



CITY OF
BAINBRIDGE ISLAND

UTILITY ADVISORY COMMITTEE
REGULAR MEETING
WEDNESDAY, OCTOBER 25, 2017
5:00 PM – 7:00 PM
CITY HALL
COUNCIL CONFERENCE ROOM
280 MADISON AVENUE NORTH
BAINBRIDGE ISLAND, WA 98110

AGENDA

1. CALL TO ORDER / ROLL CALL / ACCEPT OR MODIFY AGENDA / CONFLICT OF INTEREST DISCLOSURE
5:00 PM

CO- CHAIR: ANDY MARON
CO- CHAIR: JEFF KANTER

MEMBERS: STEVE JOHNSON EMILY SATO
 TED JONES JIM THRASH
 NANCY NOLAN
2. ACCEPTANCE OF MEETING NOTES – OCTOBER 11, 2017
3. PUBLIC COMMENT – 5 MIN.
4. CASEY STREET WATER COMPANY: DISCUSS STATUS – 5 MIN.
5. WA WATER COMPANY TERMINATION OF MANAGEMENT: DISCUSS STATUS – 10 MIN.
6. FIRE CODE IMPACT: DISCUSS – 60 MIN.
7. COMMENTS FOR THE GOOD OF THE ORDER – 5 MIN.
8. ADJOURNMENT
7:00 PM

MINUTES

Present: Andy Maron (co-chair), Jim Thrash, Jeff Kantor (co-chair), Ted Jones, Emily Sato, Steve Johnson, Nancy Nolan, Ted Jones

Also Present: Public Works Director Barry Loveless, Councilmember Roger Townsend

1. The Meeting was called to Order at 5:00 pm.
2. Minutes from 10/4/17 accepted.
3. The council's agenda item about potential change in city policy on application of the OPMA was discussed.
4. The proposed Casey Street Water company sale to the City was discussed. B. Loveless said he was moving forward with a recommendation for acquisition of the CSW to be discussed on 11/24. The committee's recommendation regarding the rate study will come up on the same date.
5. WA Water Company Termination of Management. B. Loveless said Public Works had a meeting with 2 out of the 4 water systems. This issue is ongoing.
6. Fire Code Impacts. The UAC discussed the city standard (1000 GPM or more) and standards for construction for water flow and sprinkling systems. The UAC expressed that COBI should be proactive in solving problems and addressing fire flow needs in locations where there are no hydrants. The UAC discussed the concept of expanding the water system within the service area expressing that if a private vendor could do it profitably then the COBI system should be able to do it without adversely impacting current rate payers. It was also noted that the many aged systems on the island are extremely vulnerable and questionable in considering disaster preparedness for fire.
7. Adjourn at 6:30 pm.

City of Bainbridge Island - Utilities Advisory Committee

DRAFT RECOMMENDATION REGARDING FIRE FLOW IN COBI FIRE CODE (As of 10/22/17)

SUMMARY

The UAC, in conjunction with COBI Engineering staff, have recognized the discrepancy between the stated goals of the comprehensive plan to facilitate consolidation of water systems versus the cost for those systems to meet existing fire code fire flow requirements. Fire Code modifications are recommended.

BACKGROUND

Of the 28 Class A water systems on Bainbridge Island, 6 are owned by COBI or KPUD, with the remaining 22 ranging from 102 to 300 connections. There are also approximately 155 Class B water systems on Bainbridge Island. The cost of meeting existing fire flow requirements for these small systems is so prohibitive that most of these systems do not consider doing it.

However, recognizing our hot summers and wildfire incidents occurring in other parts of Washington (and other) State(s), incentivizing small water systems to merge, add capacity, and any other upgrades to better fire flow will follow the spirit of the Comprehensive Plan.

The 2016 COBI Comprehensive Plan, Utilities Element, included:

Policy U 11.5 - "Adopt standards that differentiate between urban and non-urban density fire flow requirements. A differential policy is needed to promote cost effective water system upgrades by the many small water systems on the island. "

However, it has long been recognized that non-urban areas do not have the same infrastructure as do urban, developed portions of Bainbridge Island. In addition, the goals of the comprehensive plan include retaining the non-urban character of large portions of Bainbridge Island.

The COBI Fire Code section 20.04.110 (Amendments to Appendix B) states as follows:

Section B105.1 "One – and two – family dwellings. The minimum fire-flow requirements for one – and two family dwellings having a fire flow calculation which does not exceed 3,600 square feet shall be 1,000 gallons per minute.

In addition, the section of the Fire Code referenced as Appendix B calls for storage capacity to provide the required flow rate for 60 minutes. In addition to the 60,000

required for fire flow, the Washington Dept. of Drinking water requires storage for peak demand day plus storage to maintain a minimum pressure during these events.

