

# Frederick-Firestone Fire District



## Capital Infrastructure Needs Assessment

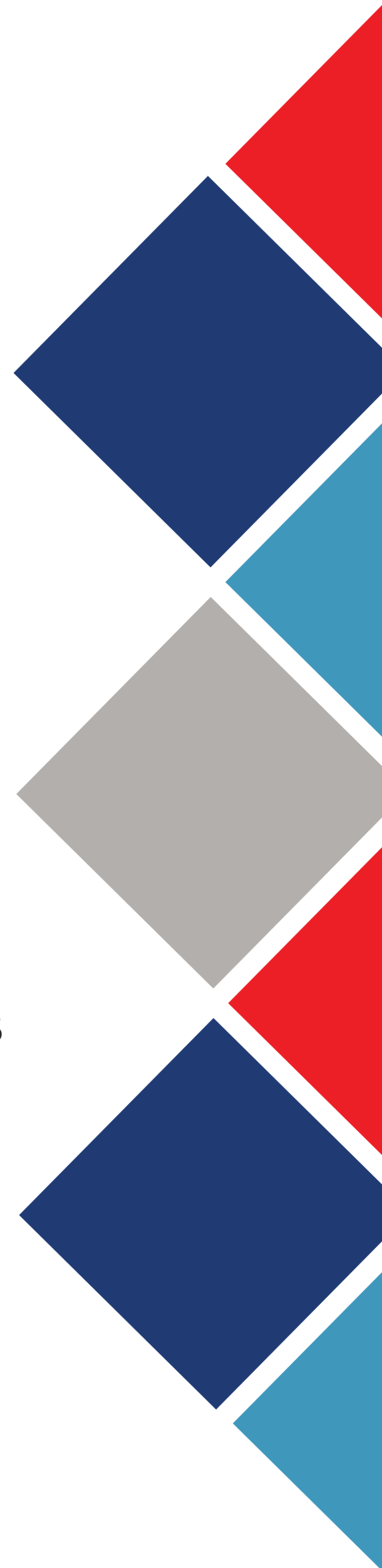
2025-2035



Leading Together, By Serving Together

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## Introduction

Ironwood Strategic Solutions (Ironwood) is pleased to work with the Frederick-Firestone Fire District (FFFD) to help prepare the district's Capital Infrastructure Needs Assessment. FFFD is experiencing high population growth and desires to stay ahead of the steep growth curve by clearly identifying its future service needs.

The U.S. Census Bureau shows that the two Colorado towns of Frederick and Firestone, which are protected by FFFD, experienced a 14.7% population increase between 2020 and 2022. This growth drives both residential and commercial construction. The district is adding approximately 800 housing units per year which will fuel the need for more FFFD responses. FFFD experienced a 5% call increase between 2021 and 2022 and is expected to trend at the same rate over the next few years. FFFD has seen an increase in service calls and community needs exponentially for the last decade.

Intuitively, the management of FFFD understands the need to develop its ability to provide additional services as the area grows. Evidence to this fact is the recent remodeling of facilities, the current construction of a fifth fire station, the design process of a sixth station and the recent purchases of new fire apparatus.

FFFD wishes to develop a multiyear capital plan to ensure the assets are in place to continue to provide its citizens superior fire and emergency services. Ironwood is assisting in this process and will provide an overview and status of existing capital assets, provide industry best practices replacement schedules and make recommendations for improvements and additions.

Ironwood has divided the capital infrastructure needs into three categories: 1) facilities, 2) equipment and 3) apparatus. This report will describe its findings, provide analysis and make recommendations for each section. Ironwood will provide an overarching recommendation that FFFD implements and funds a comprehensive multiyear capital plan.

### Limitations

Ironwood's findings are derived from documents provided by FFFD and on-site interviews on February 5, 2024. Interviewees included the infrastructure committee members, the fire chief, the finance officer, both assistant chiefs and fire station personnel. Ironwood's work did not include any effort to determine the status of applicable OSHA, Department of Transportation or Americans with Disabilities Act regulations/requirements. Our work also did not include assessing the district's status regarding state or local codes/statutes.

# Facilities



**The capital infrastructure built and maintained by local government is essential for a thriving community.**

Government Finance Officers Association

## Facilities

Fire department facilities have an essential function in delivering fire and emergency services. Those functions include providing optimum work environments for line and staff personnel, protective storage of vehicles, safe repair facilities and warehousing of supplies/equipment. All functions are equally important to provide effective emergency services. The facilities should provide the utmost safety for its personnel. Ironwood will provide an overview of the facilities, offer observations and make recommendations on FFFD's seven facilities. It is noted that FFFD is in the process of constructing an eighth facility.





## Administration

8426 Kosmerl Place  
Frederick, CO

11,769 Square Feet

The administration building is located next to Station Two. It was constructed in 2005 as an office building but purchased in 2011 by FFFD. It is currently undergoing a remodel. Remodeling included all pertinent code updates, new HVAC systems, 10 new offices and a large training/community room. Staff indicates that the remodeled building has received its Certificate of Occupancy and will open in April 2024.

**Condition** – The building was not assessed since it was under construction. There is more vacant space in the area that the district could consider purchasing for any future expansion needs. At 11,769 square feet, the building should be able to serve the needs of the staff.

**Recommendation** – None.



**Maintenance & Training Facility Including Future Fire Station**

9551 WCR 11  
Longmont, CO

10-Acre Property

Staff advises that the 10-acre property located at 9551 WCR 11 is planned for a future fire station, training facility and fleet maintenance site. While the administration building is undergoing a remodel, the district is temporarily being managed out of an old farmhouse on this site that was purchased in 2022. Plans are to demolish all structures on the property.

**Condition** – Current structures are adequate for temporary use.

**Recommendation** – Ten acres is generally considered the minimum amount of land needed to construct a full-scale training facility. This parcel should be adequate to accommodate the planned facilities. The future training facility should be constructed in accordance with NFPA 1402, Standard on Facilities for Fire Training and Associated Props.



