



TOWN OF FRONT ROYAL, VIRGINIA
TOWN COUNCIL MEETING
Monday, July 22, 2013 @ 7:00 p.m.
Warren County Government Center

1. Pledge of Allegiance
 2. Moment of Silence
 3. Roll Call
 4. Approval of the Regular Council Meeting minutes of July 8, 2013.
 5. Receipt of Petitions and/or Correspondence from the Public
 6. Reports:
 - a. Report of special committees or Town officials and Town Manager.
 - A. Presentation from United Way - Lee Smith Osina
 - B. Report from the EDA - Jennifer McDonald
 - C. Report from Warren County Administrator - Doug Stanley
 - b. Requests and inquiries of Council members.
 - c. Report of the Mayor
 - d. Proposals for addition/deletion of items to the Agenda.
 - *7. **CONSENT AGENDA ITEMS** – (ROLL CALL VOTE REQUIRED) – N/A
 - A. COUNCIL APPROVAL – Bid – Vehicle for Police Department
 - B. COUNCIL APPROVAL – Bid – Manhole Rehabilitation
- *The nature of a consent agenda is such that discussion of individual items does not occur.*
8. **PUBLIC HEARING** – An Ordinance to Amend and Reenact Sections of Chapter 134 of the Town Code pertaining to Amendments of Prohibited Discharge Standards (*1st Reading*)
 9. **COUNCIL APPROVAL** – Resolution to Recognize the History of Town Hall and Authorize the Opening of the Cornerstone
 10. **COUNCIL APPROVAL** – Retention of Legal Counsel
 11. **CLOSED MEETING** – Consultation with Legal Counsel specific to Comcast Franchise Agreement



**Town of Front Royal, Virginia
Council Agenda Statement**

Page 1
Item No. 7(A)

Meeting Date: July 22, 2013

Agenda Item: COUNCIL APPROVAL – Bid – Vehicle for Police Department

Summary: Council has received a request from the Purchasing Agent, seeking approval of a bid from Haley Ford South in Richmond, Virginia for the purchase of a 2014 Ford Focus SE at a base cost of \$15,470.00. The vehicle will replace a 2000 Ford Explorer currently being used by the department.

Budget/Funding: FY14 Police Department budge line item 3101-47005 - \$15,000.00
FY14 Asset Forfeiture account line item 1610-47001 - \$470.00

Attachments: Memorandums from Captain Werner of the Police Department and Purchasing Agent

Meetings: None

Staff Recommendation: Approval ☒ Denial ☐

Should Council wish to remove this item from the consent agenda, the following motion would allow approval of this request:

Proposed Motion: I move that Council approve a bid from Haley Ford South in Richmond, Virginia for the purchase of a 2014 Ford Focus SE at a base cost of \$15,470.00.

*Note: Motions are the formal & final proposal of Council,
proposed motions are offered by Staff for guidance
*To be clear and concise, motions should be made in the positive

Approved By: JAE



TOWN OF FRONT ROYAL

DEPARTMENT OF FINANCE

PURCHASING DIVISION

102 E. MAIN STREET

P.O. BOX 1560

FRONT ROYAL, VIRGINIA 22630-1560

CYNTHIA A. HARTMAN, CPPB

Purchasing Agent

(540) 636-6889

(540) 636-7473 fax

email: cahartman@frontroyalva.com

MEMORANDUM

Date: July 12, 2013
To: Tina Presley, Administrative Assistant
Jennifer Berry, Clerk of Council
From: Cindy Hartman, Purchasing Agent
RE: Agenda Item

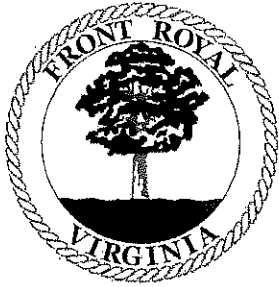
RECEIVED
JUL 15 2013
Cindy Hartman

I have received a request from the Police Department to purchase a 2014 Ford Focus SE, at a base cost of \$15,470.00, from Haley Ford South, located in Richmond. The purchase would be through the Virginia State vehicle contract. Capt. Werner called two local vendors to see if they could provide a comparable vehicle, and they could not (see attached memorandum).

This car would replace the 2000 Ford Explorer currently being used by the department. The Explorer would be pulled from service, and parked until the next Town auction is held.

Due to the dollar amount, the bid award will need Town Council approval. Please add this item to the July 22, 2013 agenda for their action.

Funding for this vehicle is available in the FY14 Police Department budget line item 3101-47005 in the amount of \$15000.00. The balance of funding, \$470.00, would be drawn from the FY14 Asset Forfeiture account line item 1610-47001.



TOWN OF FRONT ROYAL

POLICE DEPARTMENT
24 WEST MAIN STREET
FRONT ROYAL, VIRGINIA 22630-1560

NORMAN A. SHIFLETT
Chief of Police
(540) 635-2111
(540) 635-6160 (Fax)

To: Cindy Hartman, Purchasing Agent
From: Mark Werner, Captain
Date: July 11, 2013
Subject: Vehicle replacement for Narcotics

The department would like to purchase through State Contract a 2014 Ford Focus SE, at a cost of \$15470.00.