The Fire Code does recognize that many areas on the Island do not provide fire flow as required and allows exceptions for constructing in areas that do not meet the code. In addition to various credits for sprinklers and construction, the exceptions recognize zoning as a criteria.

DISCUSSION / IMPACT ON WATER SYSTEMS DUE TO FIRE FLOW REQUIREMENTS

However, there are no allowances for water systems to meet a differential standard based on size or capacity. As many of these aged systems attempt to deal with infrastructure replacement, upgrades or consolidations, the current fire code acts as a substantial economic impediment to achieving these goals.

Staff research on the evolution of the COBI City Fire Code, indicates that it was originally structured to address development in the denser areas of the Island, in particular, the town of Winslow.

As COBI has evolved, we now perceive a discrepancy between the existing Fire Code requirements for fire flow, and the reasonable requirements for non-urban portions of the Island. Application of the existing fire flow requirements to the legacy small water systems will require enormous costs for larger water mains, pumps and storage facilities. As such, the current code becomes an obstacle to upgrading the drinking water supply and achieving the goals of the comprehensive plan.

Other jurisdictions have recognized this discrepancy, notably **Kitsap County**, whose fire code amends the IFC code to reduce required fire flow as follows: “The minimum fire-flow requirements for one- and two – family dwellings in subdivisions shall be 500 gallons per minute for thirty (30) minutes.”

Kitsap County Fire Marshall David Lynam’s expectation of firefighting capacity in rural areas is different than the urban core. The primary goal in rural structural fires is containment and prevention of a conflagration. The building should be vacated by the time fire equipment arrives and most home fires are considered a total loss by insurance underwriters.

While most jurisdictions, including COBI, focus on code requirements for construction in areas without robust water systems, the sampling of codes from other jurisdictions demonstrates that each recognizes the issue and attempts to address it in their own way. Note (in the attachments below) the surrounding counties’ similar code sections using 500 gpm flow, for 30 minutes.

Fire Marshall Luke Carpenter estimates that 40% of the homes on Bainbridge Island do not have access to fire flow. Continuing with the current standards does not appear to be making progress toward achieving a reasonable but comprehensive coverage for the Island.

RECOMMENDATIONS

Based on the research conducted by the UAC on this issue we make the following recommendations to Council:

1. A reduced standard for fire flow be developed based on zoning and water system size be considered. The larger the system the more economical it is to meet a higher standard, while the cost to smaller systems can be prohibitive resulting no improved fire flow and deferred water quality projects.
2. Alternatives to achieving upgrades or providing alternative sources be examined.
 - a. Zone of Protection Assessment: Systems desiring to upgrade/replace infrastructure receive credit for providing fire flow to neighboring homes without any fire suppression system. A home within a given distance of a system that is upgrading to new standards or installing hydrants would be able to receive assessments from homes not on the system but benefiting from the availability of fire flow.
 - b. Tanker funding: Recognizing that 40% of the homes have no fire suppression, an Island based approach to firefighting might include additional tanker capacity, standpipes at storage and other upgrades to bring water to a fire. Currently the fire district has 3 tankers which can support 16 minutes of fire flow (@ 500 gpm) before they need to refill or receive mutual aid. A water system might be able to afford to upgrade to a lesser standard and pay into a tanker fund as opposed to meeting the current code. In addition, well construction and home construction in areas not served by fire suppression could be assessed to contribute to the fund. While BIFD Fire Marshall Carpenter considers this an interesting concept, he is concerned manpower to operate the tankers would be an issue. However, training public works employees who already drive large equipment such as the evacuator truck and dump trucks could be trained as drivers and respond to fire calls.
3. Recognize that the current code is an impediment to upgrading existing water systems. Create a committee including COBI engineers, the district fire department, and stakeholders from some of the larger private Group A system on the island to review these recommendations and explore other alternatives to improving firefighting without imposing economic hardship on small water systems.

4. Consider the development of fire hazard zone maps for Bainbridge Island, as used by California to tie building codes, including utilities, particularly water systems, to fire risk.

Thank you for consideration of this issue.

ATTACHMENTS

Additional Comprehensive Plan Policies -

Policy U 11.6 - "Encourage and support water utilities to enter into cooperative activities, such as jointly managed operations, shared storage, and construction of interties, to manage water resources and systems more efficiently, economically, and safely."

And,

Policy U 11.7 - "Encourage and facilitate consolidation of water systems, with particular emphasis on mergers of contiguous and small systems, to manage water resources and systems more efficiently, economically, and safely."