Architectural Renderings





## Fleet Maintenance

7301 Eagle Blvd.  
Frederick, CO

FFFD currently only has one emergency vehicle technician. As such, FFFD has strategically partnered with the Town of Frederick to provide fire apparatus repair bay space at the Town of Frederick's Public Works Building. The building was opened in 2014. Staff advises that the district is planning construction of its own maintenance facility in Fall 2025.

**Condition** – The facility itself is assumed to be adequate.

**Recommendation** – FFFD needs to expand its fleet repair facility and personnel as the district grows. Government Fleet publication – dedicated to serving the needs of public sector fleet management – generally recommends that there is one EVT for every 30 vehicles operated by a fire department. This generalization assumes that in-house maintenance has been in effect for many years and that apparatus is generally in good shape.

Facility site visits indicated that many front-line apparatuses are older and FFFD has only recently moved vehicle repair in house. Some agencies use a formula of one EVT for every eight heavy apparatus and one EVT for every 20 ambulances. FFFD needs to develop a better staffing model to achieve effective EVT staffing.

## Station One

31 Walnut Drive  
Frederick, CO

7,201 Square Feet



Photo Source: Weld County Property Portal

Station One was purchased in 1981 when FFFD was still a volunteer agency. It is the busiest station in the district. The building was originally 5,160 square feet and it was primarily designed to house fire apparatus only. As FFFD added paid staff, an 1,800-square-foot addition was added for crew quarters in the early 1990's. The building is now 7,201 square feet.

It is very much a neighborhood station and the residents of Frederick are pleased about its location. This station houses six personnel that staff one engine and one ambulance. The shift captain also occupies this station. It houses a brush engine and a reserve ambulance as well.

**Condition** – The station is old and outdated. It does not meet current NFPA 1500 standards, nor does it appear that the NFPA 1500 standards were applied with the 2003 expansion. This leads to numerous crew safety and operational readiness issues since the station does not have automatic fire sprinklers or a central alarm system. PPE is currently stored in the bays which is not in line with best firefighter cancer prevention practices. The facility lacks a decontamination area. The bunk area is extremely small for six personnel and does not provide for privacy. The station is inadequately maintained as evidenced by the water leak in the dining room ceiling. **See Exhibit A.**

**Recommendation** – To ensure the health and safety of station crews, FFFD should make a Station One remodel/rebuild/replacement a high priority. FFFD may consider a Facility Condition Index model to guide its rebuild or replacement decision. **See Exhibit B.** Likewise, FFFD may wish to engage an architect to determine the proper course of action. The current condition affects the station's operational readiness. Without fire safety devices, this station could suffer a catastrophic loss and inability to provide emergency services. Furthermore, a better work environment can improve staff retention, job satisfaction and recruitment.

Exhibit A

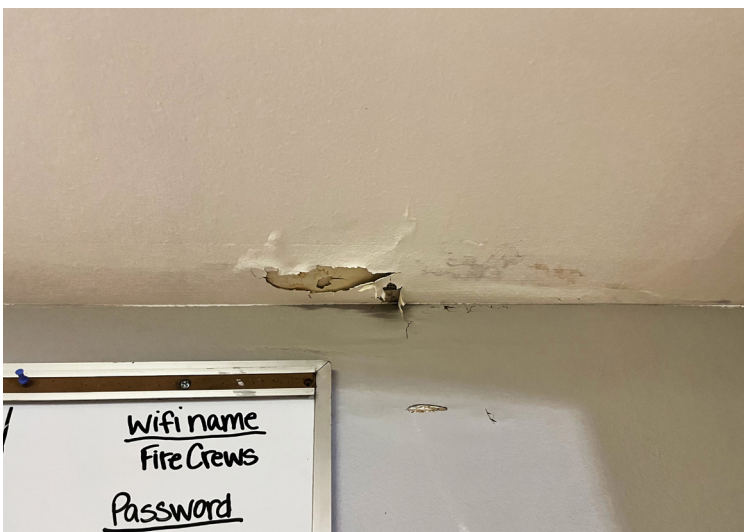
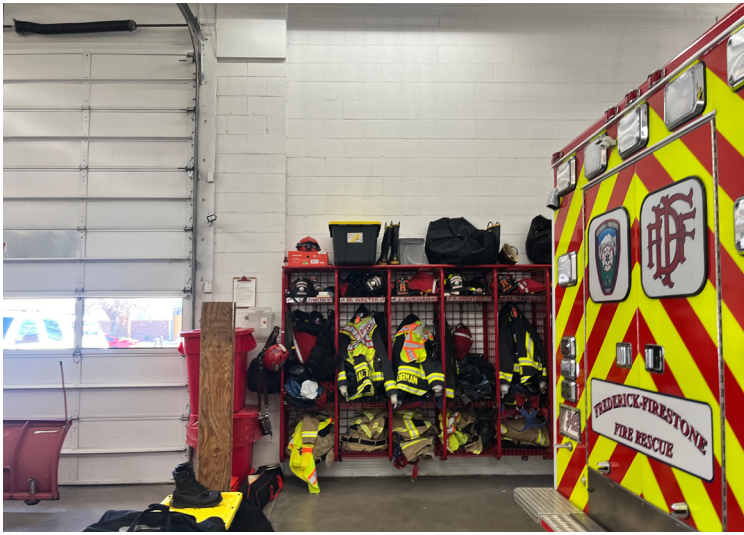


Exhibit B

**Facility Condition Index (FCI)**

The FCI considers the total of building repair or upgrade/renewal needs in dollars versus the current replacement value of building.

The calculation creates a ratio, and the lower the ratio means the building should be remodeled versus replaced.

