

Dorset Fire District #1 Prudential Committee Meeting

January 9, 2017

Members Present: Ben Weiss, Abbott deRham, Roger Squire, Milt McWayne
Members Absent: Mark Putnam
Also Present: Jim McGinnis (Dorset Water District), Rob Gaiotti (Dorset Town Manager), Shawn Hazelton, (Fire Chief), Colin Stabile (First Assistant Chief), Greg Kepler

B. Weiss opened the meeting at 7:03 p.m.

Approval of December Minutes

A. de Rham noted that M. Putnam's comment under the Water Study Report heading from the December minutes should be amended to say that "water needs to be pumped into main lines and it will find its own level.

R. Squire moved and M. McWayne seconded to approve the December 12, 2016 minutes as amended. Motion carried 3-0.

Water Study Report & Concept Plans (Greg Kepler)

G. Kepler presented an 'outline and notes' document to give an overview of activities for capital improvement planning for increasing available fire flows and more hydrants. Three issues to consider for capital improvements to increase fire flow are: additional storage; location of water main replacement with larger mains and low pressure area improvement. G. Kepler reviewed:

- Existing system condition
- Evaluation of storage requirements
- Additional storage locations
- Options for improving fire flows
- Additional comments
- Recommendations

Copy of report attached. G. Kepler noted that the 1992 and 2014 ISO flow data for hydrants is very close to the same fire flows as today – indicating the system has not changed much. Discussion ensued regarding storage locations (existing,

east and west sides of Town), gallons per minute abilities (GPM), map location storage alternatives, State requirements and types of storage equipment or building. In discussing pipe replacement size, G. Kepler noted that 12 inch was the way to go based on analysis. A. de Rham asked, if the 4 inch pipes showing on the map were actually 6 inch pipes, would it meet the ISO criteria without replacement and G. Kepler replied he was not sure, but hydraulic modeling should be done first to see which way to go. G. Kepler reviewed the spreadsheet included in the report which showed the additional fire flows and said that the next step would be cost estimates.

Fire and Water Financials (Gaiotti)

R. Gaiotti reported on:

- account balances for the water and fire departments
- delinquent water and fire taxes
- water service leak debt (2 properties remaining)
- FY17 DFD budget amount will remain the same for inclusion in this year's Town budget
- Revenue and expense reports for water and fire departments

A. de Rham moved and R. Squire seconded to accept the January 9, 2016 DFD #1 Finance Report as presented. Motion carried 3-0.

Fire Chief's Report (Hazelton)

S. Hazelton and T. King have completed Firefighter I training. It was reported that there were 105 calls for the year and the December to January call report was submitted. S. Hazelton noted that the carbon monoxide forms that they use need to be reprinted by Express Copy. R. Squire asked if there was any progress on the requested equipment list to be created between the East Dorset and Dorset Fire Departments and S. Hazelton responded no, as he did not know about the request, but will set up a meeting to do so.

A. de Rham moved and R. Squire seconded to approve the Fire Chief's report as presented. Motion carried 3-0.

Water Operator's Report (McGinnis)

J. McGinnis reported that Aaron ran his correlator on the private Barrows House line which supplies three buildings and found that there are no reportable leaks. He will check that the old line in the basement of the Barrows House is disconnected from the system. Suspected valve leaks were found after running correlator tests at the intersections of Church Street and Route 30 North and South. On the west side of Dorset West Road, a private service line leak test was inconclusive. A. de Rham noted that it was not worth repairing valves by repacking due to the degradation over the years, but valves could be saved for temporary use when changing to the larger pipes. J. McGinnis expressed that the next budget should reflect an amount for anticipated valve replacements.

M. McWayne moved and R. Squire seconded to approve the Water Operator's report as presented. Motion carried 3-0.

Service Line Repair Communications (Squire/Weiss)

It was the consensus of the Board members that the draft service line repair communication letter was okay.

