

*Email sent with the copy of the application that was sent to village residents,
April 6, 2018*

The attached application was hand carried in hard copy to Scott Fincham of the County's Water and Wastewater Program last week in time for the Program's 2018 deadline.

After much discussion with property owners, and observing where the majority of signers were located, we defined within the application, a cluster or "community" of structures — for the most part in the oldest sections of the village: Main, Church, Patrick, Fairfax and lower Second streets and Butchers Row. This community is made up of 66 properties; of which a majority (65%) of its owners (43 out of 66) signed the application. It is this community that would receive the Program's support.

We should hear within 3 months whether the application has been accepted. If the application is not accepted this time around, Scott will work with us on how to improve its acceptability.

As Scott points out, the application serves as a simple one off communication tool for the County to find out just what communities require assistance in the areas of water sustainability. If the application is accepted, the County will offer technical advice and studies to better understand our complex water issues. Solutions in the way of services may also be offered, and may or may not be accepted by the community. This process is estimated to take at least four years.

Many thanks to everyone (signers and non-signers) who participated in this first phase of a very long process that hopefully will help make Waterford a better place in which to live.

Sincerely,

Wendy Roseberry
Sharyn Franck

Department of General Services
Office of the Secretary
300 North Main Street
Falls Church, VA 22046
Tel: 703/243-7777

RECEIVED
MAR 30 2018
BY: SP

March 30, 2018

Subject: 2018 Loudoun County Water Program Application Cover Letter

Dear Mr. Fincham:

Please find attached Waterford's Application for Consideration of Community Water Solutions.

Waterford is a National Historic Landmark (1970) with more structures listed with the National Trust for Historic Preservation and the Virginia Department of Historic Resources than any other community in Virginia. It is also a Loudoun County Historic District. It is designated a Preserve America Community.

"America's story is told in many voices. The shady streets and modest buildings of Waterford speak eloquently of the simple lives of the men and women who settled in this quiet corner of Loudoun County and helped build the nation—and of the determination of preservationists who have worked so hard to keep this fragile piece of our heritage intact and alive." —**Richard Moe, former President, National Trust for Historic Preservation**

The Process: As you know, we began this initiative when you so kindly presented the Program to us at a village wide meeting in the Spring 2017. Since that time various village members have researched further the Program's scope, asked you numerous questions and met again with you and Mr. Cumbie for our second village wide meeting February 21, 2018. The villagers were to meet again on March 19 for their last village wide meeting with Joe Lock from the Health Department. Unfortunately, that meeting was cancelled due to his unavailability.

Throughout this process, villagers have signed the petition portion of the application. Once we received more than 30 signatures, the signatories met on March 1 and Wendy Roseberry and I volunteered as Waterford Community Water Coordinators. The petition now has 50 signatories from property owners in Waterford. Seven of these, however, lie outside the cluster we have defined in this application.

Our Problem: Waterford faces challenges in ensuring sustainable water supply for homes and structures in the village. A 2006 GeoTrans study report showed "an unusually high proportion of wells in the village have low or very low well yields in comparison to other areas in Western Loudoun County." Hydraulic head data and contours provided in the study showed relatively flat hydraulic gradients and groundwater flow to the west and southwest (general direction of

Mr. Scott Fincham, March 30, 2018 – page 2

the South Fork of the Cactoctin Creek) in the area east of High Street, and large drawdown in the immediate vicinity of the residential sections of Waterford. Observed water levels in many wells in Waterford are more than 100 feet below the elevation of surface water in Catoctin Creek. This may reflect the density of pumping wells, low transmissivity, and a low rate of recharge in the village. This 2006 GeoTrans Study inferred current use of the Waterford community to be around 10 gallons a minute depending on the method used to calculate groundwater use by residents and the elementary school.¹

Among those who have signed this application, most all have quality or quantity issues (a rating of #2) with their water. Based on confidential discussions, we estimate at least 10 properties have severe water quantity limitations in the summer months. (In 2009, several wells in the village are documented to have gone dry.)² One home's shallow well went dry in December 2017, the owners drilled 700' and they still have inadequate quantities of water. Some of the Waterford Foundation properties used for community events have no water at all, which limits enjoyment and potential for generating income to cover preservation needs.

Our Communities of Interest We have included a map of the Village of Waterford and the surrounding property boundaries and showing the boundaries of the various sections of the village and the various sections including those owned and preserved by the Waterford Foundation and the various sections of the village. These are listed primarily in the list below of the village along with the names of the various sections and the names of the various sections of the village. The Waterford Foundation has also signed the application and is very supportive of the efforts. The Waterford Foundation has also signed the application and is very supportive of the efforts. The Waterford Foundation has also signed the application and is very supportive of the efforts. The Waterford Foundation has also signed the application and is very supportive of the efforts.

We look forward to hearing further from you and your review committee and are available for questions.

