FLORIDA STATE UNIVERSITY
Utilities and Engineering Services

FIRE HYDRANT MANAGEMENT PROGRAM

Last revision: June 2022

I. Contents

II. DEFINITIONS AND ACRONYMS

NFPA National Fire Protection Association
AiM Asset Works; Integrated workplace management system for FSU Facilities and Maintenance.
AHJ Authority Having Jurisdiction
AWWA American Water Works Association
WO Work Order, placed through AiM system against an asset
GIS geographic information system
PPE personal protective equipment
COT City of Tallahassee
BCA Building Code Administration, FSU
UES Utilities and Engineering Services, FSU
OUT OF SERVICE Any condition which causes the hydrant to be inoperable or not accessible by the fire department or otherwise not in compliance with Florida adopted codes and standards, specifically NFPA 25: 7. Note, some items can be considered minor deficiencies and may not warrant taking the hydrant out of service, but could trigger a work order to correct the condition.

III. PURPOSE

The purpose of FSU's Fire Hydrant Management Program is to ensure satisfactory operation of hydrants while meeting regulatory compliance requirements. This is achieved through annual inspection and testing of hydrants and active management of hydrant information in AiM.

IV. SCOPE

This program includes private hydrants owned by the University located in Greater Tallahassee (Main Campus, SW campus, Florida High and other properties managed and/or leased by the University). Included is the annual inspection and testing, maintenance and recordkeeping for the hydrants.

This program does not include or provide for new or replacement hydrants associated with construction projects.

V. CODE

This program shall be conducted in accordance with AWWA codes and the following National Fire Protection Association standards: NFPA 1 Fire Code, NFPA 24 Standard for the Installation of Private Fire Service Mains and Their Appurtenances and NFPA 25 Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems. NFPA 25 7.2 stipulates that private hydrants be inspected, flow tested and maintained annually.

VI. AUTHORITY HAVING JURISDICTION

Florida State University has multiple AHJs. The University's senior fire official is housed in the Office of Building Code Administration. Tallahassee Fire Department is an AHJ and the University aligns policies and procedures with the City's ordinances and codes as it relates to fire hydrants. The State Fire Marshal is also an AHJ.

VII. KEY PERSONNEL AND RESPONSIBILITIES

A. Utilities and Engineering Services (UES)

Maintain hydrant data information including asset information in AiM, master Excel list, and hydrant AutoCad map.
Archive inspection and testing reports in Virtual Vault.
Coordinate procurement activities for sourcing contractors.

B. Maintenance Technicians (Maintenance zones, Preventative Maintenance Team, Pipe Shop staff or contracted vendors)

Maintain schedule and generate work orders for annual inspection and testing.
Perform annual inspection and testing of hydrants.
Prepare records of inspection and testing.
Perform maintenance and repair work of hydrants.
Maintain capacity marking requirements (cap and nozzle paint).

C. Grounds Technicians (Facilities Grounds staff)

Ensures 36” space surrounding hydrant is clear of any plantings.
Ensures 18” clearance from center of nozzle to grade is maintained.

D. Building Code Administration Fire Inspector

Notify UES of any new or replacement hydrants that are associated with construction projects and provide acceptance testing records.

E. Environmental Health & Safety Fire Safety Coordinator

Notify FSUPD, COT and UES of any hydrants that are determined to be OUT OF SERVICE due to construction activities or inspection failure.

VIII. INSPECTION AND TESTING PROGRAM

The University owns several different fire hydrant models; therefore, testing practices may vary. Service technicians should apply testing practices consistent with the make and model of the hydrant in accordance with manufacturer's recommendations.

Inspection reports shall be completed using the AiM Fire application.

Necessary measures to ensure safety of technicians and the greater University community should be taken. These measures include, but are not limited to, wearing personal protective equipment, using a diffuser when flushing and flow testing, and clearly marking off the area around the hydrants when inspection and testing is taking place.

