



DISTRICT OF OAK BAY

December 10, 2012

EVENT REPORT

TO: Mayor and Council
FROM: Mark A. Brennan
Chief Administrative Officer

WATER MAIN BREAK, 2200 BLOCK BOWKER AVENUE, November 20, 2012

SUMMARY OF EVENTS, November 20, 2012

On the morning of Thursday, November 20, 2012 a Public Works crew was replacing an old fire hydrant at the corner of Bowker Avenue and Eastdowne Road. In the process of removing the old hydrant, the valve separated from the main pipe, creating a breach in the 18 inch water main. With the pressure being 80 psi, the water flowed out rapidly, heading east and flooding the 2200 block of Bowker Avenue.

The Public Works Superintendent was contacted and he immediately mobilized another seven crew members, sending two to shut off valves and the rest to the subject site. The Operations Manager directed staff on site to contain the flooding using sandbags. A Public Works leaf crew was redeployed to fill sandbags. At around 10:45 am, the Operations Manager decided to change tactics from sandbagging individual properties to containing the water and directing it to manholes. He mobilized more Public Works staff plus 7 Parks staff to fill and transport sandbags. Sometime between noon and 1:00 pm, the flow was under control (i.e. there was no more flooding), although the water continued to flow. Public Works and Parks staff set about pumping out flooded basements with gas and electric pumps.

In the meantime, the Public Works Superintendent, realizing the most critical matter was to stop the water flow, focused his efforts on identifying the valves that would shut off the water. The valves in that vicinity are old (installed in the 1960's), so it takes time to close them as they must be worked back and forth to ensure that there is a seal. However, within 40 minutes 4 valves in the surrounding area were turned, which should have stopped the water supply to the subject location. Unfortunately, the water supply was not stopped so the workers had to proceed further and further out from subject area in order to shut down valves. This continued to no avail until finally the water supply was stopped at 3:10 pm when the valves were shut at Hampshire Road & Oak Bay Avenue and Monterey Avenue & Theatre Lane.

At this point, the water on Bowker had been flowing for 6 hours. The yards and homes of 16 residences were flooded. There was varying degrees of impact – most properties had minor damage, but a few had serious damage to their basements, which included the unfortunate loss of personal items, work tools, clothing and furnishings.

A 911 call from a resident was received by the Fire Department at 11:24 am. They responded immediately with 5 members, although another 5 members were called in shortly after. They proceeded to assist at the incident site. Evacuation of the homes was commenced and BC Hydro and Fortis were notified and responded appropriately.

The Deputy Fire Chief opened the Emergency Operating Centre (EOC), initially at the Fire Hall and then at the Municipal Hall. As EOC Director the Deputy Chief coordinated the activities of the municipality's emergency response. A reception centre was set up at the Recreation Centre and staffed by Emergency Support Services (ESS). Residents affected by the flooding were directed to the reception centre where their contact information was registered and they were provided temporary shelter and refreshments. Affected residents were also advised to initiate insurance claims.

Numerous agencies were contacted, including utility companies, CRD Water, Ministry of Environment, Emergency Management BC and Oak Bay Police. The Fire Department provided emergency generators, lighting and sump pumps to assist with flooded basements.

Once the EOC was established the Municipal Clerk was appointed as the Information Officer. Front counter staff were advised of the information that was available at the time and were kept updated throughout the day. The new municipal website (only in its second day of operation) crashed, so there was a delay until IT repaired the site. From 1:30 pm onwards there were regular updates on the website. Facebook and Twitter messages were also sent out. The Mayor, EOC Director and Information Officer spoke with various media throughout the day.

By 8:30 pm the water main had been repaired and the water supply restored. Ten residents were unable to return to their homes that night. Three families were put up in hotels for the night. In all, 16 residences were flooded to some degree or another. Three homes remained without power for the night.

With all affected residents accounted for, the EOC was shut down at 9:25 pm.

POST EVENT

On November 21, 2012 municipal staff was involved in the following:

- Removing sandbags
- Cleaning up and sweeping the street
- Completing hydrant and valve work
- Directing affected residents to the Fire Department for information on next steps for claims and concerns.

Most residents had returned to their homes by the next day. By the end of the week, everyone had returned to their homes, with the exception of one family that occupied a basement.

In the days following the event the street was cleaned up by removing sandbags, removing some fill, and sweeping the street. Parks staff went to each residence to assist with yard/garden restoration.

The Emergency Program Manager contacted every affected resident to follow up and provide assistance. This assistance ranged from directing a resident to the nearest laundromat to providing advice on making insurance claims.

Police continued to monitor the area every evening until all properties were re-occupied.

LEFT TURN/RIGHT TURN VALVES

In past years, some valves were "right turn" and some were "left turn". In more recent years, all new valves are "right turn" only. Prior to the flooding incident, Public Works staff were aware of only 3 or 4 "left turn" valves in the entire Oak Bay system (out of approximately 1600 valves). Therefore, when attempting to shut off the water on November 20th, the issue of "left turn" valves was not contemplated.

The first four valves were turned within 45 minutes, and this should have shut off the water supply. However, one of the valves was in fact a “left turn” valve (not indicated on any cards or maps) and was initially in the closed position. In attempting to close this valve, Public Works staff unknowingly *opened* it. As staff moved further out in their attempt to shut off the water supply, this scenario actually occurred again at another intersection. It is this complication that resulted in the delay in finally shutting off the water.