FCI	Condition
0-10%	Good
10-25%	Fair to Good
25-60%	Poor to Fair
60%+	Critical Condition

(Above) PPE stored in bays.  
 (Left) Very small bunk area.

Water leak in dining room.

## Station Two

3991 Rowe Street  
Frederick, CO

8,668 Square Feet



Photo Source: Weld County Property Portal

Station Two was built in 1995 and is 8,668 square feet. This station sits adjacent to Administration. The station primarily operates a three-person engine that toggles with an ambulance. The station also has a climate-controlled outbuilding that is temporarily housing the IT department during the administration remodel in 2024.

Staff reported that the second story was remodeled in approximately 2013 to house a Battalion Chief and one Logistics Specialist.

**Condition** – The building, although small for a modern fire station, appears to be well maintained. The station does not meet current NFPA 1500 standards. Significant safety concerns are that it lacks a separate room for turnouts; the fitness area is located in the apparatus bay; lacks a central alarm; lacks a decontamination area and lacks an automatic sprinkler system. **See Exhibit C.**

**Recommendation** – Although not as a high priority as Station One, this station should be remodeled/replaced/rebuilt so that it meets current standards. The FCI model and an architect may be helpful in determining the right path. The lack of safety features may also affect the operational readiness of this station. The pending Station Five, located 2.8 miles away, provides a unique opportunity to temporarily relocate Station Two crews until Station Two can be corrected. Ironwood assesses this to be a medium priority, as the budget allows.

## Exhibit C

Station Two - fitness area located in apparatus bay.



No central sprinkler system.



### Station Three

6800 Tilbury Avenue  
Firestone, CO

8,306 Square Feet



Photo Source: Weld County Property Portal

Station Three was built in 2007 and is 8,306 square feet. This station nicely blends with the surrounding residential neighborhood. The station houses six personnel and operates two front-line apparatus: an engine and an ambulance. The station also houses a water tender and a reserve ambulance.

**Condition** – The station appears to be well maintained and is adequate for a six-person station. Although Station Three has spacious bunkrooms, it does not have separate bunkrooms to accommodate privacy.

This station has automatic sprinklers, a central fire alarm system and a decontamination room. However, it lacks separate rooms for PPE storage and fitness area. As such, it does not meet current NFPA standards. This station also incorporates a single bathroom that is only accessed from two bunkrooms, commonly called a Jack and Jill bathroom. It is clear that the staff does not like, nor do they feel comfortable with, these types of bathrooms. They also state these bathrooms seriously disrupt their sleep.

It is reported that the bunkroom lockers are too small which leads to tubs being stored on top of lockers that could interfere with the sprinkler system. **See Exhibit D.**

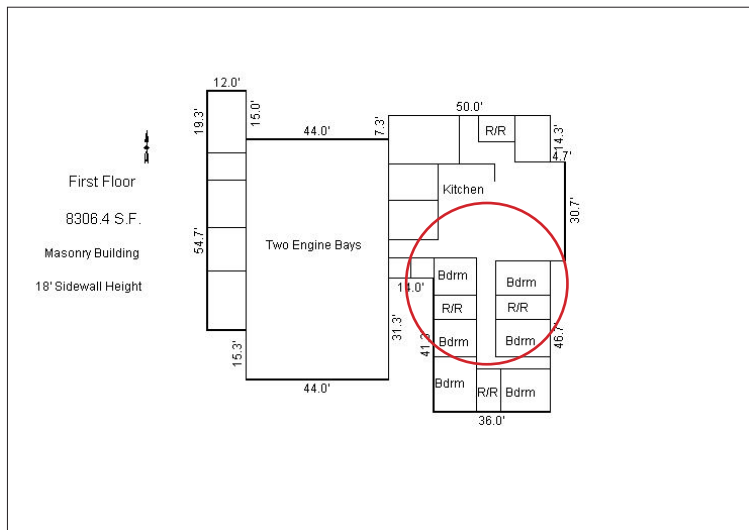
**Recommendation** – FFFD should make a reasonably timed plan to update Station Three so that it meets current NFPA standards. With this remodel, the station should also address privacy issues related to mixed bunkrooms and the use of Jack and Jill bathrooms.

## Exhibit D

Station Three - sprinkler interference.



Station Three - problematic bunkroom and bathroom configuration.



Workout equipment located in bay.



## Station Four

10706 WCR 7  
Frederick, CO

12,724 Square Feet



Station Four is the district's newest station, having opened in Spring 2019. The station houses four personnel that cross staff between a heavy rescue and a ladder tower. The station also houses a Type 6 brush engine and a trench rescue trailer. This station is primarily responsible for technical rescue and wildland responses. The station is unique in that it has many training props built into the structure such as a rope rescue tower.

**Condition** – Since this station was built in 2018, it is in very good condition and meets all NFPA 1500 standards. The crews reported that they like the durability and low maintenance of the polished concrete floors, a feature that should be in all future stations. It appears that some technical rescue gear is stored in the apparatus bay.

This station uses multi-occupancy bunkrooms and Jack and Jill bathrooms. As reported with Station Three, these designs may affect firefighter morale, operational readiness and cause sleep deprivation. Likewise, there is a problem of using totes on top of small lockers. The site visits also revealed some minor housekeeping issues in the bays and the blocking of safety-related ventilation systems. **See Exhibit E.**

Lastly, the duty crew reported that water does not adequately shed from the front apparatus bays; resulting in standing water. This could lead to slips and falls.

**Recommendation** – FFFD should rectify the issue with the ventilation system and bay clutter. Although a low priority, FFFD should evaluate its ability to remodel this station's bunkroom and bathroom configuration and correct the drainage issue in the front apparatus bays.