A. Annual Program Events

- Beginning of fiscal year UES requests quotes from contractors and requests Work Order or Purchase Order in AiM system for annual inspection and testing.
- UES schedules inspection and testing to occur during summer in between semester (typically beginning of August) and works with Maintenance department to determine best dates. UES notifies Maintenance department and BCA of inspection schedule.
- Service technicians complete inspection and testing. Service technicians notify Fire Alarm Shop (part of BCA) and TPD when conducting testing.
- UES receives completed inspection and testing report in AiM. UES works with service technicians and BCA Fire Inspector to determine if any hydrants are OUT OF SERVICE. BCA notifies FSUPD and COT of any hydrants that are determined to be OUT OF SERVICE.
- Service technicians rectify deficiency issues (ex. hydrant is inaccessible due to landscaping).
- If necessary, UES requests 'repair/replacement' quote from contractor for hydrants in need of maintenance and issues WO for each hydrant.
- Contractor completes repair/replacement work.
- UES receives report of repair/replacement work in AiM and updates BCA on status of OUT OF SERVICE hydrants. BCA notifies FSUPD and COT of any hydrants that are determined to be IN SERVICE.
- UES updates hydrant data in AiM system to reflect any changes as a result of repair/replacement and maintenance work. BCA notifies COT of any changes to hydrant data.
- UES manages new hydrant updates (received from BCA related to new construction): add information to AiM database, master excel sheet and AutoCad map, place QR codes. This is ongoing and can occur outside of inspection and testing cycles.

IX. HYDRANT OUT OF SERVICE PROCEDURES

If, whether found during inspection and testing or not, a hydrant is suspected to be OUT OF SERVICE the following steps should be taken:

1. A WO is sent to the Pipe Shop and a service technician then investigates the hydrant and either a) addresses the issue so that the hydrant is operable or b) refers the issue to a contractor for repair or replacement work.
2. If the hydrant cannot be fixed within 24 hours an approved covering (garbage bag or 'out of service' sign) is placed over the hydrant to indicate that it is OUT OF SERVICE. The following parties are notified if a hydrant is out of service: EH&S Fire safety coordinator, who then notifies FSUPD and Tallahassee Fire Department and UES who updates the AiM database to reflect the change in service status of the hydrant.

Below are some conditions that could cause a hydrant to be OUT OF SERVICE.

Table 1: NFPA 25 (2014) Dry Barrel and Wall Hydrants

Condition	Corrective Action
Inaccessible	Make accessible
Barrel contains water or ice (presence of water or ice could indicate a faulty drain, a leaky hydrant valve, or high groundwater table)	Repair and drain; for high groundwater it could be necessary to plug the drain and pump out the barrel after each use
Improper drainage from barrel	Repair drain
Leaks in outlets or at top of hydrant	Repair or replace gaskets, packing, or parts as necessary
Cracks in hydrant barrel	Repair or replace
Tightness of outlet caps	Lubricate if necessary; tighten if necessary
Worn outlet threads	Repair or replace
Worn hydrant operating nut	Repair or replace
Availability of operating wrench	Make sure wrench is available

X. MAINTENANCE

The University owns several different fire hydrant models; therefore, maintenance practices may vary. Service technicians should apply maintenance practices consistent with the make and model of the hydrant in accordance with manufacturer's recommendations.

A. Markings

Hydrant exterior shall be painted with two coats of high visibility yellow enamel paint.

Hydrant tops and nozzle caps shall be color coded to indicate capacity as defined by NPFA code A.18.5.10.3 to meet the City of Tallahassee (AHJ) requirements. The capacity paint should be reflective. See table 2.