This vehicle will be replacing the 2000 Ford Explorer.

Funding for this purchase will be allocated from Line Items: 3101-7005 \$1500.00 and 1610-7001 \$470.00.

If you have any questions please contact me.



TOWN OF FRONT ROYAL

POLICE DEPARTMENT
24 WEST MAIN STREET
FRONT ROYAL, VIRGINIA 22630-1560

NORMAN A. SHIFLETT
Chief of Police
(540) 635-2111
(540) 635-6160 (Fax)

To: Cindy Hartman, Purchasing Agent
From: Mark Werner, Captain
Date: July 11, 2013
Subject: State Contract Vehicle Purchase

I contacted Jack Evans Chevrolet and spoke with Frank Vacca to price a Chevrolet Cruze which would be a comparable vehicle to the Ford Focus. Their price is \$17500.00.

I contacted Shenandoah Ford and spoke to Ron Nicholson to price a 2014 Ford Focus SE model, he stated that they had no 2014 models in stock. He also stated that a 2013 model would cost \$19000.00.

Please order the 2014 Ford Focus SE model that is currently on state contract for \$15470.00. Paint color is Sterling Grey Metallic; also delete the day time running lights. Please use the line items for funds that were in the previous email.



**Town of Front Royal, Virginia
Council Agenda Statement**

Page 1
Item No. 7(B)

Meeting Date: July 22, 2013

Agenda Item: COUNCIL APPROVAL – Bid - Manhole Rehabilitation

Summary: Council has received a request from the Purchasing Agent, seeking approval of a bid from Shepherd Group, Inc. t/a D&S Contractors for manhole rehabilitation throughout Town, at a cost of \$211,750.00.

Budget/Funding: Carried over from previous budget year
Sewer Line Maintenance FY14 budget line item 9802-R47998 "I & I Abatement"

Attachments: Memorandum from Purchasing Agent and Quotation Tabulation and Letter from David Reaves, President of Prism Contractors & Engineers, Inc.

Meetings: Work Session held July 15, 2013

Staff

Recommendation: Approval ☒ Denial ☐

Should Council wish to remove this item from the consent agenda, the following motion would allow approval of this request:

Proposed Motion: I move that Council approve a bid from Shepherd Group, Inc. t/a D&S Contractors for manhole rehabilitation throughout Town, at a cost of \$211,750.00.

*Note: Motions are the formal & final proposal of Council,
proposed motions are offered by Staff for guidance

*To be clear and concise, motions should be made in the positive

Approved By: JB



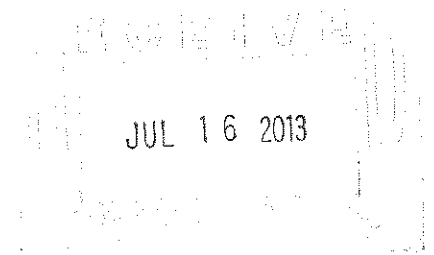
TOWN OF FRONT ROYAL

DEPARTMENT OF FINANCE
PURCHASING DIVISION
102 E. MAIN STREET
P.O. BOX 1560
FRONT ROYAL, VIRGINIA 22630-1560

CYNTHIA A. HARTMAN, CPPB
Purchasing Agent
(540) 636-6889
(540) 636-7473 fax
email: cahartman@frontroyalva.com

MEMORANDUM

Date: July 16, 2013
To: Tina Presley, Senior Administrative Assistant
Jennifer Berry, Clerk of Council
From: Cindy Hartman, Purchasing Agent *CH*
RE: Agenda Item



On Thursday, May 16, 2013, I held a bid opening for manhole rehabilitation throughout the Town. Out of eleven (11) direct solicitations, I received two (2) responses (see attached tabulation sheet). The Engineer for this project, David Reaves of Prism Contractors, has reviewed the responses to ensure they met all of our specifications.

Due to the cost of this project, I will need Council approval before continuing with the award. Please add this to the July 22, 2013 Town Council agenda for their action.

Staff recommends the award for the Manhole Rehabilitation Project be made to Shepherd Group, Inc. t/a D&S Contractors, located in Ashland, at a cost of \$211,750.00.

Funding for this project was carried over from the previous budget year and is available from the Sewer Line Maintenance FY14 budget line item 9802-R47998, "I & I Abatement".

Quotation Tabulation

Quotation #11

Replied 2

[illegible]

PURCHASING AGENT



5225 GEORGE WASHINGTON MEMORIAL HIGHWAY
YORKTOWN VIRGINIA 23692
OFFICE (757) 874-5670
FAX (757) 874-5671
WWW.PRISMCE.COM

June 7, 2013

Cindy Hartman
Town of Front Royal
15 N. Royal Avenue
Front Royal, Virginia 22630

Dear Cindy:

We have reviewed the low bid submitted by D&S Contractors and find it to be responsive and meet all requirements of the bid documents. Therefore, we recommend award of this project to D&S Contractors. This project is a continuation of rehabilitation work done two (2) years ago by the same contractor and is necessary to comply with the Consent Order that the Town of Front Royal is currently under with the Department of Environmental Quality. Work will occur throughout different parts of the City in an effort to fix those structures most in need of repair that will have the great impact on reducing inflow and infiltration into the sanitary sewer system.