EVENT REVIEW – RECOMMENDATIONS

Based on the information provided by the Deputy Fire Chief, once the Fire Department was contacted the municipality’s emergency response was, for the most part, good. However, the event did serve to highlight some shortcomings in process, policy and information management. The following is a synopsis of those concerns with their associated corrective actions as determined by municipal staff.

Issue 1: Cause of Break

The hydrant being replaced was on an asbestos concrete pipe containing a “push-on” water valve. Although not used anymore, “push-on” valves were common in the 1960’s. These types of valves are not affixed to the main and need to be held in place. The crew was following a well-established procedure for replacing a hydrant on a live line (i.e. with the water supply turned on). A trench is dug and bracing is installed in order to hold the valve in place while the hydrant is being replaced. In this instance, the bracing gave way causing the valve to slide off the main.

Although it has been a long-established procedure in Oak Bay, it has been discovered that this is not the norm in several other municipalities.

Corrective Action:

Future hydrant changes will require a shut down of the water supply on both sides of the valve prior to replacement.

Issue 2: Left turn Valves

As previously mentioned, it took a long period of time to shut off the water in this incident because of complications caused by unknown “left turn” valves.

Corrective Action:

a) There will be a major effort to 'fast-track' the overall integrity and accuracy of our corporate Geographic Information System (GIS)-water network. This will involve ensuring that all components of the water system are a known entity in terms of their:

i) Function [e.g. valve, hydrant, pressure reducing valve, pump station etc.]

ii) Location [accurate locations are essential particularly if ground is covered with snow - geo-referencing these components (so they can be located with GPS) will be investigated.]

b) All Public Works field staff will be provided with a portable data device (probably an iPad or similar) that will enable them to compare that what they witness in the field with the information on the corporate GIS-water network. In the event that variations are noted a work-order will be issued for further checking by Public Works water staff who will ensure the GIS-water data matches exactly with the field installs.

c) Public Works water staff will positively proof each valve in the system in terms of direction on/off and this data will be upgraded in the GIS-water network. All other components in the system will be checked for overall condition and functionality.

Issue 3: Timing of Arrival of Fire Department

The breach in the water main occurred at 9:05 am, but the Fire Department was not contacted until a resident made a 911 call at 11:24 am. In situations where there is a water main break causing flooding it is not common practice to contact emergency services as the Public Works department is normally able to deal with the situation. However, in this instance a coordinated effort between departments and outside agencies was required. Furthermore, affected residents were left without information or direction. Public Works staff was unable to assist in this regard as they were fully occupied with the water flow itself. The Superintendent's natural focus was to shut down the water, having determined that this was the top priority.

Although it may not have been immediately apparent, by about 10:00 am it should have been obvious that the water flow was out of control and creating a property damage and potential safety issue. The Fire Department should have been contacted by this time. However, the flooding of properties had already occurred well before 10:00 am. An earlier arrival of the Fire Department would not have prevented property damage but firefighters could have provided earlier assistance to affected residents.

Corrective Action:

The Fire Department is to be notified to assist with water main breaks and flooding as soon as it is apparent that property damage has or is likely to occur and/or if there are personal or public safety issues.

Issue 4: Communications

Communications were problematic throughout the event. Examples include: affected residents left uninformed, conflicting information reaching the media, media being uncertain as to which individual should be approached for information. In some instances staff members were unfamiliar with the section of the Emergency Preparedness Manual dealing with communications, and in other instances it was clear that amendments need be made to the manual.

Corrective Action:

That the Emergency Preparedness Manual section dealing with communications be reviewed in light of this recent event and amendments made where required. All staff must be made aware of the communications issues covered by the Manual.

Issue 5: Police Attendance at Incident

The Oak Bay Police Department was requested to attend the scene at 1:45 pm. It is recognized that the presence of the Police is valuable at an emergency scene as they can deal with crowd control, protect residents, and address disruptions such as violence or looting.

Corrective Action:

Police Department is to be notified immediately in order to attend the scene.

Issue 6: Follow Up

In the days following the incident some residents felt "abandoned", especially those that were severely affected by the flooding. Although affected residents were personally contacted by the Deputy Chief, Public Works and Parks staff, the Mayor and Council members, it was felt that there should be a "point person", i.e. a person that keeps in contact with affected residents during and after the incident to provide information, direction and assistance as required. On Monday, November 26th, the Deputy Chief appointed the Emergency Program Manager as this "point person", at which time she contacted all affected residents and followed up on their concerns.

Corrective Action:

In all emergency incidents the Emergency Program Manager is to be the contact “point person” for all affected residents from the moment that the incident occurs.

At the reception centre and in subsequent communications affected residents were advised to contact their insurers as soon as possible. As far as can be determined, all affected residents did this and their insurers responded. However, questions remained as to how much responsibility remained with the municipality, especially for matters not covered by insurance. It is recognized that respective responsibilities will vary depending on the circumstances surrounding an incident.

In the days following the incident, municipal staff provided assistance to residents in cleaning up affected private properties. However, there were still some who felt that the municipality should have done more in assisting affected residents.

Corrective Action:

Material will be created that clearly sets out the respective responsibilities of the municipality, private property owners, other affected residents, and insurers in the event of private property damage due to an emergency incident, which will depend on the circumstances surrounding the particular event.

CONCLUSION

By March 31, 2013, the Chief Administrative Officer will provide a report to Council, giving an update of the status of the Corrective Action items listed in this report.