Hydrants should be classified in accordance with their rated capacities [at 20 psi (1.4 bar) residual pressure or other designated value] as follows (NFPA 291):

Table 2: NFPA Hydrant Classes

CLASS	GPM CAPACITY	CAPACITY COLOR (tops and nozzle caps)
(1)Class AA	Rated capacity of 1500 gpm (5680 L/min) or greater	Light Blue
(2)Class A	Rated capacity of 1000–1499 gpm (3785–5675 L/min	Green
(3)Class B	Rated capacity of 500–999 gpm (1900–3780 L/min)	Orange
(4)Class C	Rated capacity of less than 500 gpm (1900 L/min)	Red

B. Accessibility

Per NFPA Code 1 18.5.7.1-2 *A 36 in. (914 mm) clear space shall be maintained around the circumference of fire hydrants except as otherwise required or approved. A clear space of not less than 60 in. (1524 mm) shall be provided in front of each hydrant connection having a diameter greater than 2 ½ in. (64 mm). Existing, previously approved hydrant installations shall be permitted to have clear spaces less than 60 inches.*

The clear space requirement shall be checked during the annual inspection. If an accessibility issue is found, then a work order shall be placed to the Grounds department for corrective action.

XI. DATA MANAGEMENT

Fire hydrants are to be maintained in the AiM system as ASSETS. The following data is to be collected and kept for all hydrants: FH NUMBER, STORZ CONNECTION, MANUFACTURER, MODEL, YEAR MADE, THREAD TYPE, IN OR OUT OF SERVICE, IN OR OUT OF COMMISSION, CLASS

Each hydrant will have an AiM QR code sticker adhered to it on the upper barrel between the two smaller nozzles (Figure 1).

Figure 1: QR Code Placement QR code should be placed within the red outlined area.

A. Mapping

An AutoCad map of hydrants will be maintained in order to facilitate location of the hydrants. AutoCad maps will include Main Campus and SW campus. A GIS map, sourced from COT, includes Main Campus, SW Campus, and hydrants in the greater Tallahassee area (including Florida High). UES shall maintain the AutoCad maps and update as needed.

XII. APPENDIXES

A. Annual Testing Inspection Checkpoints

AiM ☰ Inspection Type STACY About Log

Search Browse

Action

Email

View

Extra Description

Related Documents

FIRE HYDRANT Last Edited by WILLIAM WATSON On 01/31/2019 12:27 PM

FIRE HYDRANT

Active Yes

Line Items

Line	Line Group	Description	Question Type	Active
1	FIRE HYDRANT	CHECK IF THE HYDRANT IS IN SERVICE.	Text Entry	Yes
2	FIRE HYDRANT	CHECK IF THE HYDRANT IS ACCESSIBLE AND CLEAR FROM OBSTRUCTIONS (36" CIRCUMFERENCE SURROUNDING HYDRANT AND 60" CLEARANCE IN FRONT OF HYDRANT).	Text Entry	Yes
3	FIRE HYDRANT	CHECK IF THE HYDRANT IS FREE OF CRACKS, DAMAGE AND LEAKS.	Text Entry	Yes
4	FIRE HYDRANT	CHECK IF THE THREADS, CAPS AND CHAINS ARE PRESENT AND UNDAMAGED.	Text Entry	Yes
5	FIRE HYDRANT	CHECK IF THE NOZZLE IS PROPERLY 18" ABOVE THE GRADE.	Text Entry	Yes
6	FIRE HYDRANT	INSPECT IF HYDRANT HAS A STORZ CONNECTION.	Text Entry	Yes
7	FIRE HYDRANT	CHECK IF THE HYDRANT HAS A NST THREAD.	Text Entry	Yes
8	FIRE HYDRANT	LEAVE ALL THREADS AND CAPS LUBRICATED AND ONLY HAND TIGHT.	Text Entry	Yes
9	FIRE HYDRANT	INSPECT IF THE FLUSH IS CLEAR OF FOREIGN OBJECTS OR DEBRIS WHEN OPENING THE HYDRANT FOR 60 SECONDS.	Text Entry	Yes
10	FIRE HYDRANT	INSPECT FOR THE HYDRANT TO FULLY DRAIN.	Text Entry	Yes
11	FIRE HYDRANT	RECORD HYDRANT'S FLOW PRESSURE (PSI).	Text Entry	Yes
12	FIRE HYDRANT	RECORD HYDRANT'S GALLONS PER MINUTE FLOW (GPM).	Text Entry	Yes
13	FIRE HYDRANT	RATE THE PHYSICAL APPEARANCE OF THE HYDRANT.	Validated List	Yes
14	FIRE HYDRANT	IF THE HYDRANT REQUIRES CORRECTIVE ACTION, SELECT FAIL. STATE CRITICAL OR NON-CRITICAL. OTHERWISE SELECT PASS.	Text Entry	Yes
15	FIRE HYDRANT	CHECK IF HYDRANT TESTING TRIGGERED BUILDING ALARM.	Text Entry	Yes
16	FIRE HYDRANT	RECORD ANY CHANGES TO HYDRANT ATTRIBUTES.	Text Entry	Yes