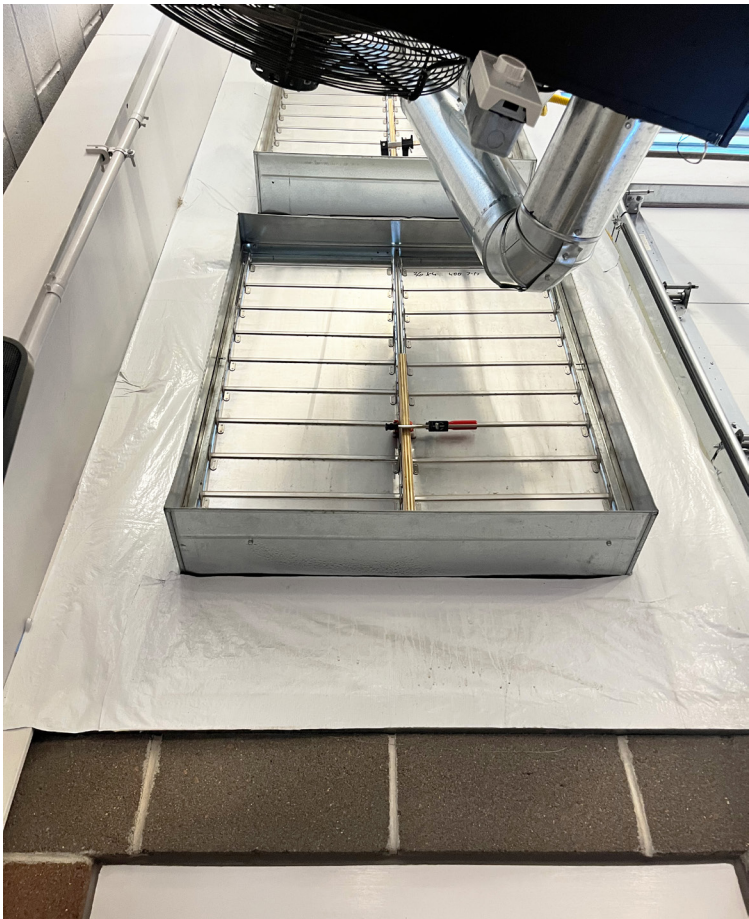


## Exhibit E

Station Four - minor general housekeeping needed in bay.



Crews reported this was necessary to avoid cold wind infiltrating bays. Consider consulting with an HVAC contractor to adjust/replace springs so it works appropriately.





## Overall Facility Observations

- FFFD personnel takes pride in their facilities and do much of the maintenance themselves. Station Four reported that the duty crew recently repainted the interior of the fire station.
- Likewise, morale within the troops seems to be very high. They appear to like the direction that administration is taking their district and appreciate the open communication.
- There is a high degree of using the source capture exhaust systems. During the site visit, 100% compliance was observed.
- It is obvious that FFFD is experiencing rapid growth. As a result, FFFD will need to build new facilities and rehab older facilities to NFPA 1500 standards to keep pace with the growth.
- Station One is in desperate need of updating to NFPA 1500 standards and should be made a high priority. Station Two is also deficient in meeting current NFPA 1500 standards and should receive a medium priority in remodeling/rebuilding/replacement.
- The station personnel have concerns about their health and safety at stations with the Jack and Jill bathrooms.
- Although the facilities are annually inspected by the Planning Section, no evidence was found that they undergo a regular (monthly) NFPA 1500-based safety inspection.
- It does not appear there is a formal assessment of facility conditions.
- It does not appear here is a standard operating guideline (SOG) in place to ensure optimum facility maintenance.

**Overall Facilities Recommendations** (provided in this section only to provide a high-level view)

1. Remodel/rebuild/replace Stations One and Two to meet the current NFPA 1500 Standard and expand to provide optimal working conditions. New and spacious quarters can improve staff retention and recruitment. The addition of private bunkrooms and bathrooms can also increase the diversity of the workforce. The Women in the Fire and Emergency Services Organization points that mixed genders in multi-occupant bunkrooms are an institutional barrier to women joining the fire service (<https://womeninfire.org/resources-links/faqs/>). Unfortunately, every year a few fire stations across the nation experience a catastrophic fire. Stations One and Two could join that statistic unless fire suppression systems are installed.
2. Adopt a facility remodel/replacement schedule. Use annual Facility Condition Assessments and Facility Condition Indexes tools to develop a schedule. Best practices show that modern fire stations have a 60-year life if minor remodels are completed at years 15 and 45 with a major remodel at year 30.
3. Implement and fund an assessment and preventative maintenance program for facilities. "Properly allocating funds for planned maintenance can significantly reduce overall negative financial and operational impacts upon an organization." For instance, regular asphalt maintenance is predicted to cost 1x versus 4x to replace. (Source: National Institute of Building Sciences.) This strategy will reduce costly and inconvenient corrective repairs. Peter Cholakis of the Whole Building Design Guide states that, "on average corrective maintenance costs 3 to 5x more than planned – not including disruptions." NFPA 1500 has in its annex a great tool for monthly health and safety assessments. It is also important that there is a system in place for users to report minor issues for repair before they become a major issue.
4. Consider moving ancillary functions performed by line personnel to staff personnel to provide a more timely service for facility repairs and preventative maintenance.

# Equipment



**The acquisition cost of an asset is just a portion of the total cost of owning it.**

Government Finance Officers Association

## Equipment

This section includes equipment that FFFD classifies as assets and less expensive items such as computers, tools, appliances, fire hose, equipment, furniture and training props. This section of the report is primarily based on information provided in the 2023 Depreciation Schedule. Additional information was gathered in conversation with crews from the site visit and physical observation.

Equipment life cycle costing is an important concept for effective fire department management and the two major expenses of ownership and operating must be understood. Equipment has an ownership expense which includes depreciation, investment and other miscellaneous expenses. Depreciation is defined as the decline in market value due to age, wear, deterioration or obsolescence. It is important to know an asset's initial cost, useful life and salvage value. Investment cost is that cost to purchase, finance or lease. Other miscellaneous costs must be factored in such as taxes, storage, insurance and expirations.