Best Regards,

David A. Reaves, P.E.
President

Best Regards,

David A. Reaves

David A. Reaves, P.E.
President

WE COVER THE SPECTRUM



**Town of Front Royal, Virginia
Council Agenda Statement**

Page 1
Item No. 8

Meeting Date: July 22, 2013

Agenda Item: PUBLIC HEARING – An Ordinance to Amend and Reenact Sections of Chapter 134 of the Town Code pertaining to Amendments of Prohibited Discharge Standards (1st Reading)

Summary: Council is requested to affirm on its first reading an Ordinance to amend and reenact Sections 134-4.A; 134-4.A.14; and 134-79 of the Front Royal Town Code pertaining to amendments of prohibited discharge standards, so as to allow rainwater from governmental correctional facilities to be discharged into the Town's sanitary sewerage system. If approved, the Town Code will provide that rainwater from governmental correctional facilities may be discharged into the Town's sanitary sewerage system, provided the rainwater collection, distribution and pretreatment systems of said facilities meet certain defined standards.

Budget/Funding: None

Attachments: Ordinance and "Virginia Rainwater Harvesting & Use Guidelines" from the Virginia Department of Health

Meetings: Work Sessions held July 1 and July 8, 2013.

Staff

Recommendation: Approval ☒ Denial ☐

Proposed Motion: I move that Council affirm on its first reading an Ordinance to amend and reenact Sections 134-4.A; 134-4.A.14; and 134-79 of the Front Royal Town Code pertaining to amendments of prohibited discharge standards, so as to allow rainwater from governmental correctional facilities to be discharged into the Town's sanitary sewerage system.

ROLL CALL VOTE REQUIRED

*Note: Motions are the formal & final proposal of Council,
proposed motions are offered by Staff for guidance

*To be clear and concise, motions should be made in the positive

Approved By: JB

BE IT ORDAINED by the Council of the Town of Front Royal, Virginia, that Chapter 134 of the Front Royal Town Code, entitled Prohibited Discharge Standards, Section A thereof, be amended and re-ordained as follows:

134-4 PROHIBITED DISCHARGE STANDARDS

- A. No user, except as set forth in subparagraph no. 14. below, shall contribute or cause to be contributed, directly or indirectly, any pollutant or wastewater which will cause interference pass-through or violation of water quality standards. These general prohibitions apply to all users of the municipal wastewater system whether or not the use is subject to the Categorical Pretreatment Standards or to any other national, state or local pretreatment standards or requirements. Furthermore, no use may contribute any of the following substances to the municipal wastewater system:

[1. TO 13. NOT SET OUT- ALREADY PART OF ORDINANCE.]

14. Storm water, surface water, groundwater, artesian well water, roof runoff, subsurface drainage, swimming pool drainage, condensate, deionized water, cooling water and unpolluted industrial wastewater where Town water or sanitary sewer lines are available for connection thereto, unless specifically authorized by the Administrator, except that governmentally owned, operated, and appropriately licensed and credentialed correctional facilities may utilize a local central rain collection and distribution system only for purposes of flushing toilets, operating HVAC cooling and heating systems, and/or operating laundry facilities, provided that the system is approved by the Administrator, or designee, as meeting or exceeding the Leadership in Energy and Environmental Design ("LEED") initiative or comparable or better environmental standards, Town procedures and ordinances relating to water and sanitary sewer facilities, and other applicable policies, regulations, and laws; and further provided the system is approved by the Administrator as meeting or exceeding the Pre-Treatment protocols and standards set forth in the Virginia Department of Health's "Virginia Rainwater Harvesting & Use Guidelines".

134-79 DISCHARGE OF RAINWATER OR SURFACE WATER PROHIBITED

- A. Except as provided in Section 134-4.A.14. of this ordinance, the discharge of rainwater or surface water into a sanitary sewer line through connections from the roofs of houses or other buildings, basement drains, foundation drains, yard drains or any other connection is hereby prohibited.

- B. Except as provided in Section 134-4.A.14. of this ordinance, it shall be unlawful to make any connection to the town's sanitary sewer system which allows rainwater or surface water to flow into said system, and no occupancy permit shall be issued for any new structure or construction having such a connection to the sanitary sewer system.

[C. and D. NOT SET OUT.]

ADOPTED by the Council of the Town of Front Royal, Virginia, this _____ day of _____, 2013.

APPROVED:

Timothy W. Darr, Mayor

ATTEST:

Jennifer E. Berry, Clerk of the Council

THIS RESOLUTION was approved at the Special Meeting of the Town of Front Royal, Virginia conducted _____ 2013, upon the following recorded vote:

Thomas H. Sayre Yes/No

Bret W. Hrbek Yes/No

Hollis L. Tharpe Yes/No

Eugene R. Tewalt Yes/No

N. Shae Parker Yes/No

Daryl L. Funk Yes/No

Approved as to form and legality:

Douglas W. Napier, Town Attorney

Date: ____/____/____

Virginia Rainwater Harvesting & Use Guidelines

Developed by



March 31, 2011

PREFACE

This document provides guidance for the use of water collected through a rainwater harvesting system. This guidance is NOT regulation but does reference Virginia and other states' guidance and regulations relating to the use of rainwater.

