

**BOROUGH OF ROOSEVELT
COUNCIL SPECIAL MEETING AGENDA
AUGUST 13, 2018 @ 3:00 P.M.**

TIME IN: _____

Adequate notice of this meeting, as required by Chapter 231, P.L. 1975, has been provided by a public notice on January 2, 2018 which was posted on the Bulletin Board at the Roosevelt Post Office, on the Bulletin Board in the Roosevelt Post Office and in the Borough Hall. The notice was mailed to The Times and Asbury Park Press.

ROLL CALL:

- Councilmember Steven Bowen
- Councilmember Michael Hamilton
- Councilmember Cody Parker
- Councilmember Maureen Parrott
- Councilmember Deirdre Sheean
- Councilmember Joseph Trammell
- Mayor Peggy Malkin

PUBLIC COMMENT (Agenda items only)

The purpose of this meeting is to discuss:

1. Letter received from Borough Engineer, Carmela Roberts, dated August 3, 2018 regarding water main improvements.

No formal action will be taken at this meeting

ADJOURNMENT

TIME OUT: _____



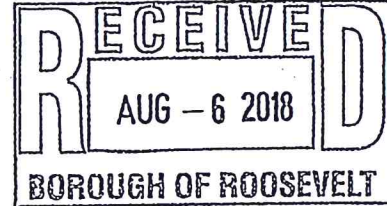
Roberts

ENGINEERING GROUP LLC
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August 3, 2018

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Mayor and Council
Borough of Roosevelt
P.O. Box 128
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Roosevelt, New Jersey 08555



Re: Water Main Improvements
Roosevelt Borough, Monmouth County, New Jersey
Our File No.: R4653

Dear Mayor and Council:

As a follow up to the recent Council meeting where a bond ordinance for the water main replacements on Homestead Lane, Elm Court and Cedar Court was discussed, I have spent some time researching the benefits and consequences of cleaning and relining the interior of the existing cast iron pipes rather than replacing the pipelines. If you recall, part of the discussion at the Council meeting was that it would cost approximately \$3 million to clean and reline all the water mains in the Borough. The Borough currently has about 26,000 LF of water main. This procedure would clear the iron buildup in the pipelines, then coat the interior to prevent rusting, replace all service lines and put the pipes back into service. This work could be done all at once or over the course of several years.

The other discussion at the Council meeting was related to the bond ordinance in which the Borough is preparing to replace approximately 10% of its water system with replacement of the pipes on Homestead Lane, Elm Court and Cedar Court. Also recall that the replacement on Elm Court and Cedar Court will upgrade the water mains from 1 1/2-inch diameter to 6-inch diameter. The cost of the replacement of those water mains is estimated to be \$573,000.00. These water mains could be replaced with newer ductile iron pipe or a high-density polyethylene pipe, which is unlikely to ever break.

Although the costs may appear to indicate that cleaning and relining is a better way for the Borough to proceed, in order to help provide the best information to the Borough, I reached out to the civil engineering community around the County and the Ductile Iron Pipe Research Association. Roosevelt is just one of many locations which has been faced with the question of replacement or relining cast iron water mains. Professional Engineers from around the country all indicate that the decision to clean and reline or replace the pipes is situational. In general, the decision to replace or reline is based on these factors:

1. The history of water main breaks.
2. The condition of the pipe relative to corrosion and the location of the pipes.
3. The age of the water mains.

As all this relates to the Borough, I researched the type of soils within the Borough and in the areas of the water mains. Attached to this letter, please find a drawing which shows that all the soils within the Borough are moderately or highly corrosive. This would account for the pitting that has been found in the pipes and the subsequent pipe failures. The Borough's water mains are also approaching the expected useful life, which is approximately 100 years. If cast iron water mains are in a location which do not have acidic soils or unstable foundation soils, the pipeline can clearly last more than 100 years. However, this does not appear to be the case in the Borough. I have also been able to obtain some records on pipe failures within the Borough and there appears to be a relatively steady trend of 2 to 3 water main breaks every 2 to 3 years. There have been repeated breaks across from Borough Hall, crossing the Empty Box Brook on North Rochdale Avenue and crossing the Empty Box Brook on Tamara Drive.

