



Operations Efficiency - Valve Repair Tool

Operations Committee Meeting
December 15, 2023



Overview

- Different Types/Functions of Water Valves
- District Valves (Condition, Operation & Location)
- Inoperable Valve Impacts
- Water Valve Operating Nut
- Valve Nut Replacement Tool
- Approximate Cost Comparison
- Summary

Different Types of Valves and Their Functions

- Gate Valves
 - Butterfly Valves
 - Plug Valves
 - Globe Valves
 - Ball Valves
- Valves are an essential component of a water distribution system. They are used to regulate, control and direct the flow of water.
 - A main function of a valve is to stop the flow of water, especially when there is a break in a pipe.
 - Valves also help maintain pressure and supply in a distribution system.

Water System Valves

- **16,323 Water Valves (2"-36")**
- **Common Valve Material**
 - Valve Body – Ductile Iron
 - Bolts, Stem & Nuts – Stainless
 - Operating Nut – Cast Iron
- **Typical Cost 6" Clow Gate Valve**
 - \$ 850
- **System Wide Approximate Valve Replacement Cost**
 - \$ 45,500,000



New Valve



Valve in Service 50 Plus Years



Valve Tool Key and Function



Typical Water Valve Location



Water Valve Importance

Water Main Break

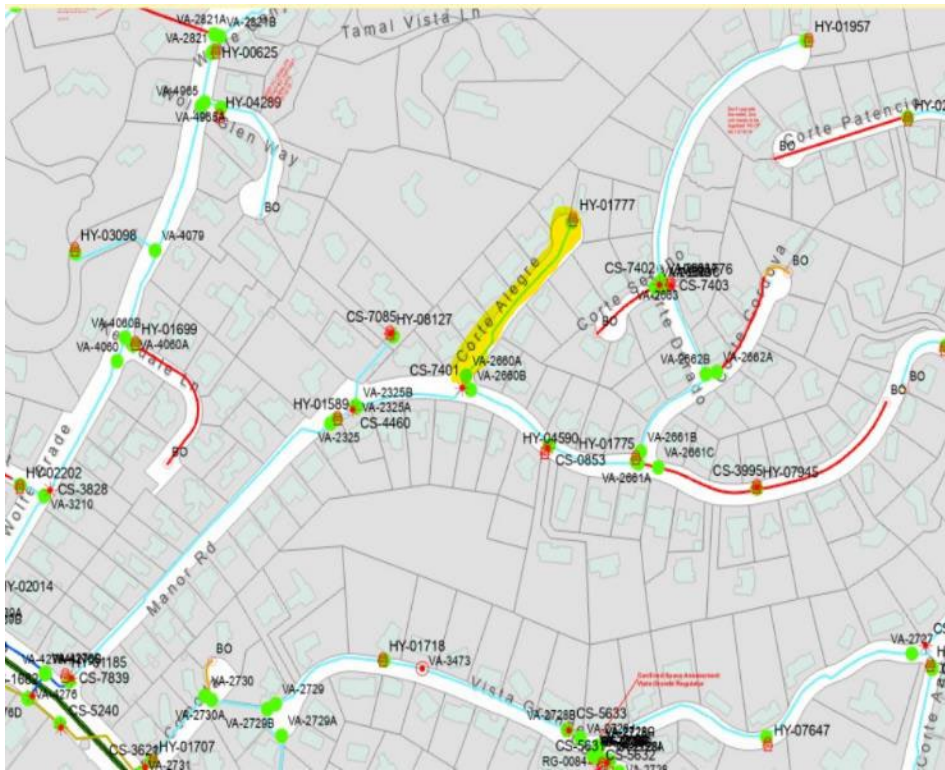


District Service Leak

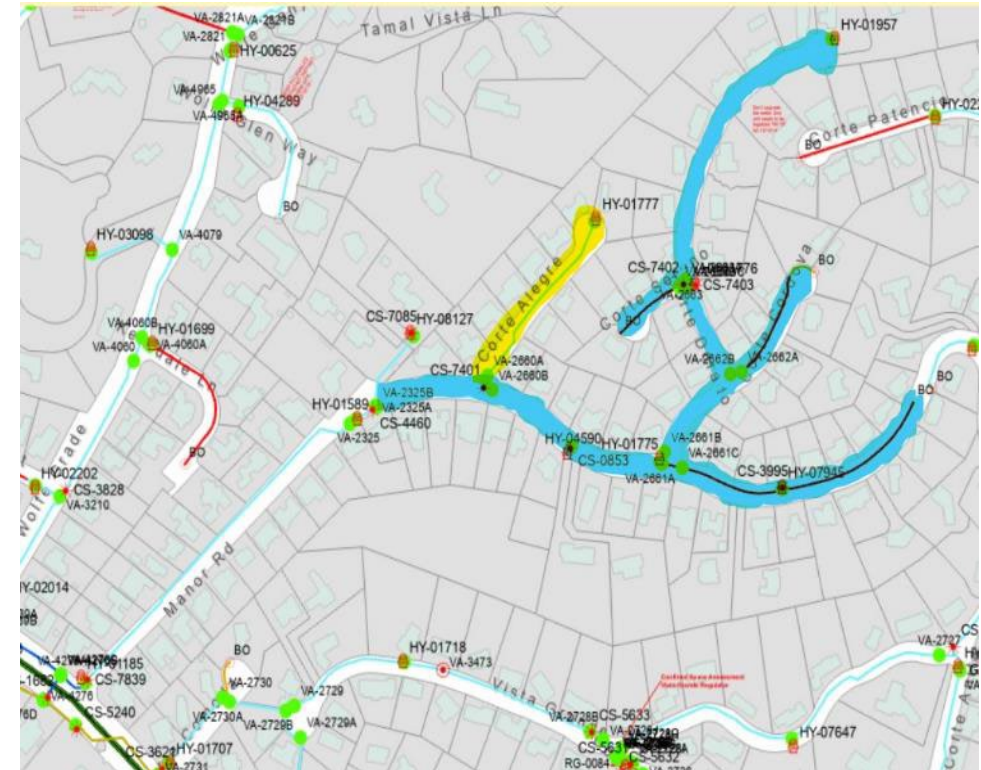


Potential Impacts of Inoperable Valve

**Impact With Operable Valve
(10 Services & 1 Hydrant)**