DISCLAIMER

The mention of brand names or products in this report does not constitute an endorsement of those products by the Virginia Department of Health, Virginia Department of Environmental Quality, Department of Conservation and Recreation, Department of Housing and Community Development, or the Commonwealth of Virginia.

This document does not include local ordinance information, and any entity implementing a rainwater harvesting solution is responsible for assuring compliance with all local, state, and federal requirements.

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Chapter 1: Introduction

1.1 Purpose and Scope

The harvesting of rainwater has a number of benefits, including but not limited to:

- Supplementing the use of groundwater and surface water sources,
- Reducing the load to stormwater collection systems,
- Improving stormwater quality by reducing potential pollutants associated with runoff,
- Easing demand on public water facilities,
- Reducing potential soil erosion and increase soil infiltration.

The General Assembly of Virginia has directed the Virginia Department of Health (VDH) to develop guidelines regarding the use of gray water and rainwater (Va. Code § 32.1-248.2). This document is not regulation; it provides *guidance* for the harvesting and use of rainwater only.

1.2 Terms

“Rainwater Harvesting,” as used in this document, refers to the collection, conveyance, and storage of precipitation from roof surfaces. Harvested Rainwater is not “gray water” or “reclaimed water.” Rainwater Harvesting may be a part of an overall stormwater management program, but harvested rainwater is not intended for release into a waterway. Subsequent treatment of harvested rainwater may be employed to remove impurities and inactivate disease-causing microorganisms.

Several terms that are used throughout this document are defined in the *Virginia Administrative Code* (VAC) and are repeated below to clarify interpretation of this guidance:

“Auxiliary water system” means any water system on or available to the premises other than the waterworks. The auxiliary water may include water from a source such as wells, lakes, or streams; or process fluids; or used water. (12VAC5-590-10)

“Gray water” means untreated wastewater from bathtubs, showers, lavatory fixtures, wash basins, washing machines, and laundry tubs. It does not include wastewater from toilets, urinals, kitchen sinks, dishwashers, or laundry water from soiled diapers. (9VAC25-740).

“Potable water” means water fit for human consumption and domestic use that is safe and normally free of minerals, organic substances, and toxic agents in excess of reasonable amounts for domestic usage in the area served and normally adequate in quantity and quality for the minimum health requirements of the persons served. (Va. Code § 32.1-167 *et seq.*, 9VAC25-740, and 12VAC5-590-10)

"Reclaimed water" means water resulting from the treatment of domestic, municipal or industrial wastewater that is suitable for a water reuse that would not otherwise occur. Specifically excluded from this definition is "gray water." (4VAC50-60)

"Stormwater" means precipitation that is discharged across the land surface or through conveyances to one or more waterways and that may include stormwater runoff, snow melt runoff, and surface runoff and drainage. (4VAC50-60)

"Stormwater management facility" means a device that controls stormwater runoff and changes the characteristics of that runoff, including but not limited to, the quantity, quality, the period of release or the velocity of flow. (4VAC50-60)

"Waterworks" means a system that serves piped water for drinking or domestic use to (i) the public, (ii) at least 15 connections, or (iii) an average of 25 individuals for at least 60 days out of the year. The term "waterworks" shall include all structures, equipment and appurtenances used in the storage, collection, purification, treatment and distribution of pure water except the piping and fixtures inside the building where such water is delivered. (12VAC5-590-10)

1.3 Related Virginia Regulations and Guidance

Rainwater harvesting, as described in this guidance, is addressed in the Virginia Uniform Statewide Building Code (VUSBC). The VUSBC is administered by the Department of Housing and Community Development (DHCD).

The Water Reclamation and Reuse Regulations (9VAC25-740) address the reclamation of wastewater and water reuse, taking into account environmental and public health protection. These regulations specifically exclude the use of gray water. The regulations also prohibit direct potable reuse of reclaimed water, the use of reclaimed water for food preparation or in food or beverage products, swimming pools, hot tubs or wading pools, or any purpose inside a residential or domestic dwelling. These regulations are administered by the Virginia Department of Environmental Quality (DEQ).

Virginia's Stormwater Management Regulations (4VAC50-60) specify minimum technical criteria and administrative procedures for stormwater management. The regulations cover administration, implementation and enforcement of a permit program authorized by the federal *Clean Water Act* and the *Virginia Stormwater Management Act*. These regulations are administered by the Department of Conservation and Recreation (DCR). The DCR has developed the Virginia DCR Stormwater Design Specification No. 6, Rainwater Harvesting (Version 1.9 dated April 26, 2010). It contains design information for non-potable water use and on-site stormwater disposal/infiltration, including components, configurations, and a cistern design spreadsheet.

The following regulations are administered by the VDH:

The Waterworks Regulations (12VAC5-590) address the location, construction and operation of public water systems. These regulations require every waterworks to establish and enforce a program of cross connection control and backflow prevention.

The Private Well Regulations (12VAC5-630) address the location and construction of private wells. Subsequent operation of private wells and their water delivery systems is not covered by this regulation.