Sincerely,

Sharyn H. Franck

Sharyn H. Franck

President, Waterford Foundation

Waterford Foundation, 1000 Waterford Road, Waterford, VT 05083

Phone: 802-255-1234

¹ Psaris, Patti et al. Chair, Ad Hoc Water Supply Committee of the Waterford Foundation Inc. Nov. 2011. Community Water Supply for Waterford: What Would it Take?

² Psaris, Patti et al. Chair, Ad Hoc Water Supply Committee of the Waterford Foundation Inc. Oct. 2011. Status of the Water Supply on Waterford Foundation Properties

BASIC INFORMATION

1. Community Name*: Waterford, Virginia
2. Street/Road Location*: Main St. to Second St. and Patrick St.; + Bond, Church, Butchers Row, Fairfax
3. Community Description*: 66 properties, including 2 churches, and 5 historic public buildings

COMMUNITY APPLICATION COORDINATOR CONTACT INFORMATION

4. Primary Coordinator Name (First and Last): Wendy Roseberry

Address*: 1884 Second St.

Phone*: 540-882-0734

E-mail: wroseberry44@gmail.com

Fax:

Backup Coordinator Name (First and Last): Stacy Farooq

Address: 1884 Second St.

Phone: 703-295-6582

E-mail: stacyfarooq@gmail.com

Fax:

Optional Third Coordinator Name (First and Last):

Address:

Phone:

E-mail:

Fax:

ADDITIONAL INFORMATION

5. Service Requested*: Water ☒ Wastewater ☐ (Please check one or both)

6. Residential Population of Community*: Approximately 120

7. Number of Homes in the Community*: 59

8. Number of Other Eligible Structures in Use*: 7

9. Civic Association or Home Owners' Association Name, If Applicable:

Waterford Citizens Association

Civic Association or HOA Contact Name (First and Last): Christy Hertel, president

Address: 40189 Patrick St.

Phone: 540-882-3283

Fax:

E-mail: christy.hertel@aol.com

10. Narrative description of the water or wastewater issue in the community. Use additional paper if needed.):

It has long been known among residents that the name "Waterford" is a misnomer. On May 4, 2017, when Coordinator Wendy Roseberry asked Dave Ward, County Water Resources Engineer, how sustainable Waterford's water situation is, he said that we are completely dependent for water on a non-sustainable fracture rock that can serve only a limited population. He is concerned that the new subdivisions around Waterford will be drawing down on water resources in the area. He believes one of these days, we all will experience a prolonged drought and our wells will go dry and folks then will be wondering why we didn't do anything earlier to prevent this situation.

Paul Rose, a 40+ year resident of Waterford wrote in an open letter to the community, dated February 19, 2018: "Yes, we are breaking the 'cone of silence' about low yield wells. No one wants to admit to a bad well for fear it would affect property value. If will. It is required that you or your heirs must disclose this when selling ... some residents believe their wells are good and will last forever, [but] we as a community should not pass up an opportunity to take advantage of any long-term solution."

During the two all-community meetings (May 11, 2017 with Supervisor Geary Higgins, and February 21, 2018 with Scott Fincham and Dennis Cumbie) -- residents in attendance were interested in how the County Water and Wastewater Program might provide low-cost appropriate solutions for any residence or structure in the historic district for which water is supplied in a precarious way. Only 5 of the 43 signatories to this application, rated their well as #1.

In the following section, please provide a numeric value for each of the questions.

11. Number of homes and other eligible structures in the community with drinking water service*: 62

Please indicate how many of those homes and other eligible structures are in the three categories shown below:

Individual Wells*: 62	Community Water System*: 0	Other*: 0
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12. Number of homes without any source of water on the property*: 4

13. Number of homes without running water inside the home:

14. Number of homes and other eligible structures in the community with wastewater service (total)*: N/A

Please indicate how many of those homes and other eligible structures are in the five categories shown below:

Individual Septic Tanks*:	Community Wastewater System*:	Pump-and-Haul*:
Permitted Discharging Systems*:	Other*:	