**Impact With Inoperable Valve
(79 Services & 6 Hydrants)**



Potential Impacts of Inoperable Valve

**Impact With Operable Valve
(3 Services & 1 Hydrant)**



**Impact With Inoperable Valve
(46 Services & 11 Hydrants)**



Valve Operating Nut Replacement Tool

- **WACHS Utility Products**

- Valve Nut Rx Kit
- Cost \$ 9,690.10
- Purchased June 2021

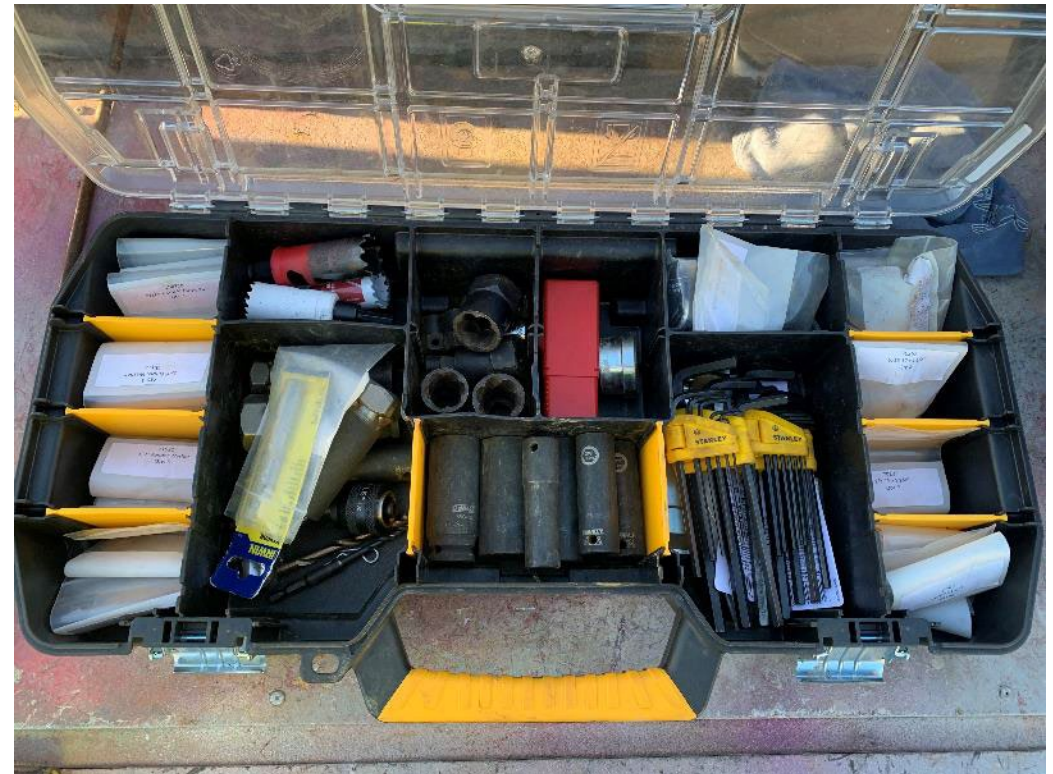


Valve Nut Rx Repair Kit Accessories

Valve Stem Size/Shape Template



Various Equipment



Operating Nut Assortment



How the Valve Nut Rx Kit Works



Removal of The Operating Nut



New Operating Nut Installation



Vehicles & Equipment Needed To Repair A Valve



Valve Key Socket With Operating Nut

Valve Key With New Operating Nut



With Corroded Operating Nut



Water Valve Operating Nut Images

Old

New



25 Have Been Repaired With This Tool



Valve Repair Cost Comparison Summary

Repair Cost With New Tool

New 2" Valve Nut = \$ 80.00

Labor Cost = \$ 232.00

Excavation Cost = \$ 0.00

Total = \$ 312.00

Repair Cost With Excavation

New 2" Valve Nut Cost =

\$ 80.00

Average Excavation Cost to
replace Operating Nut =

\$ 7,738.76

Total = \$ 7,818.76

Summary

- Example of Operational Maintenance Efficiency
 - Purchase of New Tools
- Average 10 Valve Nuts Replaced Annually For An Approximate savings of \$75,000
- Overall Savings in Staffing Resources Performing Valve Maintenance