DORSET FIRE DISTRICT No. 1

PRUDENTIAL COMMITTEE ANNUAL PRESENTATION

MAY 13, 2019

7 PM

FY 2020 FIRE BUDGET

This year's fire budget: $179,650

Level funded from last year

Fire tax continues to be…

- equalized with East Dorset Fire District
- included as a line item in your property tax

Full budget in "Dorset Fire District 2019 Annual Report"

UPDATE ON NEW FIRE TRUCK

New truck was ordered in spring of 2018

- delivery expected this summer

Need for a smaller truck able to navigate narrow roads and steep grades

New truck will replace 2 trucks currently in service

- ETA 511 – 1996 pumper/tanker which carries 1000 gallons of water
- 1972 brush truck with 250 gallons of water

Cost estimate: $350,000

Almost entirely paid for by:

- truck sinking fund
- proceeds from selling two old trucks

FY 2020 WATER BUDGET

This year's water budget: $133,500

- includes bond payment ($38,500) based on $700,000 bond

Slight increase (0.08%) from last year

Average water bill less than similar local systems

- Dorset average water bill: $728
- Arlington: $932, East Dorset: $1,091

Water bills continue to be…

- based on number of bedrooms (residential)
- various business-related criteria (commercial)
- invoiced quarterly

Full budget in "Dorset Fire District 2019 Annual Report"

ACCOMPLISHMENTS

1. Metering station completed
2. New chlorinator with solar power
3. Gravel-packed test-drilled and water tested
4. System-wide leak analysis
5. Hired firm to handle daily operations
6. Hydraulic modeling of system

1. Metering Station Complete

Station resides in vault at base of distribution system

Water usage data available via internet

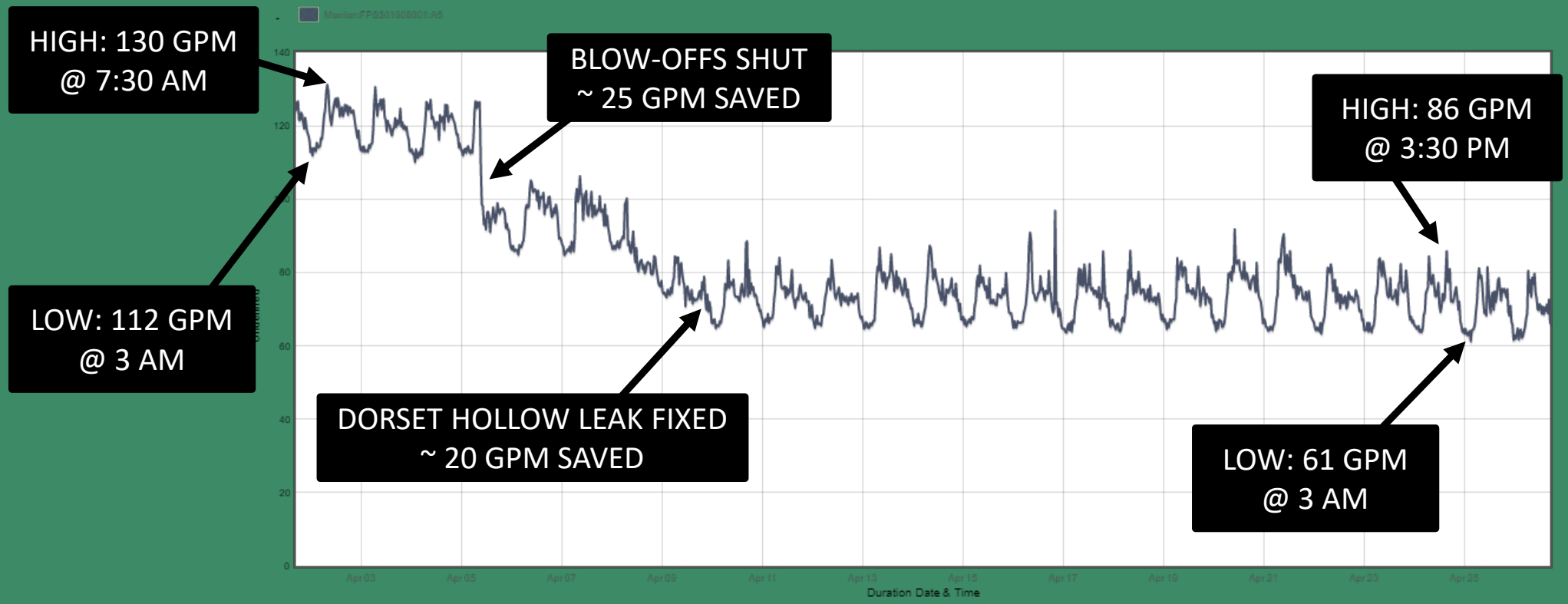
- provides daily usage figures required by state of VT
- detects significant new leaks
- leak at 179 Dorset Hollow fixed showed 20 GPM additional usage
- night-time usage consistently at 61 GPM