15. Number of homes without working indoor toilets / currently using privies or outhouses*: 4 - NO OUTHOUSES

16. Number of owners of occupied homes and other eligible structures who have signed this application below*: 43

17. Percentage of owners of occupied homes and other eligible structures who have signed this application below*: 65%



Waterford 2 -

#	Street Suffix	Parcel ID #	Owner	Signature	Date Signed	Acres Use	WaterSource	WaterAge	WasteService	SewerAge
1	40105 Main St	303360508	Waterford Foundation Inc	<i>Stephen Thompson</i>	3/23/18	0.87 Mill	2	36	5	7 1/10
2	40125 Main St	303361401	Katherine Lister			0.1 Residential		30		40
3	40129 Main St	303261597	Bowman & Abigail Cutter	<i>Cutter</i>	3/13/18	0.05 Residential	2	30	5	40
4	40135 Main St	303261991	Joseph & Joellen Keating	<i>Keating</i>	3/22/17	0.13 Residential	4	21	5	40
5	40138 Main St	303264085	Cathleen Wyatt	<i>Cathleen Wyatt</i>	3/22/17	0.24 Residential	4	21	5	40
6	40139 Main St	303262286	J Daniel & M Spangler			0.27 Residential	2	17	5	40
7	40142 Main St	303264578	Karl & Katherine Riedel			0.34 Residential			5	40
8	40145 Main St	303262972	Raymond Daffner	<i>Raymond Daffner</i>	3/26/17	0.25 Residential	2	36	5	40
9	40148 Main St	303265377	Robert & Elizabeth Hale	<i>Robert Hale</i>		0.18 Residential		31		40
10	40149 Main St	303263559	David & Carolee Chamberlin			0.85 Residential		33		40
11	40152 Main St	303265872	Mark & Melissa Sutton			0.28 Residential		31		40
12	40153 Main St	303263654	Richard Sedlmayr			0.25 Residential		51		40
13	40154 Main St	303266066	R Benschoter & G Jessee	<i>R Benschoter</i>	3/30/18	0.14 Residential	2	36	5	40
14	40155 Main St	303264252	Joseph & Joellen Keating	<i>Keating</i>	3/26/17	0.23 Residential	4	36	5	40
15	40157 Main St	303264248	John Buzzard	<i>John Buzzard</i>	2/18/18	0.3 Residential	4	36	5	40
16	40158 Main St	303266750	M Houlihan & K Schaefer	<i>David Boyle</i>	4/21/18	0.21 Residential	4	39	5	40
17	40159 Main St	303264942	Eugene & Annette Schaefer	<i>Eugene Schaefer</i>	2/1/2017	0.22 Residential	1	39	5	40
18	40162 Main St	303267449	Wellington & Laurie Goddin			0.05 Residential				40
19	40167 Main St	303266241	C&P Tel Co of Va			0.02 Telephone				

3/25/17

Exempt Storage No Water

20	40170	Main	St	303267641	Eugene & Mary Couser		0.11	Residential		40
21	40171	Main	St	303266235	William & Susan McGuire	William McGuire	0.21	Residential	1	7
22	40174	Main	St	303268735	David & Susan Middle		0.41	Residential		35
23	40175	Main	St	303266933	Paul & Adene Rose		0.07	PO / Res	2	5
24	40176	Main	St	303267938	Patricia Mogannam	Patricia Mogannam	0.06	Residential	4	38
25	40180	Main	St	303268437	Timothy & Linda Ginter		0.12	Residential		22
26	40183	Main	St	303267725	Waterford Foundation Inc	Waterford Foundation Inc	0.04	Store / Off	1	40
27	40187	Main	St	303267816	Mary Sheehan		0.18	Residential		40
28	40191	Main	St	303268510	David Crowe		0.16	Residential		40
29	40192	Main	St	303268922	County of Loudoun		0.18	Public Bath		40
30	40193	Main	St	303268907	Nunzio Hayslip		0.36	Residential		40
31	40194	Main	St	303270113	Kathryn Caskie		0.3	Residential		35
32	40197	Main	St	303269001	Eugene & Annette Scheel	Eugene & Annette Scheel	0.14	Residential	2	33
33	40200	Main	St	303270810	Paul & Adene Rose		0.31	Residential	2	38
34	40203	Main	St	303169094	P Paschall & E Cox		0.36	Residential		40
35	40205	Main	St	303169590	Darin & Giselle Williams		0.26	Residential		41
36	40210	Main	St	303171998	Paul & Joanne Rastas		0.15	Residential		21
37	40215	Main	St	303170484	Steven & Barbara Soechtig	Steven & Barbara Soechtig	0.31	Residential	2	31
38	40216	Main	St	303172496	Paul & Adene Rose		0.4	Residential	2	36
39	40221	Main	St	303171175	40221 Main LLC		0.26	Residential	2	31