Old Business

- **Water Operator Employee Status** ~ J. McGinnis will forward a job description document to B. Weiss and R. Gaiotti suggested that the Board have a Water Operator transition plan in place. A. de Rham stated that only the Fire District can have employees, but the position will be paid by the Water Department.
- **Meeting with Ashley Lucht** ~ planning grant discussion was rescheduled to January 17th at 7:00 p.m. at the Firehouse.
- **Firehouse Alarm Systems (Dorset & East Dorset/Putnam)** ~ tabled until next meeting
- **Fire Budget Process (Squire)** ~ discussion of budget will start at the next meeting and all members agreed that they would like the budget broken out. S. Hazelton is to bring an estimated fire budget and J. McGinnis is to bring an estimated water budget for the next meeting.
- B. Weiss asked about commercial metering in 2017-2018, grants and the upcoming budget. J. McGinnis noted that in 1997 it cost approximately \$350 per unit including installation. A. de Rham stated that bids would be needed and a decision made as to who will pay for the meters. G. Kepler recommended that back flow preventers be installed on any water meters and buildings with sprinklers will need a compound meter. M. McWayne suggested allotting money in the budget for future metering costs. R. Squire asked about the status of dry hydrants and A. de Rham responded that dry hydrants are an item on the list for G. Kepler.
- J. McGinnis is to email water shut off forms to R. Squire.

New Business

- Fire Department data needed for annual Town of Dorset report ~ S. Hazelton to email B. Weiss
- Fire Chief's report to be submitted by Friday before each meeting.

A. de Rham moved and R. Squire seconded to move into Executive Session to discuss personnel at 9:50 p.m. Motion carried 3-0. Executive Session ended at 10:00 p.m. motioned by R. Squire and seconded by M. McWayne. Motion carried 3-0.

A. de Rham moved and R. Squire seconded to approve the retention payment list for the firefighters as presented by S. Hazelton. Motion carried 3-0.

M. McWayne moved and R. Squire seconded to adjourn the meeting at 10:15 p.m. Motion carried 3-0.

Respectfully submitted,

Nancy Aversano

Dorset Fire District #1

Date 1/9/17

Regular Meeting X

Special Meeting

(Please Print)

Name	Mailing Address	Representing	Testifying (Yes or No)
Shawn Hazelton	433 Paults way	Fire Chief	Yes
GREG KAPLER	157 SPINCE ST; MANCHESTER	DFD	Yes
ROB GAIOTTI	PO Box 715 E. Dorset	DFD	YES

Kepler

**Dorset Fire District #1
Outline and Notes for January 9, 2017 Meeting**

General

The plans and information tonight have been prepared to provide an overview of current work activities associated with the task of evaluating options for capital improvements to increase available fire flows and allow for more hydrants to be utilized by the Fire Department.

What I will talk about

- Provide overview of current work activities
- Review and assessment of existing information
- Basis for additional storage tank sizing
- Comparison of concepts for water main replacements
- Pros, Cons, and recommendations

Three primary issues to consider in evaluating options for capital improvements to increase fire flows

1. Should additional storage be considered and if so, where
2. Which water mains should be considered for replacement with larger diameter mains
3. Low pressure areas within system (primarily Barrows Heights) and how to improve.

Existing System- What do we know

Existing conditions comments

- Baseline-If fire flows are not considered, the existing piping system appears to be able to deliver the normal daily domestic demand at acceptable pressures (35psi static and 20 psi entire system). To be confirmed by Jim.
- Existing distribution system is comprised of small diameter (4" & 6" mains), which do not meet current State minimum size requirements for fire protection (8" State minimum size) and cannot deliver (with exception of a few locations) the State min required fire flow of 500 gpm

Assessment or existing information

- Review of the ISO hydrant flow testing conducted in 1992 and 2014
- ISO recommended fire flows range 750-2500 gpm
- ISO Hydrant flow testing in 1992 and 2014 was very similar
- Implication of ISO 1992 vs 2014 Hydrant flow tests
- Overwhelming majority of the system is not capable of providing ISO recommended fire flows.

Evaluation of Storage requirements

- Minimum State criteria: one day average domestic demand (~170,000 gal) plus the volume for fighting a fire at location that requires the greatest volume.