The major problem found in Roosevelt is the corrosive soils. The corrosive effects of the soil cause the pipes to experience pitting along with the formation of holes which decrease the pipe strength and lead to breakages

and failures. The central issue is that Roosevelt's Water Mains are made from cast iron, which does not resist the effects of corrosive soil.

Cast iron pipes are susceptible to the corrosive environment in wetland and bog areas. The Borough is located exactly within this type of area and in addition to the breaks related to corrosion, the cast iron pipes are also susceptible to breaks at the Empty Box Brook because of the instability of the soils in the wetland areas.

The Borough has two (2) options to correct its water mains. The first option is cleaning and relining. The second option is replacement. Should the Borough choose to clean and reline its water mains, the benefit is that good water quality would be provided to all the residents very quickly. A project of this scope would also include replacement of all the water services and hydrants, as well as replacement of the pipe under the Empty Box Brook on Rochdale Avenue and Tamara Drive. I would also recommend the replacement of the pipe in front of the Borough Hall as this is a location that has failed more than once. The cost to clean and reline all water mains plus replace certain sections and all the service lines is approximately \$3.5 to \$4 million. This improvement, however, will not correct the underlying problem of pipe corrosion and the Borough can expect to continue to repair breaks over the years as the pipe continues to deteriorate from the outside of the pipe.

The Borough can also consider replacing all water mains. The cost of the replacement of all water mains is in the vicinity of \$10 million. If the Borough undertakes a program to replace 10% of its water mains every three (3) years, it will take thirty years until the entirety of the Borough has good clear water in their homes. Additionally, during the time that water mains are being replaced, the existing cast iron pipes will continue to fail as the pipe corrodes. I recommend that the water mains be replaced with a high density polyethylene pipe to prevent breaks.

To summarize, the Borough can clean all of its pipelines, replace all services and hydrants, and replace water mains in three areas that consistently break, and quickly provide good clean water to all of its residents for \$3.5 to \$4 million; or the Borough can take a long-term approach, which will cost approximately \$8 to \$10 million in today's dollars to replace the system over a period of approximately thirty years. In both cases the Borough will have ongoing costs related to water main breaks and repairs. In the case of the cleaning, water quality will be immediately improved. In the case of the water main replacement, it will be very difficult for the Borough as a whole to experience the benefit of the replacement, because if pipelines are replaced in coordination with grants from the NJDOT (over 30± years), then the location of the pipe replacements will ultimately be spread throughout the Borough. This will not allow for the full benefit to be evident until many years in the future.

Should you wish to discuss this further, please feel free to contact me.

Very truly yours.



Carmela Roberts, P.E., C.M.E.
Borough Engineer

cc: Kathleen Hart, RMC, CMR, Borough Clerk
Ana Debevec, Borough Treasure
George Lang, Borough CFO
Jerry Stankowitz, Borough Auditor
Greg Cannon, Esq., Borough Attorney
Cameron Corini, P.E., Roberts Engineering Group, LLC

Corrosion of Steel—Monmouth County, New Jersey
(Roosevelt Baro Steel Corrosion Soils)

R 4653



Map Scale: 1:16,100 if printed on B portra (11" x 17") sheet.
 0 200 400 600 800 1000 Feet
 0 200 400 600 800 1000 Meters
 Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)	Background
Area of Interest (AOI)	Aerial Photography
Soils	
Soil Rating Polygons	
High	
Moderate	
Low	
Not rated or not available	
Soil Rating Lines	
High	
Moderate	
Low	
Not rated or not available	
Soil Rating Points	
High	
Moderate	
Low	
Not rated or not available	
Water Features	
Streams and Canals	
Transportation	
Rails	
Interstate Highways	
US Routes	
Major Roads	
Local Roads	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Monmouth County, New Jersey
Survey Area Date: Version 11, Oct 6, 2017.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2011—May 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.