96	40273	Fairfax	St	303172620	Robert & Marsha Thompson		3.34	Residential																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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#	Street	Suffix	Parcel ID #	Owner	Signature	Date Signed	Acres	Use	Water Number	Water Value	Waterfront	Improvement
40	15479	Second St	303266929	Eugene & Annette Schel	Eugene H. Schel	Hand 2/21/17	0.06	Office	2	31	5	411
41	15481	Second St	303266725	JTHG Partnership	Paul E. JTHG		0.07	Office		6		411
42	15483	Second St	303266721	Peter Thomas	Peter Thomas		0.35	Residential	1	32	5	411
43	15484	Second St	303267413	Waterford Foundation Inc	Stephen C. Waterford	3/23/18	0.23	Commercial	7	53		411
44	15487	Second St	303266114	Linda Landreth			0.22	Market		53		411
45	15493	Second St	303265808	Claude & Ann Gravatt	Claude & Ann Gravatt	3/27/18	0.24	Residential	2	36	5	411
46	15496	Second St	303267504	Mary Dudley	Mary Dudley		0.28	Residential	2			411
47	15502	Second St	303167394	Waterford Foundation Inc	Stephen C. Waterford	3/23/18	0.15	Retail Store	17	37		411
48	15505	Second St	303265701	C Eaton & H Hart	C Eaton & H Hart	3/23/18	0.35	Residential		43		411
49	15511	Second St	303165688	Sarah Holway			0.58	Residential		57		411
50	15512	Second St	303168178	David & Peggy Bednarik	David & Peggy Bednarik	3/23/17	0.76	Residential	3		5	411
51	15520	Second St	303167973	P Cox & J Stup	P Cox & J Stup	3/11/18	0.42	Residential		29		411
52	15523	Second St	303165281	Kurt & Beth Erickson	Kurt & Beth Erickson		1.34	Residential	1	45		411
53	15527	Second St	303165075	Neil & Kathleen Hughes	Neil & Kathleen Hughes	3/23/17	0.28	Residential	2	26	5	411
54	15533	Second St	303165037	Sharyn Franck	Sharyn Franck	3/23/17	0.35	Residential	2	36	5	411
55	15539	Second St	303164962	Timothy & Antonia McGinn			0.25	Residential				411
56	15547	Second St	303164456	T Edmonds & S Richardson			3.95	Residential				411
57	15552	Second St	303166040	William Hunley			0.48	Residential		43		411
58	15555	Second St	303163845	Richard & Susan Rogers			0.39	Residential				411

59	15567	Second St	303163535	Richard Biby		0.41	Residential		30		40
60	15570	Second St	303165629	Lang Lloveras		0.72	Residential	2	-17		40
61	15575	Second St	303163227	Nicholas & Katherine Ratcliffe		0.25	Residential		==		40
62	15580	Second St	303165216	E Lehmann & E Crockett	Elizabeth Crockett 3/24/18 5/29/18	0.25	Residential	1	-		40
63	15584	Second St	303164811	Frank & Mary Kenesson		0.25	Residential		36		40
64	15591	Second St	303162714	Mark & Amy Denicore		0.25	Residential	2	-		40
65	15603	Second St	303161502	Henry & Carolyn Ann Wilson		0.46	Residential		-		40
66	15606	Second St	304464193	Robert & Marsha Thompson		0.62	Residential		53		40
67	15611	Second St	304462192	Waterford Foundation Inc	Stephen Thompson 3/23/18	0.25	School	7	-24	8	40
68	15612	Second St	304463983	Robert & Marsha Thompson		0.19	Residential		53		40
69	15619	Second St	304461782	Thomas & Ann Mathews		0.3	Residential	2	45	5	40
70	15620	Second St	304463175	Robert & Judy Jackson		0.28	Residential		51		40
71	15626	Second St	304462969	John & Carline Malone	John Malone	0.25	Residential		24		40
72	15634	Second St	304462564	Miriam Westervelt		0.18	Residential		38		40
73	15635	Second St	304461171	Jill Beach	Jill Beach	1.35	Residential	1	2004/32	5	40
74	15640	Second St	304462650	W Roseberry & B Whelan	Paul Roseberry 3/22/17	0.54	Residential	2	(760)	5	40