Total cost of project: $58,000

Future enhancements

- automatic chlorination readings
- should pay for itself in decreased operator fees

April 2019 Metering Data



2. New Chlorinator with Solar Power

Old mechanical chlorinator was problematic

- chlorinator located inside reservoir building
- required frequent maintenance
- parts no longer available

New chlorinator requires electrical power

- no power exists at reservoir

Solar panel and battery installed at reservoir

Total cost of project: $5,000

3. Gravel-Packed Well Construction

Bedrock well did not produce acceptable water quality

- multiple approaches tried (different levels, pumping speeds, etc.)
- excessive sediment in water with each approach
- $150,090 spent (engineering, permitting, well drilling, testing)
- $50,000 applicable to gravel-packed well

Gravel-packed well being constructed on same site

- well in gravel layer, 40 ft. from first well on same property
- test drilling generated 40 GPM production (conservative estimate)
- some filtration anticipated

Voter-approved bond ($700,000) not yet procured

- all expenses to-date are covered by state planning loan at 0% interest
- a larger bond will be needed, pending voter approval
- planning loan will be paid off when bond procured
- $850,000 bond anticipated (wells, metering station, hydraulic modeling, leakage detection)

4. System-Wide Leak Analysis

Consultant hired to perform week-long analysis

- MatchPoint worked with Jim McGinnis and Greg Kepler

Parts of water system shut off at night to measure flow

Data showed very consistent leakage and wastewater use

- percentage of leakage unknow, by suspected high
- suspected service line leakage throughout system

Total cost of project: $6,250

Complete report available on DFD website

- www.dorsetfiredistrict.org

5. Hired Firm for Water Operations

Simon Operations Services (SOS)

- 21 person firm, specializing in water and waste water operations
- started contract services on April 1st
- committed to 15 hours per week
- www.simonop.com

Jim McGinnis continues in a reduced role

- he will continue overseeing reservoir
- he has served the district for 21 years
- we our Jim a huge thanks for all his efforts!

Chris Hayes: SOS Manager

6. Hydraulic Modeling of System

Consultants hired to analyze water flows in system

- Otter Creek Engineering and Kepler Consulting

Purposes of modeling

- provide direction for getting fire hydrants operational
- approaches to fix address low-flow areas of system

Modeling done ahead of decision on construction

- hydraulic modeling is covered by planning loan (0% interest)
- modeling shows 4 hydrants can be opened (at 500-750 GPM)

Total cost of project: $15,000

BOND PROJECTS SUMMARY

Supplemental Water Source

▪ Bedrock Well	$150,090	($50,000 utilized on gravel-packed well)
▪ Gravel-Packed Well	$181,198	
▪ Construction & Connection	$367,000	
▪ TOTAL	$698,288	

Other Projects

▪ Metering Station	$57,659
▪ Hydraulic Modeling & Capital Planning	$15,000
▪ Future Project Engineering	$23,000
▪ Leak Detection	$30,040
▪ TOTAL	$125,699

Bond Total: $823,987

WATER ISSUES

1. Inadequate water supply during drought periods
2. Aging service lines
3. Multi-user service lines
4. Non-functional fire hydrants
5. Low-pressure areas

Aging Service Lines

Data shows service lines are in poor conditions system-wide

- metering station shows consistent 61 GPM usage in middle of night
- system-wide leak analysis shows balanced flow in 8 regions
- past service line fixes show decomposed galvanized pipes

Low leakage difficult to detect

- currently there are no known service line leaks

Main to curbstop ownership

- currently owned by water users
- with a by-law change, ownership could transfer to district
- curbstop-to-house replacements would be cheaper and easier to perform

Multi-User Service Lines

New users were added to system many years ago by extending service lines instead of extending water mains

Multi-user service lines exist at ends of mains

- Rt 30 (north and south ends)
- Dorset West Rd. (north and south ends)
- Dorset Hollow Rd.