Operating expenses include such things as preventative maintenance, fuel, certification and consumables. (Douglas Gransberg, Iowa State University, Major Equipment Life-Cycle Cost Analysis, 2015)

A fire department must clearly understand and budget for all of these expenses so that its equipment is able to perform at a nearly 100% reliability rate. A broken dishwasher is an inconvenience for the crew, but a broken cardiac monitor defibrillator can have life-threatening consequences for the community. The stakes are much higher. As such, many emergency services equipment life cycles will be much lower than those in a typical business or household setting.

## Assets

FFFD tracks equipment that is classified as assets. Assets are defined as equipment with an acquisition cost over \$5,000 with a service life greater than one year. All of these assets are depreciated by the finance office in accordance with General Accounting Standards Board (GASB) 34.

A review of the assets shows that most are not classified as obsolete. However, it appears that one Lucas Chest Compression System and three Stryker Power Cots may have exceeded their manufacturer's expected life cycle of seven years. Especially with medical equipment, this can cause unwanted liability. Although a piece of equipment may exceed a manufacturer's life cycle, it does not typically mean the equipment has expired. Equipment life should be defined by the agency when factoring use factors such as frequency and intensity when adjusted for the agency's level of risk. For instance, some extremely busy agencies may not be able to secure seven years out of a Stryker Power Cot, but moderately busy agencies can easily achieve a 10-year life cycle.

**Condition** – Overall, FFFD has a system in place to recognize initial purchase and the depreciation of assets. There does not seem to be a system to timely replace assets. Ironwood could find no evidence that an annual inventory and condition of assets is being performed.

When questioning staff, it was discovered that cardiac monitors, power cots, and SCBAs are being annually recertified. The asset tracking system is limited to acquisition cost, depreciation schedule and disposal date.

## Recommendations

- Define asset replacement schedules that reflect FFFD's risk management practices. A best-practice replacement schedule is shown in **Exhibit F**.
- Ensure ownership and operating expenses are properly budgeted.
- Ensure all assets are accounted for annually and the condition reported.
- Upgrade the asset tracking system to include the Government Finance Officers Association (GFOA) Capital Asset Management, Best Practice, October 2017.

- |                                 |                               |
|---------------------------------|-------------------------------|
| • Asset description             | • Usage statistics – mileage, |
| • Location                      | engine hours                  |
| • "As-built documents location" | • Date placed in service      |
| • Warranties                    | • Original value              |
| • Condition rating              | • Original useful life        |
| • Maintenance history costs     | • Impairments                 |
| • Operating costs               |                               |

**Exhibit F  
Suggested Asset Equipment Life Cycle**

Description of Equipment	Years	Class
Air Compressors (SCBA)	25	Asset
Appliances – Commercial [refrigerators, extractors (25), ice machines (15)]	15-25	Asset
Buildings, Building Improvements	40-60	Asset
Communication Equipment (portables, base stations)	15	Asset
Exercise Equipment	15	Asset
Extrication Tools	15	Asset
Fire Equipment – Heavy [master streams (15), thermal imagers (10)]	10-15	Asset
Fleet Equipment (lifts)	20	Asset
IT (servers and phone servers)	7	Asset
Land	Infinite	Asset
Medical Equipment (cardiac monitors, stretchers)	10	Asset
Replacement HVAC	20	Asset
SCBAs	15	Asset
Special Ops Equipment (Gas meters)	10	Asset
Tenders	20	Asset
Thermal	10	Asset

**Non-Asset Equipment**

There are many other pieces of equipment that are not considered assets but are still vital for the operation of a fire agency. Although a fire nozzle typically costs less than \$5,000, it is still important that it is in good working condition. Furthermore, that equipment needs to be properly accounted for and maintained. This is also true for many other pieces of fire and medical equipment such as hose, wrenches, saws, ventilation fans, oxygen kits and trauma bags.

To operate at FFFD’s optimum capability, it needs to be certain that the equipment is in the right place. The personnel need to know that the equipment is in an operable condition, and if not, know how to quickly repair/replace. In addition to fire and medical equipment, the fire agency needs to provide functioning facility-type equipment. A happy firefighter needs their entertainment and cooking equipment to be in top working order to survive a 48-hour shift. They also need functional computers, mobile electronics, station alerting systems, furniture and



tools. A well-managed fire agency will have a system in place that ensures these “creature comforts” are there.

**Condition** – The site visit yielded many concerns about the poor condition, age and inadequacy of fire and EMS equipment. Crews reported that they had many backlogged work orders with no resolution on broken equipment. One cause of broken equipment may be a result of the reported old age. It was reported that equipment would be replaced with the acquisition of a new truck, but when the new truck came, there were not enough funds to buy new equipment. It was also reported that equipment, although listed in Check-It, is not regularly inventoried or documented. It is also not clear if there is a standard load list per apparatus. Many crews also felt they did not have enough hose in reserve in the event of a significant fire. It doesn’t appear there is a known system to request new pieces of equipment. This is an indicator the current system may not be working. Possible causes include apathy, lack of communication, inadequate budget, limited central oversight or lack of accountability. One example cited that it’s hard to get a flashlight fixed if the flashlight guy is on vacation.

### **Recommendation**

- Implement a regular inventory and condition reporting system to ensure operational readiness for all equipment.
- Implement an equipment replacement schedule that will assist in creating an adequate budget. **See Exhibit G.**
- Implement a system to gather crew members’ equipment needs.
- Consider moving equipment procurement and maintenance to a staff position (similar to PPE and uniforms).
- Ensure that all equipment is fully operational by completing annual certifications as suggested by manufacturer and respective NFPA standards.
- Ensure mission-critical equipment is available at all times. Hose for one full truck. Reserve engine should be fully equipped and ready.
- Develop inspection/maintenance/repair programs in accordance with applicable NFPA standards for asset and non-asset equipment.