- Certified by
Rose for
submittal

OT 3/18

#	Parcel ID #	Owner	Signature	Date Signed	Acres	Use	WaterSource	WaterAge	WasteService	SewerAge
75	40108 Bond	SI	303361627 Andrew & Carole Levin	<i>Andrew Levin</i> 3/1/18	0.2	Residential	2			40
76	40125 Bond	SI	303362109 Waterford Foundation Inc	<i>Stephanie Thompson</i> 3/23/18	0.2	Church	1			40
77	40128 Bond	SI	303362527 Christopher Belland		0.51	Residential		30		40
78	40132 Bond	SI	303363727 Bowman & Abigail Cutter	<i>Cutter</i> 3/13/18	0.44	Residential	2	30	5	40
79	40150 Bond	SI	303365322 Paul & Adene Rose	<i>Paul Rose</i> 3/24/17	0.5	Residential	2			40
80	40164 Bond	SI	303365697 W Mayer & S Tiscione	<i>Mayor/Kump</i> 3/27/18	1.9	Residential		11		40
81	40170 Bond	SI	303268392 N Tiscione & K Robbins		4.53	Residential		36 / 26 / 11		40
82	15520 Butchers	Row	303178764 Linda Landreth		0.62	Residential				40
83	15525 Butchers	Row	303175784 Ruchi Parekh		0.14	Residential		29		40
84	15533 Butchers	Row	303174687 Nancy Langston	<i>Nancy Langston</i> 3/22/17	0.27	Residential	1	29	5	40
85	15545 Butchers	Row	303173090 Mary Williams	<i>Mary Williams</i> 3/24/17	0.39	Residential	2	39	1	40
86	40200 Church	SI	303169888 Francis & Carol Davis	<i>Francis Davis</i> 3/24/17	0.13	Residential	1	25		40
87	15707 Clarkes Gap Rd	Rd	304464304 Armand & Tracy Balboni		0.85	Residential				40
88	15715 Clarkes Gap Rd	Rd	304364880 Patricia Shoaf		0.21	Residential				40
89	15716 Clarkes Gap Rd	Rd	304366999 Ruth Smith		1.41	Residential		35		40
90	15653 Factory	SI	304461530 Theresa Crowley		0.64	Residential		39		40
91	15668 Factory	SI	304463641 Brian & Anne Hardy		0.5	Residential				40
92	15674 Factory	SI	304465127 Janet Jewell		0.48	Residential		36		40
93	15679 Factory	SI	304463314 Connie & Samuel Kosmann		0.98	Residential		47		40
94	40222 Fairfax	SI	303174967 Waterford Foundation Inc	<i>Stephanie Thompson</i>	4.5	Educational	2	36		40
95	40231 Fairfax	SI	303171852 Robert & Stephanie Thompson		1.55	Residential		34		40

From: Sharyn Franck <sharynfranck@gmail.com>
To: Kathleen Hughes <khughes868@aol.com>
Subject: Fwd: Fw: Fwd: Reminder - Deadline Today for Signatures for Water Study Application
Date: Thu, Mar 29, 2018 12:36 pm

Forwarding this to you. My printer has given up! Sharyn

----- Forwarded message -----

From: John Malone <johnmalone22002@yahoo.com>
Date: Tue, Mar 27, 2018 at 3:45 PM
Subject: Fw: Fwd: Reminder - Deadline Today for Signatures for Water Study Application
To: Sharyn <sharynfranck@gmail.com>

Sharyn

Please include us: 15626 Second St.

Trans
The Malones

MAHONES
OUT OF TOWN
GF

----- Forwarded Message -----

From: Caroline Malone <caroline.malone@ymail.com>
To: john malone <johnmalone22002@yahoo.com>
Sent: Tuesday, March 27, 2018 12:30:00 PM
Subject: Fwd: Reminder - Deadline Today for Signatures for Water Study Application

Sent from my iPhone

Begin forwarded message:

From: Sharyn Franck <sharynfranck@gmail.com>
Date: March 27, 2018 at 12:13:57 PM EDT
To: Sharyn Franck <sharynfranck@gmail.com>
Subject: Reminder - Deadline Today for Signatures for Water Study Application

Dear Waterford Village Property Owner,

Reminder— Today is the deadline for joining your neighbors in signing Waterford's application for Loudoun County's Water Study Program, designed to assist communities, like ours, with deficient water systems. We don't know all the answers about our water issues, or even if we will be accepted into this study — but this is our chance to find out.

There is no cost and no obligation by signing.

The property owners listed below represent 45 properties that have signed the application. There is still time for you to join your neighbors in this effort; we will be accepting signatures through this evening until 9PM. Please contact any of the coordinators if you wish to be included.

Reminder - Deadline Today for Signatures for Water Study Application

Claude J. Gravatt Jr <cjg@gravatt.com>
To: Sharyn Franck <sharynfranck@gmail.com>

Thu Mar 22 10:33:17 PM

Sharyn,

Earlier today I sent you the following but I think Google was having some technical problems.

Please add my wife Ann and me to the Ducour Water group. 1555 Second Street, P.O. Box 111 703-989-1468

Thank you.

Claude J. Gravatt Jr. (CJG)



virus-free www.avast.com

[Quoted text hidden]

GRAVATT -
OUT OF TOWN SF



Sharyn Franck <sharynfranck@gmail.com>

Reminder - Deadline Today for Signatures for Water Study Application

William W. Sellers <bill@jthg.org>

Tue, Mar 27, 2018 at 3:04 PM

To: Sharyn Franck <sharynfranck@gmail.com>

Cc: Michelle Kellogg Burrelli <michelle@jthg.org>

The Journey Through Hallowed Ground will sign on.

William W. Sellers

President and CEO

Journey Through Hallowed Ground National Heritage Area

15481 Second Street

Post Office Box 77

Waterford, Virginia 20197

O: 540.882.4929

F: 540.882.4927

C: 703.969.8478

HallowedGround.Org

The mission of the Journey Through Hallowed Ground National Heritage Area is to promote and support civic engagement through history education, economic development through heritage tourism, and the preservation of cultural landscapes in one of the nation's most important historic regions.