Sewage Handling and Disposal Regulations (12VAC5-610) includes construction requirements for nonpublic water supplies, other than a private well, that might be used in conjunction with an onsite sewage disposal system for new construction. Section 1170 specifies location, protection, and construction standards for cisterns. The regulation allows cisterns when there is no other feasible source of potable water. Adequate treatment and continuous disinfection are required to insure potability. Section 1140 specifies that the system must be capable of supplying an adequate quantity of water at all times.

Chapter 2: Water Source, Use & Quality

2.1 Uses and Water Quality Requirements

Harvested rainwater systems may be installed in a variety of situations. These situations may be grouped by available water supply:

- Dual water supplies (public and private)
- Private water supplies

And also by water use and delivery:

- Single interior plumbing system
- Separate plumbing system for non-potable water use

The operational criteria for the type of application vary. Design and operation features, safeguards, and water quality considerations are described in the following sections.

2.1.1. Cross Connection Control

The International Plumbing Code (§ 608.6.1.) prohibits cross connections between private and public water supplies.

12VAC5-590-590 of the *Waterworks Regulations* prohibits any connection whereby water from an auxiliary water system may enter a waterworks. Waterworks customers having an auxiliary water source, such as rainwater harvesting system, may be classified as “high hazard” under the *Waterworks Regulations*. Backflow prevention for these customers is required.

The *Waterworks Regulations* require every waterworks to have an active cross-connection control and backflow prevention program, approved by the VDH. This program must include the inspection and testing of all backflow prevention devices annually, at a minimum. In accordance with 12VAC5-590-590 B: each auxiliary water system, its method of connection, and use of water must be approved by the waterworks and the VDH.

If a Reduced Pressure Zone (RPZ) device is used, it should meet American Water Works Association standards and be approved by the American Society of Sanitary Engineering (ASSE) and the USC-FCCC (University of Southern California Foundation for Cross Connection Control and Hydraulic Research). An RPZ device must be installed and tested by a Backflow Prevention Device Worker certified by Virginia Department of Professional and Occupational Regulation.

2.1.2. Water Supplement and Use

Review of applicable guidance from other states has shown that non-potable uses account for a significant majority of the overall water use. This guidance recommends that harvested rainwater be restricted to non-potable uses. Fluctuations in rainfall patterns, available storage, and intended use are all key factors that affect the design of rainwater harvesting systems. Guidance from a number of different sources generally

include a means for the user to supplement the harvested rainwater during high demand or low precipitation periods.

Harvested rainwater systems are dependent on the precipitation patterns and may not be able to provide adequate water supply during all parts of the year. Supplementing the harvested rainwater requires an appropriate level of cross connection control and protection for the private or public water system that supplies the supplemental water. Public water systems are regulated and continually tested to ensure that the water is safe for human consumption. They are the recommended source of potable water whenever possible.

2.1.3. Separate Plumbing for Non-Potable Water Use

Separate plumbing systems for non-potable water within a building are governed by the requirements of the VUSBC. Harvested rainwater may be used solely or in conjunction with another water source in separate interior, non-potable plumbing systems. The VDH does not regulate the water quality of these installations.

2.2 Factors Effecting Harvested Rainwater Quality

2.2.1. Component Materials: Roof Surface, Piping, Storage

The pH of rainwater in Virginia tends to be acidic, ranging from 4.5 to 5.0. Other chemical characteristics of harvested rainwater will depend on the water temperature, roof material over which it flows, and the pipe, storage and appurtenances that come in contact with the collected water. Undesirable contaminants, such as asbestos, lead and copper, may be imparted to the captured rainwater when roof surfaces and plumbing contain these elements (*VA DCR Stormwater Design Specification No. 6*). Further information on these topics is available in the *Virginia Rainwater Harvesting Manual*, and other references listed in Chapter 6.

2.2.2. Collection Site: Air Quality, Overhead Vegetation, Animal Access

Dirt, bacteria, molds, algae, fecal matter, and organic matter from vegetation are contaminants that may be imparted to the collected rainwater. The cleanliness of the roof catchment surface will directly affect the water quality. The longer the span of dry days, the more debris is washed off from roof surfaces by a rainfall.

Additional contaminants that may be captured by rainwater include, but are not limited to, dust, smoke, and soot suspended in the atmosphere. The local air quality and prevailing winds will impact the total dissolved solids in rainwater. This depends on the rainwater harvesting site location and air emissions (particulate and gaseous) in the proximity.

Chapter 3: Rainwater Harvesting System Components & Sizing

Rainwater harvesting systems should be designed and sized based on a number of factors that are specific to the site, structure(s) and use(s). The design should include an evaluation of the catchment surfaces, gutters, pre-treatment devices, storage, pumps, piping and appropriate treatment. There are a number of resources that can be used to guide individuals in this process.

3.1 Catchment Surfaces

Rainwater is typically captured from a structure or building roof. Rainwater can also be captured from a constructed conveyance specifically designed to intercept the rainwater for collection. Other impervious surfaces, such as driveways, parking areas, etc. are generally not suitable for rainwater harvesting but may be appropriate for stormwater management.