### **Overall Asset and Non-Asset Equipment Observations**

- There is a system to recognize the acquisition and depreciation of capital assets.
- It is unclear if all capital assets are being properly maintained and recertified.
- A new asset tracking program would be beneficial. (Worksheet to be provided.)
- There is not an effective process to repair or replace non-asset equipment.
- There is not an effective system to track and understand the life cycle of equipment.

**Exhibit G**  
**Non-Asset Equipment Life Cycle**

Description of Equipment	Useful Life (Years)	Class
Appliances – Residential Grade [clothes washers (5), dryers, refrigerators, stoves, dishwashers (5) vacuums]	5-10	Equipment
Audio Visuals (TV's, projectors, cameras)	10	Equipment
Computers, MDTs, Phones	4	Equipment
Fire Equipment – Light (ladder, nozzles, hose appliances, tools)	20	Equipment
Furniture – Heavy (desks, office chairs, tables)	20	Equipment
Furniture – Light (recliners, couches)	8	
Fire Hose	10	Equipment
Kitchenware	8	Equipment
Mattresses	5	Equipment
Medical Equipment – Durable (spine boards, hare traction, pulse ox, EZIO)	10	Equipment
Personal Protective Equipment	10	Equipment
Radios and Parts	10	Equipment
Rescue Equipment (rope, carabineers, helmets, harnesses)	12	Equipment
Small Power Tools (Saws, Fans)	10	Equipment
Training Aids (CPR mannequins)	8	Equipment
Wildfire Equipment (pumps, radios)	10	Equipment

# Apparatus



It's recommended that fleet managers prioritize employees' safety and take appropriate measures to ensure that older vehicles are properly maintained, equipped with safety features and safe to operate.

Government Fleet

## Apparatus

When fire agencies think of equipment, most attention goes to fire apparatus. Apparatus are the shiny tools that allow the crews to directly deliver service. They are typically the second largest expense for an agency. As such, a well-managed fire agency needs to ensure adequate resources are dedicated to the apparatus.

Effective resource allocation respects all phases of the apparatus life cycle including acquisition and operating costs. Significant cost savings can be realized with the proper training of driver operators and effective preventative maintenance. The life of an apparatus can be seriously diminished if those two elements are not present.

Apparatus needs special attention since the pandemic has made acquisition much more difficult and expensive. Recent reports indicate that pumpers can take up to three years and ambulances up to 18 months for delivery. Chassis availability is also a limiting factor. Inflation has hit the fire industry especially hard with multiple price increases within a single year of 10% or more. Given the expense and extensive lead times, a program and policy needs to be in place that ensures the agency can replace apparatus when they are needed. Furthermore, NFPA 1900 has become the law of the land and a prudent agency would follow its guidance. Overall, NFPA 1900 (2021 edition) states that “to maximize firefighter capabilities and minimize risk of injuries, it is important that fire apparatus be equipped with the latest safety features and operating capabilities.” It goes on to say, “because the changes to NFPA 1901 and 1906 (which are now consolidated in NFPA 1900) have been truly significant, especially in the areas of safety, fire departments should seriously consider the value (or risk) to firefighters of keeping fire apparatus more than 15 years old in first-line service.” However, NFPA does allow an agency to retain a well-maintained apparatus in reserve for an additional five years. To determine the life that FFFD can realize on its apparatus, it must consider Appendix D2 of NFPA 1900 that states, “it is generally accepted fact that fire apparatus, like all types of mechanical devices, have a finite life. The length of the life depends on many factors, including vehicle mileage and engine hours, quality of the preventative maintenance program, quality of the driver training program...”

**Condition** – FFFD currently has a relatively older fleet with the average and median age of 11 years with some exceptionally older vehicles. Analysis shows that this agency currently has three front-line apparatus that exceed 15 years and three trucks that exceed 20 years. **See Exhibit H.** These ages exceed the NFPA 1900 recommended replacement schedule. The extended age will be mitigated by the upcoming purchases of a rescue engine and two ladder trucks. A visual review of the apparatus show they are very worn. Potential causes can be a combination of age, excessive wear, historical lack of a recognized engineer program and historical lack of in-house mechanic and extensive maintenance. **See Exhibit I.**

**Exhibit H  
FFFDD Apparatus Age**

Tracking #	Vehicle Description	Year	Age
A-5875	2016 Chev. Express G4500	2016	8
A-4869	2019 Ford F450 (Diesel)	2019	5
A-5855	2022 Braun Ford E450	2022	2
A-0264	2013 Chev. G4500	2013	11
A-1643	2011 Chev.	2011	13
B-5100	2019 F550 Type VI	2019	5
E-7462	2017 Pierce Saber Pumper	2017	7
E-3397	2013 Pierce Saber Pumper	2013	11
E-9604	2009 Pierce Pumper	2009	15
E-1840	2001 Pierce Pump Dash	2001	23
L-3350	2003 Pierce Aerial Tower	2003	21
R-8155	2004 Spartan Heavy Rescue	2004	20
T-7691	2020 International Stallion Water Tender	2020	4
Average			11
Median			11

Exhibit I

Excessive age and needed repair.



Excessive wear and needed repair.



Fortunately, FFFD has rectified two potential issues in instituting an engineer program and hiring a Fleet Manager/EVT in January of 2023. Nevertheless, it appears that fleet maintenance has a significant backlog. It is unknown the severity of work orders but one was reported that of faulty emergency lighting. NFPA would classify this is an out-of-service item and is exposing the agency to liability. The site visit discovered that on-duty crews were performing some critical preventative maintenance. Furthermore, there is no evidence that FFFD is following any sort of defined preventative maintenance program.