The Journey is a 180-mile corridor from Gettysburg, PA through Maryland and Harpers Ferry, WV to Monticello in Charlottesville, VA. The region was placed on the National Trust for Historic Preservation's list of the 11 most endangered places in the United States in 2005, was declared by Congress as a National Heritage Area in 2008, and [Route 15/20](#) was named a National Scenic Byway in 2009. The Journey includes 12 National Parks, nine presidential sites, 30 historic Main Street Communities, dozens of Civil War battlefields, and over 100 sites related to the fight for Civil Rights.

[Quoted text hidden]

Bill Sellers
FOR - JTHG
OUT OF TOUR
- SF



HAMILTON VOLUNTEER
FIRE DEPARTMENT
COMPANY 5

Loudoun County, Virginia



Dear Mrs. Roseberry:

As we discussed, the village area of Waterford, represented by the Waterford Citizens' Association, is considering applying to the county for inclusion in their Water and Wastewater Program. It is my understanding that this program is designed to evaluate the community's options for a more stable/consistent water supply. At this point in the process, the WCA is looking to be included in the evaluation portion of the program and no determination or commitment has been made on what type of system works best for the community or whether or not to proceed with any (yet to be) proposed solution.

As part of WCA's preparation of the application to the program, the question was posed to the Hamilton Volunteer Fire Department: if a more stable water supply would be a benefit to the community from a firefighting perspective. The simple answer is yes. Currently the village is served by dry hydrants and underground tanks that, by design, either do not contain water at all (dry hydrants) or do not contain water under pressure (underground tanks). While these systems certainly work, they do not provide water as quickly or as consistently as a typical wet hydrant (one with water already at the hydrant under pressure). In addition, the dry hydrants and tanks are often located in less than optimal locations (from a firefighting perspective).

We understand Waterford's significance as a historic village, and therefore understand that there are numerous factors that must be considered in determining the best system for the community, but from our limited firefighting perspective, a consistent, under pressure, wet hydrant system would be superior to the current dry hydrant and tank system.

If you have any questions or need any additional information, please do not hesitate to contact me.


EVD

2011-08-08
EVD
EVD

COMMUNITY WATER SUPPLY FOR WATERFORD:

WHAT WOULD IT TAKE?

November 2011

Discussion prepared by the Ad Hoc Water Supply Committee of the Waterford Foundation Inc.

Members:
Patti Psaris, Chair
David Bednark
David Chamberlin
Nancy Doane
Bonnie Getty
Warren Hayford
Mary Hutton
Keith Nusbaum
Stephen Soechtig
Mimi Westervelt

[illegible]

Groundwater

GeoTrans, Inc. performed a hydro geologic study in Waterford in 2006 on behalf of Loudoun County Public Schools to evaluate the sustainability of the groundwater resource to supply increased enrollment at the Waterford Elementary School and the resulting potential impacts of increased pumping on wells in the surrounding area.

Community Water Supply Paper
WFI Ad Hoc Water Supply Committee – November 2011

The hydraulic head data and contours provided in the GeoTrans report show relatively flat hydraulic gradients and groundwater flow to the west and southwest (general direction of the South Fork of the Catoclin Creek) in the area east of High Street, and large drawdown in the immediate vicinity of the residential sections of Waterford. Observed water levels in many wells in Waterford are more than 100 feet below the elevation of surface water in Catoclin Creek. This may reflect the density of pumping wells, low transmissivity, and a low rate of recharge in the Village.

Infrastructure

Waterford Village is currently served by Loudoun Water for the collection and treatment of wastewater. Loudoun Water is a state authorized body chartered to serve the unincorporated areas within the County as authorized by the Loudoun Board of Supervisors. Water and wastewater community systems for Waterford were evaluated in 1966 by Greenhorne, O'Mara, Dewberry and Nealon Consulting Civil Engineers. This study concluded that "The community of Waterford is faced with a very severe health situation which will become progressively worse unless corrective action is taken. This situation is caused by the malfunctioning of a majority of the individual sewage disposal systems which consist largely of septic tanks, and also the presence of contamination in the individual well supply systems." (Greenhorne, et. al., 1966, Letter of Transmittal) Recommendations from this feasibility study were for the implementation of public water and sewerage systems to be installed in the community. Finally in the late 1970's, a community wastewater system was put into service to address the health situation in Waterford. The Waterford wastewater treatment facility is owned and operated by Loudoun Water and currently serves 100 connections. The plant has a maximum treatment capacity of 58,000 gallons per day and serves development within the proposed Village Limit Line as defined in the County's Waterford Area Management Plan (adopted October 18, 1987). Expansion of the plant is prohibited by the County as defined in the Area Management Plan.