The roof material will impact the quality and quantity of captured rainwater. Smooth metal or slate surfaces are most efficient. Clay and concrete tiles may collect less rainwater due to porosity, inefficient flow and evaporation. Calculators used to estimate quantity and component sizes may include a "Rooftop Runoff Coefficient" (as described in The Cabell Brand Center's *Virginia Rainwater Harvesting Manual*, and used in DCR's Rainwater Harvesting Spreadsheet) to account for differences in catchment surface materials. Composite shingles, wood shingles, and tar and gravel roofing may leach chemicals into the water, so these should be considered as a part of the design and intended use of the harvested rainwater.

3.2 Gutters, Downspouts & Drains

Gutters are used to capture rainwater at the eaves of a building, and should be sloped towards the downspouts. Their size depends on the roof configuration, surface area, roof slope, number of downspouts and intensity of rainfall. Gutters and downspouts are commonly constructed of PVC, vinyl, aluminum, and galvanized steel.

3.3 Pre-Treatment: Screens, Strainers, First-Flush Diverters, Roof Washers

Leaves and other debris can be prevented from entering the collected rainwater along the gutters using leaf screens or "gutter guards", or in the downspouts with downspout filters or strainer baskets. Other pretreatment devices such as cylindrical screens and filter socks may be installed at the outlet of the downspout or inlet to the storage tank.

A first flush diverter is designed to re-route the initial rainwater runoff that may contain contaminants such as dust, pollen, bird and rodent feces from the harvested water storage tank. One diverter is recommended for each downspout, and there are several designs available. The diverted water should ideally be routed to a pervious area to allow for filtration. The recommended amount of rainwater diverted depends on roof surface, amount of debris, and number of antecedent dry days.

A roof washer is another device for filtering small debris just ahead of the storage tank. Roof washers are commercially available and consist of a 30-50 gallon box or tank, which are usually equipped with a 30-micron filter or other strainer.

There are also devices which combine the functions of first flush diversion and a roof washer. All pretreatment devices require regular maintenance and cleaning.

3.4 Storage Tanks

Storage tanks or cisterns are selected based on size, location, and material of construction. These elements are discussed in detail in the *Virginia DCR Stormwater Design Specification No.6*, which also provides a cistern Design Spreadsheet, and in the *Virginia Rainwater Harvesting Manual*, compiled by The Cabell Brand Center.

Algae growth should be prevented by using opaque tanks, and minimizing light penetration from any openings. Proper screening of all inlets, outlets and overflows is necessary to protect from vectors such as mosquitoes, insects and rodents.

3.5 Pumps & Controls

Submersible pumps, suction or jet pumps are common in rainwater harvesting systems. They are often used in conjunction with a pressure tank and switch for pump control. A floating pump intake equipped with a filter is recommended to withdraw water a few inches below the water surface.

Chapter 4: Treatment

4.1 Treatment Goals & Water Quality Standards

The federal *Safe Drinking Water Act* has established chemical, physical, radiological and microbiological standards for public drinking water. These standards have been adopted by the VDH in the *Waterworks Regulations* (12VAC5-590-340 through 440.) The public drinking water standards cover contaminants that pose acute and chronic health concerns. These guidelines recommend that harvested rainwater be restricted to non-potable activities. In settings with a high potential for human exposure or contact, the primary area of concern is microbial contamination. The public health goal in these settings is to maintain an absence of:

- Bacteria, including *Escherichia coli*, *Legionella*
- Protozoans, including *Giardia lamblia*, *Cryptosporidium*
- Viruses

4.2 Treatment Processes

It is important that potential users understand the need for treatment in order to minimize the risk to those that may come in contact with harvested rainwater. Pretreatment devices described in the previous section are recommended for all rainwater harvesting systems. Additional treatment processes may be necessary, depending on the intended use. Treatment effectiveness can only be established through a regular water testing program, in conjunction with routine maintenance of the rainwater harvesting system.

4.2.1. Filtration

Filtration devices are used to remove particulate matter that may clog piping valves, plumbing fixtures and irrigation devices, stain sinks, toilets and tubs, and harbor pathogenic microorganisms. Cartridge filters of synthetic fiber, ceramic media filters, and activated carbon filters should be used as appropriate. Filters that are certified to meet American National Standards Institute (ANSI)/NSF Standard 61 help ensure that the filter does not impart undesirable contaminants into the water.

The efficiency of the filter is related to the opening size. A recommended size for non-potable use often cited is 5 microns. The intended use of the harvested rainwater should determine the type and opening size of the filter.

Granular Activated Carbon (GAC) Filters provide an additional benefit in adsorbing organic compounds, some which may impart undesirable water characteristics, such as odor. GAC filters are generally used in series with another sediment filter. GAC filters must be installed upstream of chlorine disinfection.

Synthetic membrane filters with smaller openings, such as reverse osmosis units, may also be considered, depending on the proposed use.

4.2.2. Neutralization

Neutralization of acidic rainwater may be necessary to raise the pH to acceptable levels. This is particularly important if the water will contact metal surfaces, pipe, etc. to prevent corrosion. A neutralizing agent, such as lime or soda ash, may be added to the storage tank. Neutralizing filters/contactors with calcium carbonate media, sometimes blended with magnesium oxides, can also be used to raise the pH.