Problems with multi-user service lines

- expensive fix when leaks occur
- multiple users effected with each leak
- leak detection sometimes difficult

Non-Functional Fire Hydrants

State of Vermont prohibits usage of our hydrants

- undersized mains create low-pressure situation in system
- hydraulic modeling shows we may be able open 4 hydrants
- if these hydrant are opened, water flows would be sub-optimal

Fire apparatus was sized for lack of hydrant water

- but fighting a structure fire without system water would be challenging

Poor ISO fire-fighting rating because of hydrants

- village homeowners and commercial insurance rates are effected

Low-Pressure Areas

Maintaining adequate pressure throughout system is required for approval to use fire hydrants

- 20 PSI necessary throughout system

4 homes on Barrows Heights experience low pressure

- lowest pressure on system
- this is where testing for hydrant use will take place

DISCUSSION OF FUTURE DIRECTIONS

1. Water meters for all users
2. System-wide service line replacement
3. Extend water mains to replace multi-user service lines
4. Address low-flow areas
5. Add east-side water storage
6. Replace all water mains for fire safety
7. Extend system to use springs at Raptor Lane

Prudential Committee's Priorities

1. Ensure adequate supply of potable water
2. Get state's moratorium lifted (on new expanded use)
3. Create an fair cost structure for all users
4. Enhance fire safety at a reasonable cost

1. Meter all Water Users

Install water meters in all homes and businesses

- meters would be installed inside buildings (basements)

Benefits

- will allow detection of wasted water (leaking toilets and taps)
- water rates (above connection fee) will be tied to usage
- will promote water conservation
- will allow enforcement of restricted usage during water emergencies
- data on residential vs. commercial usage will allow equity of connection fees

Estimated cost: $150,000

Prudential Board Position

- we plan to proceed with the metering project
- we are exploring the possibility of adding meter costs to supplemental-water bond

2. System-Wide Service Line Replacement

Replace all old services lines

- Dorset Water Co. could assume ownership of system from main to curbstop
- will require by-law changes
- compensation needed for users who have recently replaced their service lines

Benefits

- significant cost savings vs. each user handling their own service line replacement
- dramatic decrease in water usage and reduced susceptibility to low-supply periods

Estimated cost: $1,200,000

Prudential Board position

- we do not recommend system-wide replacement
- we will continue to map & detect leaks in service lines and require users to fix
- we are exploring district cost-sharing for total line replacement (vs. fixing individual leaks)

3. Extend Mains to Replace Multiuser Lines

5 end-of-line areas identified

- effects 17 users
- could be done with or without replacement of all mains

Benefits

- improves inequity of service line repairs
- improves leak detection and system maintenance for end-of-line users
- could potentially add new users to system

Estimated cost: $945,000

Prudential Board position

- we do not recommend pursuing this project at this time

4. Address Low-Flow Areas

Low water pressure areas are a factor in opening hydrants

- Barrow Heights pressure could be addressed by adding a pump station
- could also be addressed by drilling wells for limited number of users

Benefits

- could allow 75% of hydrants to be opened (flow testing required)
- enhanced fire protection
- potential decrease in homeowners and commercial insurance

Estimated cost: $75,000 - $100,000

Prudential Board position

- we recommend this project only if east-side storage is not implemented in near future

5. Replace All Water Mains

Replace water mains in coordination with service line replacements

- state of Vermont has determined our mains are undersized for hydrant usage
- some mains are over 100 years old, although generally in good condition
- project could be done in stages

Benefits

- enhanced fire protection
- potential decrease in homeowners and commercial insurance
- cost savings achieved if coordinated with service line replacements

Estimated cost: $4 million +

Prudential Board position

- we do not recommend pursuing this project
- more cost-effective options exist for fire protection

6. East-Side Water Storage

New reservoir or water tank would balance water flows

- storage would exist on east side of system (off Rt 30) at same elevation as reservoir
- storage location would require agreement with property owner(s)
- project would include running new 12 in. main to Church St.

Benefits

- all hydrants would be available for fire protection at high flow (3000 GPM in village core)
- double drinking water storage – beneficial in water emergencies
- simplifies system maintenance and lessens disruptions in water service
- service lines along new main could be replaced by users at fraction of normal cost
- solves low-pressure areas in system (low-pressure project not required)

Estimated cost: $1.8 - $2.0 million

Prudential Board position

- we recommend pursuing this project

7. Extend System to Raptor Lane

Town recently acquired 300 acre property

- property is just north of JK Adams
- property includes several high-volume natural springs

Benefits

- potential housing project could add significant number of users to system
- springs could be used as another supplemental water source
- water storage could be built on this properties

Estimated cost: $3 million +

Prudential Board position

- we do not recommend pursuing this project at this time

SUMMARY OF RECOMMENDATIONS

1. **Meter all homes and businesses**
2. **Pursue service-lines leaks with mapping and detection**
3. **Build east-side storage and new water main to Church St.**

Estimated total costs

- $2.15 million
- average new quarterly bond payment: $157
- average total quarterly bond payment (including supplemental water): $219

MORE INFO

Get more info at our website: www.dorsetfiredistrict.org

- meeting agendas and minutes
- approved budgets and water rates
- audit summary documents
- delinquent fire and water info

Register on site for water system notifications

- water restrictions
- limited water service