Loudoun Water currently owns and operates a number of community systems, water and wastewater treatment, in the County. Of the twelve communities currently served by Loudoun Water, five are considered to be subsidized systems where treatment facilities were put in place due to public health concerns expressed by the Virginia Department of Health. The operation and maintenance of these systems may not cover the actual costs. Waterford is considered a subsidized system. Loudoun County, working with Loudoun Water and the affected communities, helped to identify the corrective actions and financing opportunities for communities determined to be "in need" due to public health concerns.

TODAY'S ENVIRONMENT

The Loudoun County Board of Supervisors has stated that clean and sufficient drinking water and adequate treatment and disposal of sewage for Loudoun County residents and businesses are critical to protect the public health, the environment, and the quality of life in Loudoun County. The Board of Supervisors recognized the need for a detailed, systematic approach to solve existing and potential future water and wastewater problems in the County and in May 2006 requested that a plan be developed to address these issues. They directed the County Administrator to appoint a task force to develop a community water and wastewater infrastructure plan and report back to the Board of Supervisors for action. The County Administrator appointed a Task Force and the following departments were represented in the development of the Report:

- Health Department
- General Services
- Planning Department
- Building & Development
- Family Services
- Public Information Office
- Management and Financial Services
- Construction and Waste Management

The task force met on a part-time basis from 2007-2010 to complete a report which contains a Water and Wastewater Needs Assessment for Loudoun County. The Task Force completed its report in August 2010, following a referral comment period which asked key internal County departments and Loudoun Water to review the report. The Task Force submitted the report to the Board of Supervisors in January 2011 and developed specific recommendations in the categories of policy, planning and implementation for their consideration.

A plan of review is currently underway to articulate the path forward for the County on this issue.

The report identified 36 communities in need of water or wastewater services. Of these, nineteen communities were in the suburban policy area of the County, three in the transition policy area and 14 in the rural policy area. It is important to note that Waterford is not currently on the list of communities in the rural policy area deemed to be in need of a water infrastructure system.

The current process for developing a community water or wastewater system lacks a recognized systematic approach in Loudoun County. There exist today five rural communities which, due to public health concerns, have had community wastewater systems installed

through the collective efforts of the County and Loudoun Water. Waterford's wastewater system is one of these. In each case, the process has taken seven to ten years of planning and working with residents to move the projects forward. There are no existing community water supply systems that have been installed as a result of need or determined health threat.

The County is currently managing the replacement of the current water supply and distribution system in the Waterford area. The project has been out of compliance with State regulations for a number of years. The County has conserved the assets and the funding of the development and installation of the community water system for this area. The supply and distribution recommendations and costs are expected to be completed in 2012. The community of Waterford and a portion of Loudoun Water is managing the installation of water infrastructure community systems in the area of the County and Loudoun Water. The project is also expected to be completed in 2012. Both of these projects are currently funded in the County Water and Wastewater Needs Assessment Report.

TECHNICAL REQUIREMENTS

If there was a desire from the community to move forward in identifying the technical components of a community water system, several key studies would be required to determine:

- (1) an adequate and sustainable supply of ground water,
- (2) water demand,
- (3) the facilities required to treat, store and deliver that supply to the community
- (4) the cost of those facilities, including capital costs, operations and maintenance costs.

The 2006 study performed by GeoTrans has compiled a considerable amount of information about the geology and hydrologic profile of the Waterford area. It might be practical to commission a hydrogeologist to do a desktop or pilot study in order to determine a location with the potential to supply the community with ground water.

Water demand would also need to be assessed. The 1968 Darden study determined that the wells serve an area requiring for 1.5 million gallons per month. The 2006 study by GeoTrans indicated current use of the Waterford community to be about 1.0 million gallons per month depending on the method used to calculate groundwater use by residents and the elementary school. This is significantly lower than the community per capita number for water supply. If more conservation measures used in Loudoun Water it is possible to reduce the 1.5 million gallons per month per household to 1.0 million gallons per month. This would need to be

adjusted for fire protection and other system demands not considered here. A confirmation of facility design demand would need to be addressed as part of an engineering feasibility study for the community water supply system. A suggested outline of issues for this study to address includes:

1. Existing Conditions
 - a. Definition of Service Area
 - b. Existing Wastewater Services
2. Water Supply Identification
3. Water Demand and Demand Management
4. Water System Facility Requirements/Options
5. Governing Regulations (VDH, DEC, County)
6. Jurisdictional Requirements and Responsible Management Entity
7. Facility Costs and Financing
8. Success Factors for a Community System

JURISDICTIONAL AND RESPONSIBLE MANAGEMENT ENTITY REQUIREMENTS

In order to have a successfully operating community water system, a Responsible Management Entity (RME) must be created. The term Responsible Management Entities was developed in an EPA guidance document (2008), which outlined various management structures for on-site and clustered wastewater systems. This entity is a legal body responsible for providing various management services, including managerial, financial, and technical, to ensure the long-term, cost-effective management of community or clustered wastewater treatment facilities in accordance with existing regulations. The RME can own a community water or wastewater system with operation and maintenance tasks contracted out to others, or the RME can own and operate the system. An example of an RME that currently owns and operates community systems in Loudoun County would be Loudoun Water. In areas where political entities exist, such as towns and cities, these become the RME, such as Hamilton, Hillsboro and Leesburg.