Dorset Fire District #1 Outline and Notes for January 9, 2017 Meeting

- ISO analysis in 2014 recommended 2hrs @ 2500gpm (300,000gal)
- ISO analysis in 1992 also recommended 2500 gpm fire flow
- Total recommended storage is 470,000 gal based on ISO recommendations
- Existing storage is ~220,000 gal
- Additional recommended storage is 250,000 gal

Additional Storage location -2 Options

- West side of town
- East side of town - location along the 1210 contour (hydraulic grade line/tank overflow elev.)
- Tank siting criteria (recommendation): Additional storage tank to match existing tank overflow elevation (1210' above MSL)
- Advantages of siting a tank on the East side of town- provides additional fire flow benefits/pressure balancing during most fire flow scenarios/ can address low pressure area.
- Tank on the West side of town,(as a stand-alone improvement) does not improve fire flows

Options for improving Fire flows

- ISO recommendations are frequently used for capital improvement planning
- Replacing existing undersized watermains
- It is not economically justified to achieve recommended fire flows in the entire system
- There are many options that would provide varying degrees of fire flow improvements.
- Previous Engineering study(1994) developed many alternatives
- Hydrant flow testing and Hydraulic modeling of the piping system
- Several alternatives considered for increasing fire flows were modeled (See Attached):
- Alts 1-4 include west side tank vs Alts 5&6 include east side tank
 1. Replacement of water line on Church St. (12")
 2. Alt #1 plus replace water line from Reservoir to Church St. (12")
 3. Alt #2 plus replace water line on S. Main St. from Meadow Ln. to EOL (12"- plan says 8")
 4. Alt #3 plus replace water lines on side streets-Kent Hill Rd., Dorset Hollow Rd., Main St. (north), and West Road (8") (2")
 5. Construct East side tank in vicinity of Barrows Heights and connect to S. Main St. and Barrow Heights and replace S. Main water line from Dorset Hollow Rd to point of connection point (8")
 6. Alt #5 plus replace water lines on side streets-Kent Hill Rd., Dorset Hollow Rd., Main St. (north), and West Road (8")
 7. Other locations for EAST side tank are also options
- Comparison of Alternatives and fire flow improvements are summarized on attached spreadsheet for 2 conditions. Condition 1 was maximum fire flow at various locations with 20 psi residual at that location- ISO criteria. Condition 2- Maximum fire flow at various locations while maintaining a 20 psi residual pressure throughout system (State criteria).

Dorset Fire District #1
Outline and Notes for January 9, 2017 Meeting

- Options for low pressure users has not been addressed at this point, although individual user booster pump systems (with air gap) are one logical alternative to consider based on the limited number of high elevation connections.

Additional comments

- East side tank location may impact extent of water line replacement along S Main St.
- Replacement water mains for Alt #5 & #6 may want to be upsized to 12" based on tank location, system hydraulic modeling, and desire for future extension capability
- Cost estimating to be completed
- Any input on alternatives that are not of interest would be appreciated to reduce cost estimating effort
- Recommend high elevation users be investigated to assess if they have air gap and/or backflow prevention valves.

Recommendations

- Pursue location(s) for siting East side tank
- Undertake Water system hydraulic modeling

FIRE FLOW IN GALLONS PER MINUTE															
Location	ISO Recommendation	Existing Flow	CONDITION A						Existing Flow	CONDITION B					
			ALTERNATIVE #							ALTERNATIVE #					
			1	2	3	4	5	6		1	2	3	4	5	6
Main St. @ Church St.	2500	920	2670	4110	4110	4110	2250	2250	2250	350	1180	2030	2030	2030	1830
Main St. @ Pinnacle St.	750	270	290	290	1860	1860	290	1510	270	290	290	290	1860	290	1510
Church St. @ West Rd.	750	2450	2700	4200	4200	4200	3380	3380	980	1340	3120	3120	3130	3380	3380
West Road @ Hyd-18	750	325	325	325	2180	2180	320	1960	300	300	300	300	2050	300	1840
Kent Hill Rd. @ Hyd-12	500	325	380	380	380	1750	380	1510	290	340	350	250	1250	340	1370
Dorset Hollow Rd. @ Hyd-13	500	320	365	370	375	1350	570	570	160	200	210	210	690	540	540

Meets ISO Recommended fire flow

Condition A- Available fire flow with 20 psi at location
 Condition B- Available fire flow with 20 psi minimum anywhere in water system
 Information taken from 1996 Wright Engineering Study