B. New Hydrant Specifications

FIRE HYDRANT DESIGN SPECIFICATIONS
Last revised June 2022

Adapted from City of Tallahassee's *Technical Specifications for Water and Sewer Construction, Section 8, Distribution and Transmission System Valves and Appurtenances*

All fire hydrants shall fully comply with all provisions of AWWA C502, latest edition. Hydrants shall be the dry barrel type, which prevents the operating threads from coming into contact with the service water. Hydrants shall be of the compression type, opening against the line pressure and closing with the line pressure. Hydrant and piping shall be laid at accurate grade as specified on the Plans/Drawings.

Approved models
M.H. 129,
Clow Medallion
No substitutes will be allowed.

Hydrant specifications:
a. The hydrant shall be equipped with weather bonnet/shield to protect the operating nut.
b. A grease or oil reservoir and lubrication system that automatically circulates lubricant to all operating stem threads and bearing surfaces each time the hydrant is operated shall be provided. The lubrication system shall be completely sealed from the waterway by O-ring seals.
c. The hydrant barrel shall be the traffic breakaway type with a safety stem coupling and frangible segments that permit full 360-degree rotation of the nozzle.
d. Main valve opening of the hydrant shall not be less than 5 ¼ inches and shall open clockwise (turn to right looking from top).
e. Hose threads and steamer threads shall be National Standard threads. Hydrants shall be supplied with a factory installed Storz connection on the steamer with an aluminum or aluminum alloy blind flange that will hold water pressure without leaking. All nozzle caps shall be furnished with a flat gasket to prevent leaking.
f. The hydrant shall be designed to permit the removal of all working parts from the hydrant up through the barrel without disturbing the earth around the hydrant or disassembling the barrel.
g. An all-bronze hydrant valve seat ring shall thread directly into an all-bronze drain ring and shall be located between the lower hydrant barrel and base securely retained in the position, or it may be threaded into a heavy bronze bushing in the hydrant base. The valve seat ring and drain ring shall have no less than two bronze drain ports and two bronze drain outlets.
h. The hydrant shall be designed with an anti-friction bearing, so located that it will reduce the torque required to operate the hydrant.
j. Operating nut and nozzle cap wrench nut shall be National Standard type.
j. All hydrants shall be shop tested in accordance with AWWA C502 (latest revision).
k. The interior of the hydrant shoes shall be located with a fusion-bonded epoxy coating of at least 6 mils.
l. Hydrant exterior shall be painted with two coats of high visibility yellow enamel paint.

C. PM Generator and Accounting information

Fire Hydrant Annual Inspection PM Template Set-up

Template 732

A. Asset Set-Up

a. All asset must contain the following information recorded

i. Account Setup:

1. Charge Account: 042015310 Utilities Clearing WCTF-Must be Type U
2. Offset Account: 042015310 Utilities Clearing WCTF-Must be Type U

ii. Reference Data:

1. Shop: 80 CENTRAL PLANT OPS

B. PM Template

1. Description: Fire Hydrant - Annual Test Inspection FY 20-21
   a) **FY XX-XX change every year**
2. Organization: 042015
3. Requestor: 042015
4. Contact: Stacy Slavichack
5. Phone: 850-645-4629
6. Email: Sslavichak@FSU.edu
7. Type: U
8. Category: PM
9. Status: OPEN
10. Active: Yes
11. Project: UTILFIREFY21
    a) **Project change every year. New project must be provided by Utilities Finance**
12. Work Order Grouping: Property by Template
13. Type/Frequency
    a) Fixed
    b) Annual