A number of different ownership entities, both public and private, are permitted to own community water and wastewater systems in Virginia. Existing entities outside of towns which could be considered RMEs today include Loudoun Water. Other entities that could be created are community development authorities, service districts and sanitary districts. All of these entities would require County Board approval and authorization to exist as well as potential changes to the current zoning ordinance. In addition, they would need to be able to demonstrate their ability to ensure the long-term, cost-effective management of a community system.

FINANCIAL REQUIREMENTS

The cost of implementing a community water system is significant. In community systems established as part of a residential development, the developer bears the burden of the capital cost of the facilities. Operation and maintenance costs are picked up by the residents as the development becomes populated. Once fully built out, the rates collected by the RME include costs for operation, maintenance and future capital needs (system repair and replacement). Using rule of thumb estimates from the County and Loudoun Water with regard to other community system costs, the following are likely planning level estimates for the development and installation of a community water system:

Studies – Feasibility, hydrology, engineering	\$250,000
Well development and installation	\$150,000
Treatment, Storage and Distribution Facilities	\$1,600,000
Total Initial Capital Planning Level Estimate	\$2,000,000
Range of Estimate [-30% to +70%]	\$1,400,000 to \$3,400,000
Cost per Connection – assuming 100 connections (Note: costs do not include laterals to home connections)	\$14,000 to \$34,000

Defining and refining these costs would be part of the feasibility and engineering studies required as part of this process. In addition, rate studies for community users would be an important part of this evaluation.

Funding for such systems has included subsidies from the County, and in some cases Loudoun Water when public health risk has been demonstrated, as well as federal and state grants and revolving loan funds. There is significant competition for these funds across the state and the nation. The County Needs Assessment for Water and Wastewater identifies numerous potential funding sources and contact information in Appendix B, Grants & Loans. However, it is important to note that residents need to be prepared to contribute an A/C for funding these projects. The above list of activities and facilities estimate the infrastructure required to develop and bring water to residents (just one of the areas necessary to bring water into homes or businesses). The cost of connecting the areas and the laterals itself is typically borne by the building owner.

RECOMMENDATIONS

- Develop a community entity to lead this effort. Strong leadership skills, a clear voice and community support are critical for a community wide discussion and subsequent decision as to the need for, and support of, a community water system. Begin these discussions as soon as practical.

- Follow the progress of Hillsboro and Howardsville. Although Hillsboro is a town (an RME by jurisdiction), the type of information produced in the reports completed for this community would provide Waterford with information regarding the development, facilities, and costs for a small community water system. This information is public and should be available.
- Become active in the Loudoun County Board of Supervisors process for the actions following the Loudoun County Water and Wastewater Needs Assessment Report. This process will begin to set the stage for future community systems. Being a part of the process will aid in understanding what will be required and how to progress.
- Investigate State and Federal opportunities for funding a community utility. Being well versed in the funding options and the agencies that offer these opportunities will increase the community's likelihood of receiving such assistance.
- Investigate the County's Comprehensive Plan and Area Management Plan for Waterford. Included in the Area Plan are the service area definitions and restrictions for expansion of the wastewater treatment facility currently serving the Village of Waterford. Similar restrictions, if warranted, for a community water system could require a change to the Area Management Plan. The process and timing required for this action should be well understood by the leadership group and the community.

References:

County of Loudoun. (December 21, 2010). *Loudoun County Water and Wastewater Needs Assessment*. Leesburg, VA: County Staff

Environmental Protection Agency. (2003). *EPA Guidance on Voluntary national Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems*.

GeoTrans, Inc. (December 6, 2006). *Waterford Elementary School Groundwater Supply Report, Waterford Virginia for Loudoun County Public Schools*. Sterling, VA.

Greenhorne, O'Mara, Dewberry and Nealon Consulting Civil Engineers. (August, 1966). *Feasibility Study on Water and Sewerage Facilities for the Community of Waterford, Loudoun County, Virginia for the Board of Supervisors, Loudoun County, Virginia*. Fairfax, VA.

Groundwater Advisory Committee. (December 1999). *Preliminary Analysis of Groundwater Issues in Loudoun County, Virginia*. Loudoun County: Porter, J., Czarnecki, M., Appel, C., et. al.

Meeting, August 16, 2011. Dennis Cumbie and David Ward of Loudoun County Department of Building and Development. Leesburg, VA.

Meeting, September 9, 2011. Paul Brown, Department of Construction and Solid Waste Management, and Jerry Franklin, Loudoun County Health Department. Leesburg, VA.