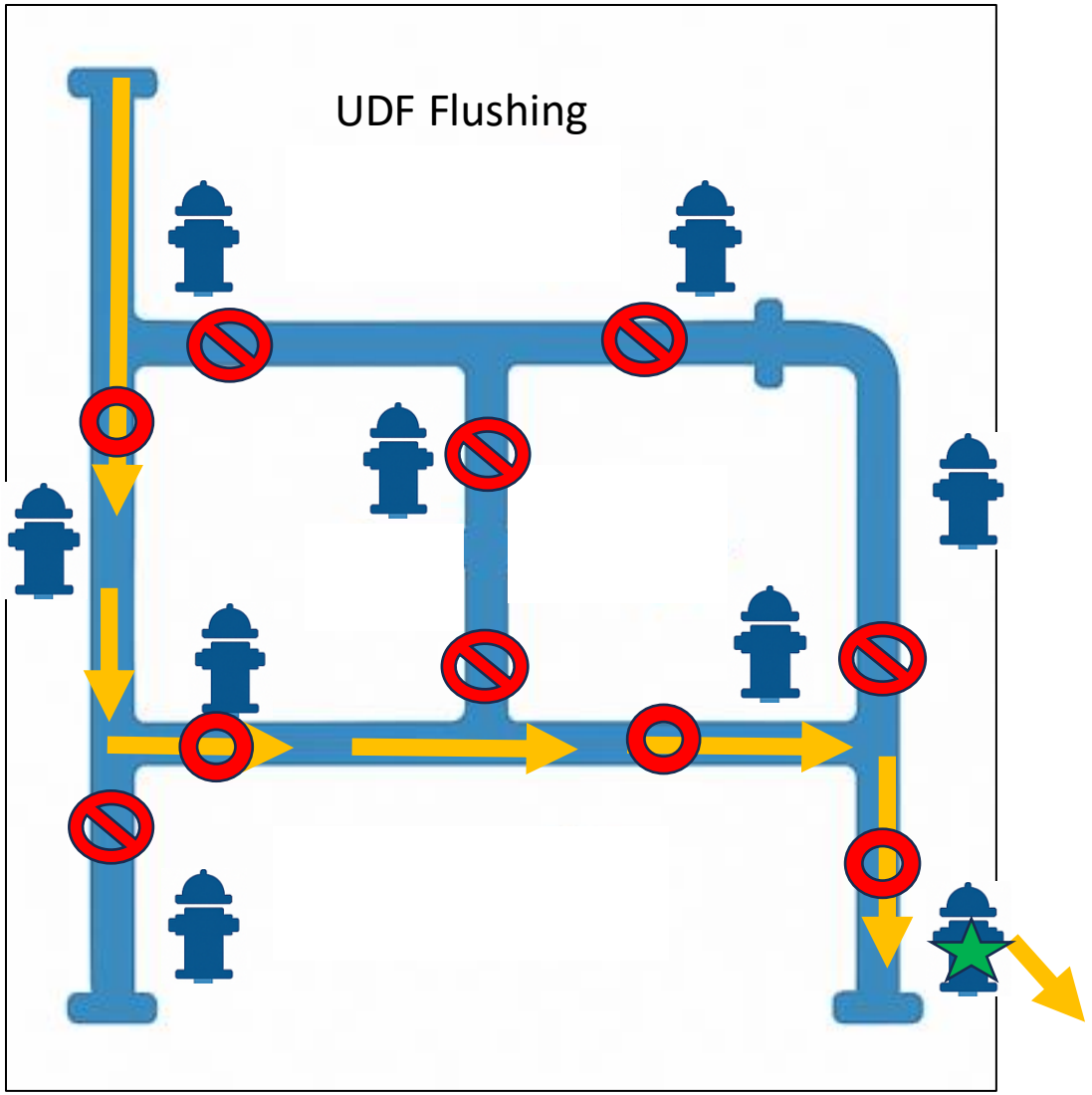
UDF requires staff training, valve monitoring, and customer communication but offers significant maintenance benefits**.**

Key Differences and Why Both Are Needed

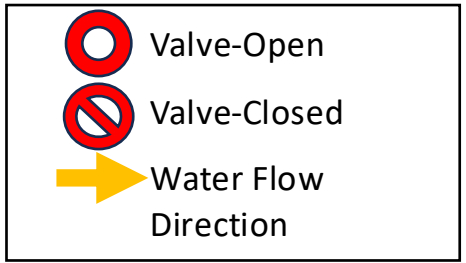
ASPECT	REGULAR FLUSHING	UNIDIRECTIONAL FLUSHING
Primary Goal	Maintain water freshness	Clean pipes and remove buildup
Planning Required	Minimal	Extensive and deliberate
Valve Operations	Minimal	Critical to process
Flow Direction	Multiple directions	One controlled direction
Water Velocity	Low to moderate	High (scouring level)
Cleaning Effectiveness	Limited	High
Frequency	Routine	Periodic or targeted

Key Point: Regular flushing keeps water fresh day-to-day; UDF is the tool that cleans and protects the system.





Regular flushing circulates water through multiple paths.