### **Overall Apparatus Observations**

- The newly adopted engineer program will increase the longevity of fire apparatus.
- It appears that apparatus repairs are not occurring in a timely manner.
- Updating the apparatus replacement plan will improve the reliability and decrease the excessive age of the fleet.

### **Recommendations**

- Update and fund the apparatus replacement plan in place. Government Fleet recommends that “to make informed decisions, fleet managers must consider a variety of factors, including age, fuel efficiency, application, resale value and overall usage.” Ironwood is proposing a plan originally developed from West Palm Beach, Florida. **See Exhibits J and K.**
  - There are many methods concerning the decision for apparatus replacement. They vary from “fix when broken and replace when you can’t fix” all the way to a complicated stochastic method. Ironwood, based upon its experience, is recommending the informed intuitive method. This method relies on the two objective factors of mileage and years and then adds in the subjective factor of the fleet manager’s opinion. This method allows the combination of evidence and intuition. This method is most commonly used for small to medium size fleets, and FFFD is a good match for this method. The proposed life cycles in the plan assume that FFFD hires additional EVTs. If it is unable, a shorter life span would be advised.
- Increase Fleet Staffing. Government Fleet recommends that “fleet managers prioritize employees’ safety and take appropriate measures to ensure that older vehicles are properly maintained, equipped with safety features and safe to operate.” The current backlog and fleet maintenance staffing models indicate that FFFD’s fleet is understaffed.
- Institute a defined apparatus preventative maintenance program. The program should be developed in accordance with NFPA 1910, Standard for the Inspection, Maintenance, Refurbishment, Testing and Retirement of In-Service Emergency Vehicles and Marine Firefighting Vessels.

- Consider the implementation of a fleet maintenance software program. The current software being used does not provide adequate information for effective fleet management.
- Implement a certified annual inspection program that incorporates apparatus weighing. Although most governmental agencies are exempt from DOT standards, industry best practice is to complete an annual DOT level inspection.

**Exhibit J  
Apparatus Life Cycle**

Apparatus Type	Years	Class
Ambulances	8/12	Asset
Brush Trucks	12	Asset
Command/Staff Vehicles	8/12	Asset
Pumpers	15/20	Asset
Tenders	20	Asset
Ladder	15/20	Asset

**Exhibit K  
Fleet Apparatus Replacement Plan**

Fleet Class	Miles	Hours	Months	Replacement Targets	
				Years	
Command Vehicles (Defined as Code 3)	100,000		96	8	whichever comes first
Staff Vehicles	150,000		120	10	whichever comes first
Brush	100,000		144	12	whichever comes first
Ambulance - Front Line	160,000		96	8	whichever comes first
Ambulance - Reserve	200,000		144	12	whichever comes first
Tender	100,000		240	20	whichever comes first
Ladder / Reserve	150,000		180/240	15/20	whichever comes first
Pumper - Front Line	130,000		180	15	whichever comes first
Pumper - Reserve	180,000		240	20	whichever comes first



## Exhibit L Projected Replacement Cycles

Fleet ID#	Fleet Class	Model Year	Make/Model	In-Svc. Date (Mo.)	Year	Time In-Svc. (Mos.)	Beg. Odo. Reading.	Current Odo. Reading	Total Use By FFD	Average Annual Use	Input From Up Top Rplcmt (Target)	Input From Up Top Rplcmt. (Years)	Est. to Hit Mi. Year	Est. to Hit Year	Est. Mi. Next Year	Years	Mileage	Recommend
A5875	Ambulance	2016	Chevy Express G4500	1	2016	101	15	114,000	113,985	13,543	160,000	8	2028	2024	127,543	Keep	Keep	Replace & Reassign to Reserve
A4869	Ambulance	2019	Ford F450 (Diesel)	1	2019	65	200	67,000	66,800	12,332	160,000	8	2032	2027	79,332	Keep	Keep	Keep
A5855	Ambulance	2022	Braun Ford E450	1	2022	29	200	14,000	13,800	5,710	160,000	8	2050	2030	19,710	Keep	Keep	Keep
A0264	Reserve Ambulance	2011	Chevrolet	1	2011	161	200	170,000	169,800	12,656	200,000	12	2027	2023	182,656	SUR	Keep	SUR
A0264	Reserve Ambulance	2013	Chevrolet G4500	7	2013	131	200	118,000	117,800	10,791	150,000	20	2027	2033	128,791	Keep	Keep	Keep Plan for Repl.
B5100	Brush Engine	2019	Ford 550 Type 6	1	2019	65	800	5,000	4,200	775	100,000	12	2148	2031	5,775	Keep	Keep	Keep
E7462	Pumper	2017	Pierce Saber	1	2017	89	1,000	58,000	57,000	7,685	130,000	15	2034	2032	65,685	Keep	Keep	Keep
E3397	Pumper	2013	Pierce Saber	1	2013	137	1,000	89,000	88,000	7,708	130,000	15	2030	2028	96,708	Keep	Keep	Keep
E9604	Pumper	2009	Pierce	1	2009	185	1,000	119,000	118,000	7,654	130,000	15	2026	2024	126,654	Keep	Keep	Replace Next Yr.
E1840	Pumper - Reserve	2001	Pierce Dash	1	2001	281	1,000	167,000	166,000	7,089	180,000	20	2026	2021	174,089	SUR	Keep	SUR
L3350	Ladder Tower	2003	Pierce	1	2003	257	1,000	58,000	57,000	2,661	150,000	20	2059	2023	60,661	SUR	Keep	SUR
R8155	Heavy Rescue	2004	Spartan	1	2004	245	1,000	142,000	141,000	6,906	130,000	15	2023	2019	148,906	SUR	SUR	SUR
T7691	Tender	2020	Int'l Stallion	1	2020	53	1,000	2,800	1,800	408	100,000	20	2265	2040	3,208	Keep	Keep	Keep
	Command/Staff?	2012	Dodge 1500 P/U	1	2012	149	1,000	100,000	99,000	7,973	100,000	8	2025	2020	107,973	SUR	SUR	Keep
	Command/Staff?	2012	Chevy P/U	1	2012	149	1,000	100,000	99,000	7,973	100,000	8	2025	2020	107,973	SUR	SUR	Keep
	Staff	2013	Ford Explorer	1	2013	137	1,000	80,000	79,000	6,920	150,000	12	2035	2025	86,920	Keep	Keep	Keep