4.2.3. Disinfection

Non-potable water used indoors should be disinfected. Disinfection of non-potable water prevents microbial growth (such as *Legionella* and *E. coli*), odors and fouling of fixtures. All disinfection methods shall follow filtration. The disinfection methods most commonly referenced are: Chlorine, Ultraviolet (UV) Light, and Ozone. VDH recommends that a qualified professional engineer design the system and provide operational recommendations for the appropriate treatment and delivery of harvested rainwater.

- Chlorine is a powerful oxidant chemical that is generally used in conventional drinking water disinfection. Chlorine disinfection may be achieved in various ways, and generally leaves a residual in the finished water to inhibit growth of bacteria. Chlorine disinfection can be achieved through the use of flow-through chlorinators using calcium hypochlorite tablets or pellets. An automated, sodium hypochlorite solution feed system using a metering pump and injector may also be used. Chlorine compounds having ANSI/NSF Standard 60 certification are recommended. Do not use commercial bleaches or chlorine products that contain fragrances or UV stabilizers (particularly cyanide-based UV stabilizers designed for swimming pools). A total chlorine residual of 0.2 mg/L is recommended.
- UV Light disinfection devices for potable water must meet NSF/ANSI Standard 55, Class A. Non-potable water disinfection devices should meet NSF/ANSI Standard 55, Class B, as a minimum. UV light system must be rated for the system design flow rate.
- Ozone is a powerful oxidant that is highly reactive and does not leave a residual disinfectant in the water. In addition to disinfecting microorganisms, it also reduces color, taste and odors. Ozone gas can be a health hazard if inhaled, and accumulation of ozone may pose a risk of explosion.

4.3 Testing

Harvested rainwater should be tested at the storage unit (cistern or tank) to determine the microbial and chemical quality of the water, prior to any subsequent treatment. If treatment is installed, then the harvested water should also be tested downstream of all treatment units to ensure that the treatment is working.

Chapter 5: Operation & Maintenance

The owner of a rainwater harvesting system is responsible for the ongoing operation and maintenance. Duties may include any of the following:

- Monitor tank levels
- Clean gutters and pre-treatment devices
- Repair leaks
- Repair and maintain mechanical and electrical equipment
- Remove sediment buildup in tanks
- Periodically backwash filters or replace filter media
 - Replenish neutralizing filter media as it is absorbed
 - Replace spent GAC media
- Clean UV light bulb and quartz sleeve, replace bulbs as needed
- Replenish chlorine disinfectant (tablets, pellets or solution)
- Regularly test bacteriological water quality.

Owners of rainwater harvesting systems with extensive water treatment equipment may consider contracting maintenance oversight from the system designer or equipment supplier. At a minimum, specific manufacturer's literature should be consulted for more detailed operation and maintenance information.

Chapter 6: References

The following references are recommended for further information on rainwater harvesting:

Managing Wet Weather through Green Infrastructure: Municipal Handbook: Rainwater Harvesting, USEPA, 2008, Doc # EPA-833-F-08-101.

Point-of-Use or Point-of-Entry Treatment Options for Small Drinking Water Systems, USEPA, April 2006, Doc # EPA 815-R-06-010

National Sanitation Foundation (NSF)

Protocol P151: Health Effects from Rainwater Catchment System Components
Standard 42: Drinking Water Treatment Units – Aesthetic Effects,
Standard 53: Drinking Water Treatment Units – Health Effects,
Standard 55: Ultraviolet Microbial Water Treatment Systems,
Standard 58: Reverse Osmosis Drinking Water Systems
Standard 60: Drinking Water Treatment Chemicals – Health Effects
Standard 61: Drinking Water System Components – Health Effects

Virginia Rainwater Harvesting Manual, compiled by the Cabell Brand Center, www.cabellbrandcenter.org.

Georgia Rainwater Harvesting Guidelines, 2009, developed pursuant to the 2009 Georgia State Amendments to the International Building Code.

Georgia State Amendments to the International Plumbing Code, revised January 1, 2010.

The Texas Manual on Rainwater Harvesting, Texas Water Development Board, 3rd edition, 2005.

Virginia Stormwater BMP Clearinghouse, www.vwrrc.vt.edu/swc/, administered by the Virginia Department of Conservation and Recreation and the Virginia Water Resources Research Center.

American Rainwater Catchment Systems Association, www.arcsa.org.

APPENDIX – RAINWATER HARVESTING APPLICATION MATRIX

Level	Proposed Application	Served by Public Water?	Considerations
1	Indoor: Non-potable	Yes	Approved Cross-Connection Control Local building code requirements System design approved by Waterworks. Compliance with applicable laws, regulations and ordinances. Pre-Treatment (1 st flush diverter, etc.) Storage Filtration pH Adjustment Disinfection Operational and maintenance requirements
2	Indoor: Non-potable	No	Approved Cross-Connection Control Local building code requirements Compliance with applicable laws, regulations and ordinances Pre-Treatment (1 st flush diverter, etc.) Storage Filtration pH Adjustment Disinfection Operational and maintenance requirements
3	Outdoor: Non-potable, High Contact (swimming pools, showers, etc.)	Yes or No	Approved Cross-Connection Control Local building code requirements System design in compliance with or approved by waterworks Pre-Treatment (1 st flush diverter, etc.) Storage Filtration Disinfection
4	Outdoor: Landscape Irrigation	Yes or No	Approved Cross-Connection Control Local building code requirements System design in compliance with or approved by waterworks Pre-Treatment (1 st flush diverter, etc.) Storage Filtration



**Town of Front Royal, Virginia
Council Agenda Statement**

Page 1
Item No. 9

Meeting Date: July 22, 2013

Agenda Item: COUNCIL APPROVAL – Resolution to Recognize the History of Town Hall and Authorize the Opening of the Cornerstone

Summary: Council is requested to consider approval of a Resolution that would recognize the History of Town Hall and authorize the opening of the cornerstone of Town Hall on Saturday, August 17, 2013 at 2:00pm, in celebration of the 225th Anniversary of the Town of Front Royal.