Note: Keep all other fields on PM Template on blank

a) Template Phase

1. Description: FIRE HYDRANT - ANNUAL TEST INSPECTION FY 20-21
   a) **FY XX-XX change every year**
2. Founding Method: Project
3. Priority: Routine
4. Work Code: UELEC
5. Status: Completed
6. Shop: Contractors
7. Inspection Type: Fire Hydrant
8. Inspection Status: OPEN

Note: Keep all other fields on PM Template on blank

b) Shop Person

1. PHOENIX
   a) If this contractor change, new contractor must be added to AiM with same access level as Phoenix

c) Template Asset

Asset will be preloaded from previous inspection cycle. If assets need to be removed and loaded again for any reason, follow the next steps to load assets

1) Click at *Load Asset*
2) On *Asset Group* type, Fire Hydrant--.>Execute search
3) This search should display all active records for Fire Hydrants
4) Select all assets and click done
5) From *TEMPLATE PHASE* area, select the calendar icon from *Last Date Default* field and select one year previous your coming inspection date.
6) Click DONE from top left corner
7) From *PM TEMPLATE* area, select the calendar icon from Projection End Date field and select a date for how long you want to project WO/Inspections to be created.
   a) Since template is required to be updated every year, there is not need to project future annual cycles and only project the coming annual cycle: therefore select a day after inspection coming schedule.
   Ex: if inspection is schedule for July 2 2020. Then on projection day select July 3 2020.
   Note: Keep in mind that projection will only occurs if *Last Default Day* is one complete annual cycle back in time.

Final Step: Click SAVE

Click *RUN* when RUN DATE PROJECTION screen pop up.

Before running PM Template, Projection days have to be validated and recorded on PM Template.

Click at the phase→Click at any sequence #'s on the TEMPLATE ASSET→ Projected date should be display at *PROJECTED DATES* field

Template ready to generate inspections.

PM Generator

A. PM Generator
   1. Description: Fire Hydrant - Annual Test Inspection FY 20-21
      i. **FY XX-XX change every year**
   2. Filter By (Left box option): Template Phase
   3. Filter By (Right box option): Asset
   4. Final: No
   5. Template: 732
      i. Template will need to be review for annual require updates. Refer to PM Template Set-up
   6. End Date:
      i. Set this date to end a day after WO's get generated
      NOTE: This date gives the generator a time range for WO to be generated
   7. Generate Nested Work Orders: Yes
   8. Click SAVE
      i. If template set-up correctly, all assets should be loaded in this screen ready for WOs and inspections to be generated.
   9. Click GENERATE
      i. WO and Inspections are now created.

D. Fire Hydrant Appearance Rating

FIRE HYDRANTS-Inspection Appearance rating examples

Hydrants that DO NOT REQUIRE ATTENTION

Hydrants that WILL REQUIRE ATTENTION SOON

Paint is Fading

Dirt in the Paint

Hydrants that <u>WILL REQUIRE IMMEDIATE ATTENTION</u>

Missing Chain

Paint is completely faded and rusted

Dirt Accumulation or Ant hills

Oxidation and Cracking

E. File paths

Past annual inspection and testing reports
\\fac-nas.facilities.fsu.edu\Information_Center\Virtual_Vault\Campus_Utilities_Streets_and_Walkways\Utilities_and_Maintenance_Regulatory_Compliance

AutoCAD maps
\\fac-nas.facilities.fsu.edu\Information_Center\Utility_Mapping\FSU_Map\Utilities\Working\Fire Hydrant Map

Master Hydrant Excel list, Program document, AIM APP steps for Fire Hydrant annual inspections
\\fac-nas.facilities.fsu.edu\Shared\Utilities_Engineering_Services\Resource_Management\1WATER\2FIRE HYDRANT Program

AiM asset path (must select ACTIVE status)