**Exhibit L  
Projected Replacement Cycles, cont.**

Fleet ID#	Fleet Class	Model Year	Make/Model	In-Svc. Date (Mo.)	Year	In-Svc. (Mos.)	Beg. Odo. Reading.	Current Odo. Reading	Total Use By FFFD	Average Annual Use	Input From Up Top Rplcmt. (Target)	Input From Up Top Rplcmt. (Years)	Est. to Hit Mi. Year	Est. to Hit Year	Est. Mi. Next Year	Years	Mileage	Recommend
	Command/Staff?	2015	Dodge 2500 P/U	1	2015	113	1,000	80,000	79,000	8,389	100,000	8	2027	2023	88,389	SUR	Keep	Keep
	Command	2018	Chevy Tahoe	1	2018	77	1,000	80,000	79,000	12,312	100,000	8	2026	2026	92,312	Keep	Keep	Keep
	Command/Staff?	2017	Dodge Ram 4x4	1	2017	89	1,000	40,000	39,000	5,258	100,000	8	2036	2025	45,258	Keep	Keep	Keep
	Staff	2017	Ford Explorer	1	2017	89	1,000	40,000	39,000	5,258	150,000	12	2046	2029	45,258	Keep	Keep	Keep
	Staff	2019	Ford Explorer	1	2019	65	1,000	40,000	39,000	7,200	150,000	12	2040	2031	47,200	Keep	Keep	Keep
	Staff	2019	Ford Ranger	1	2019	65	1,000	40,000	39,000	7,200	150,000	12	2040	2031	47,200	Keep	Keep	Keep
	Staff	2020	Ford Transit	1	2020	53	1,000	40,000	39,000	8,830	150,000	12	2037	2032	48,830	Keep	Keep	Keep
	Command	2021	Ford F150 P/U	1	2021	41	1,000	40,000	39,000	11,415	100,000	8	2030	2029	51,415	Keep	Keep	Keep
	Command	2023	Chevy Tahoe	1	2023	17	1,000	15,000	14,000	9,882	100,000	8	2033	2031	24,882	Keep	Keep	Keep
	Staff	2022	Ford Ranger	1	2022	29	1,000	30,000	29,000	12,000	150,000	12	2025	2034	42,000	Keep	Keep	Keep
	Staff	2022	Ford Edge	1	2022	29	1,000	30,000	29,000	12,000	150,000	12	2035	2034	42,000	Keep	Keep	Keep
	Staff	2022	Ford F250	1	2022	29	1,000	30,000	29,000	12,000	150,000	12	2035	2034	42,000	Keep	Keep	Keep

Current odometer readings were estimated, and Ironwood will provide worksheet in Excel.

## Conclusion

Upon review of the FFFD capital infrastructure needs, it becomes evident that FFFD would greatly benefit by implementing and funding a comprehensive multiyear capital plan. FFFD is rapidly expanding and wants to get ahead of the growth issues, create efficiencies, project proper equipment rotations and elevate future generations. A multiyear capital plan is designed to fill those wants/needs. Not only will this strategy help FFFD, but it is also an accepted best practice.

GFOA states that “state and local governments should prepare and adopt comprehensive, financially sustainable and multi-year capital plans to ensure effective management of capital assets.” (GFOA Best Practices, Multi-Year Capital Planning, 9/23/2022)

To initiate a capital improvement plan, an agency should follow these steps as outlined by GFOA:

1. Identify needs. This report can help with current needs, but the agency must also incorporate future growth needs.
2. Determine financial impacts. This includes timing, inflation and life cycle costs.
3. Prioritize capital requests. It is not uncommon to have many competing requests, and a prioritization system will help your agency in developing those priorities. (Listed in priority).
  - a. Health and safety
  - b. Asset preservation
  - c. Service expansion or addition
4. Develop a comprehensive financial plan. The plan should include cash flow projections, legal constraints, legislative impacts and sources and uses of debt. Please note: This step allows a fire agency seeking accreditation through the CFAI to avoid all Performance Indicators in Section 4B while assisting in the achievement of Section 4A.

Another GFOA best practice is to annually fund the capital reserve plan to smooth the cost of large purchases. In practice, when an agency acquires an asset such as a \$1 million engine, it should begin setting aside the replacement cost each year over the life of the asset. This means that a minimum of \$67,000 needs to be transferred to the capital reserve fund each year, assuming a 15-year life cycle. Furthermore, the replacement cost should be updated each year for the current replacement cost.

There are some potential risks with adopting a capital fund. GFOA recommends that strict policies need to be in place that identify when and where the funds will be expended. “Governments should adopt a written policy addressing capital asset

reserve for renewal and replacement. Though maintenance and/or renewal and replacement capital projects should be funded each year through the budgeting process, the establishment of a capital asset reserve provides governments additional flexibility in a strong capital asset management program.” (GFOA, Strategies for Establishing Capital Asset Renewal and Replacement Reserve Policies, Best Practices, March 8, 2019.) A large capital fund becomes enticing to management and government officials to bolster the operating fund. Likewise, when there is an economic downturn, it is very tempting to staff capital funding which can lead to a future catastrophe.

Multiyear capital plans allow the organization to align with the strategic plan, prepare for the future, create a shared vision, provide expenditure justification, enhance budget transparency and improve credit ratings.

Capital Infrastructure Needs Assessment  
Facilitation by:



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