Kitsap County B105.1 One – and two- family dwellings. The minimum fire-flow requirements for one- and two – family dwellings in subdivisions shall be 500 gallons per minute for thirty (30) minutes.

Mason County Interim Fire Flow Standards for Group A Public Water Systems, Existing Residential Development -

- Fire suppression storage shall be based on a minimum of 500 gallons per minute (gpm) flow for 30 minutes duration, which equates to 15,000 gallons for fire protection, and is also consistent with stipulations in the State Water System Coordination Act. The minimum dedicated fire suppression storage volume at any time shall not be less than 15,000 gallons. This minimum would be in addition to other storage volumes required for public water systems under the state drinking water rules and design requirements.

- If water is provided from other sources for fire control purposes, the gallon requirements for fire storage requirement may be reduced by 25%.

King County recognizes a differential requirement based on the following:

17.08.030 Exemptions.

A. The following permits and approvals are exempt from the water flow and fire hydrant requirements of this chapter. These exemptions do not exempt any development from compliance with the requirements of state law.

1. Subdivisions and short subdivisions located outside an Urban Growth Area designated by the King County comprehensive Plan and that do not contain a lot less than thirty-five thousand square feet in size.

4. Building permits for structures that:

a. do not exceed two-thousand-five hundred square feet in floor area (excluding garage);

b. are served by a Group B water system; and

c. are located outside an Urban Growth Area.

5. Building permits for structures that exceed the two-thousand-five hundred square feet limit provided for in subsection A.4.a. of this section, but comply with subsection A.4.b. and c. of this section, shall be exempt from this chapter if the fire marshal determines that the project will not create a substantial fire hazard.

B. The fire marshal shall have the authority to impose conditions including, but not limited to, increased setbacks, use of fire retardant materials or sprinkler system requirements on permits exempt under subsection A. of this section where necessary to mitigate identified fire hazards.

Thurston County exempts private water systems from meeting the code as follows:

Thurston County 14.32.110 - Section 507 amended—Fire protection water supplies.

International Fire Code sections 507.1, 507.2, 507.3 and 507.5.1 are amended, and section 507.6 is added to read as follows:

507.1 Required water supply. An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings, or portions of buildings are hereafter constructed, or are converted from a single/two family dwelling or townhome to a non-residential use, or are substantially improved or moved into or within the jurisdiction.

Exceptions:

1. Group U Occupancies.

2. Private residences, townhouses and their accessory structures not served by a municipal water supply. However, if a municipal water system supplies hydrants for group R-3 and U occupancies, the hydrants shall comply with Appendix C as amended by Thurston County.

Group A and B water systems are not considered municipal water supplies)

And, for evolving thinking from the basic code writers:

The **Fire Protection Research Foundation**, part of the NFPA, produced a study, dated January, 2014, titled, "Evaluation of Fire Flow Methodologies", that used 25 actual fire incidents as reported by 25 community fire departments with water flow data for fire suppression activities, and compared this data to 4 various fire flow calculation methodologies. One conclusion was:

"The residential fire flow field data, while limited in number, was valuable in assessing the current predictive methods. Four of the existing fire flow calculation methods (ISO, NFPA 1, NFPA 1142, NFA On-Scene) were compared to the field data. The fire flow methodologies were rarely less than the actual fire flows used. This suggests that, **for residential occupancies, the fire flow calculations methodologies are conservative.** A greater data set is necessary to completely validate assertion. "

UAC Review of Applicable Codes For determining Water System Improvements

	Right-of-Way	BIMC Title 13 – Public Service	BIMC Title 20 – Fire Flow	WAC	NFPA 1142
Pipe Size	10-15 A(1) 8" minimum	13.10.070 A. 8" main-6" loop C. 6' min for any fire line in COBI			
Pipe type	10-15A(1) Class 52 Ductile Iron	13.08.030B Extensions to City => 4" ductile iron class 50			
Fire Flow			20.04.110 App B 105.1 <3,600 sq ft 1,000 gpm for 1 hr. >3,600 sq. ft. 1,500 gpm for 2 hr.	246-293-640 500 gpm 30 minutes	
Fire Hydrant Service	10-15A(10)-service line 6" min <50' 10-15A(11) 8" water main	13.10.010B Service Line <50 =6" >50=8"			
Fire Hydrant Spacing	10-15(12) 600 feet for residential (minimum?)	BIMC 13.10.060 C.1. 300 feet C.3. 600 feet (?)		246-640-650 900 feet	
Fire Hydrant Type	Clow-Medalian, M&H 929, Mueller				
Additional Expense		13.08.030B Extension to City add 25% to cost			