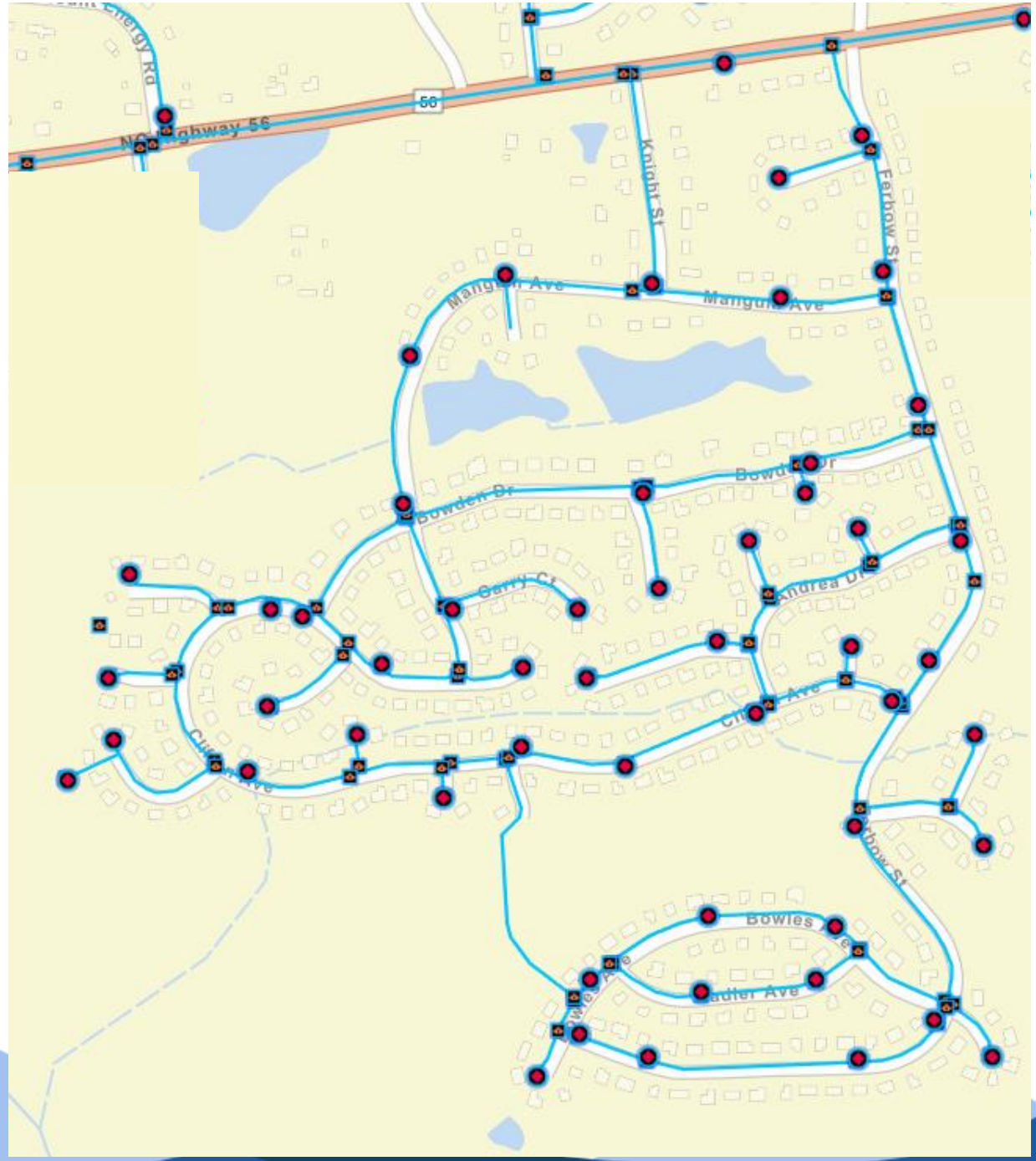
UDF isolates a main and moves water in one direction at higher velocity, which is what removes accumulated material.

Golden Pond Subdivision - Creedmoor

Valve

Hydrant

Water line



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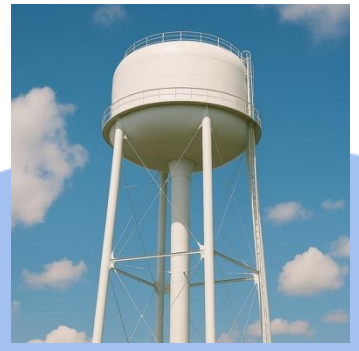
Governance Perspective and Benefits

Strategic Role of Flushing Programs

Ensure compliance with regulations and support operational goals by improving water quality and reducing complaints. The Unidirectional Flushing Program is a direct execution of SGWASA's Strategic Plan—improving water quality, protecting infrastructure investments, strengthening organizational performance, and fulfilling the Authority's environmental and governance responsibilities.

Benefits of Unidirectional Flushing

UDF removes sediment and biofilm, minimizing corrosion risks and enhancing system reliability and compliance. Proactive flushing reduces unplanned maintenance, emergency response costs, and reputational risk associated with water quality complaints.



Resource Stewardship

Supporting flushing initiatives protects infrastructure, reduces emergency repairs, and safeguards financial stability.

Benefits of the UDF Program:

- Flushing is essential to maintaining water quality and regulatory compliance
- Regular flushing maintains freshness; UDF actively cleans infrastructure
- Targeted UDF protects assets, reduces complaints, and lowers long-term costs
- SGWASA's program directly supports strategic, operational, and governance goals

Fast Facts

FLUSHING IS NOT JUST MAINTENANCE—IT IS ASSET STEWARDSHIP.

UDF IS A STRATEGIC INVESTMENT IN SYSTEM RELIABILITY AND PUBLIC TRUST.

CONTINUED SUPPORT ENSURES LONG-TERM WATER QUALITY AND INFRASTRUCTURE PROTECTION.