Budget/Funding: None

Attachments: Resolution

Meetings: None

Staff Recommendation: Approval ✓ Denial _____

Proposed Motion: I move that Council approve a Resolution that would recognize the History of Town Hall and authorize the opening of the cornerstone of Town Hall on Saturday, August 17, 2013 at 2:00pm, in celebration of the 225th Anniversary of the Town of Front Royal.

ROLL CALL VOTE REQUIRED

*Note: Motions are the formal & final proposal of Council,
proposed motions are offered by Staff for guidance
*To be clear and concise, motions should be made in the positive

Approved By: JB

RESOLUTION RECOGNITION OF HISTORY OF TOWN HALL

WHEREAS, the Front Royal Town Hall (Municipal Building) was opened in 1936 to serve the citizens; and,

WHEREAS, for 79 years it housed Administration Offices & Town Council facilities; and,

WHEREAS, a cornerstone was placed in Town Hall on August 17, 1935 to house necessary contents in a copper box; and,

WHEREAS, in collaboration with the 225th Anniversary of the Charter of the Town of Front Royal, it is requested to open the cornerstone on August 17, 2013 and provide the contents found to the Warren County Historic Society for preservation; and,

NOW, THEREFORE BE IT RESOLVED by the Mayor and Council of the Town of Front Royal, Virginia in celebration of the 225th Anniversary of the Charter of the Town of Front Royal, hereby recognizes the history of the Front Royal Town Hall, therefore, directs staff to open the corner stone and provide the contents to the Warren County Historic Society.

APPROVED:

Timothy W. Darr, Mayor

Attest:

Jennifer E. Berry, CMC, Clerk of Council

THIS RESOLUTION was approved at the Regular Meeting of the Town of Front Royal, Virginia, Town Council conducted on _____, 2013 upon the following recorded vote:

Thomas H. Sayre	<u>Yes/No</u>	Bret W. Hrbek	<u>Yes/No</u>
Hollis L. Tharpe	<u>Yes/No</u>	Eugene R. Tewalt	<u>Yes/No</u>
N. Shae Parker	<u>Yes/No</u>	Daryl L. Funk	<u>Yes/No</u>

Approved as to Form and Legality:

Douglas W. Napier, Town Attorney
Dated: _____



**Town of Front Royal, Virginia
Council Agenda Statement**

Page 1
Item No. 10

Meeting Date: July 22, 2013

Agenda Item: COUNCIL APPROVAL – Retention of Legal Counsel

Summary: Council is requested to retain Carter Glass, Esquire for the purpose of providing legal advice relative to expanding the Town's revenue base, and obtaining information in support of that advice, to the Town on such matters as from time to time may be directed of him by Council, through the Town Manager or the Town Attorney.

Budget/Funding: 9801-30002 – Sewer Professional Services (unspecified amount)
9601-30002 - Water Professional Services (unspecified amount)

Attachments: None

Meetings: Work Session held July 15, 2013

Staff Recommendation: Approval ☒ Denial ☐

ROLL CALL VOTE REQUIRED

Proposed Motion: I move that Carter Glass, Esquire, be retained by Town Council of the Town of Front Royal, for the purpose of providing legal advice relative to expanding the Town's revenue base, and obtaining information in support of that advice, to the Town of Front Royal on such matters as from time to time may be directed of him by Town Council, through the Town Manager or the Town Attorney of the Town of Front Royal.

*Note: Motions are the formal & final proposal of Council,
proposed motions are offered by Staff for guidance

*To be clear and concise, motions should be made in the positive

Approved By: JB



**Town of Front Royal, Virginia
Council Agenda Statement**

Page 1
Item No. 11

Meeting Date: July 22, 2013

Agenda Item: CLOSED MEETING – Consultation with Legal Counsel, specific to Comcast Franchise Agreement

Summary: Council is requested to convene and go into Closed Meeting pursuant to Virginia Code § 2.2-3711.7 for the purpose of consultation with legal counsel employed or retained by a public body regarding specific legal matters, namely, the Comcast Franchise Agreement, requiring the provision of legal advice by such counsel.

Budget/Funding: None

Meetings: None

Staff

Recommendation: Approval ☒ Denial ☐

Proposed Motion:

Motion to Go Into Closed Meeting

I move that Council convene and go into Closed Meeting pursuant to Virginia Code § 2.2-3711.7 for the purpose of consultation with legal counsel employed or retained by a public body regarding specific legal matters, namely, the Comcast Franchise Agreement, requiring the provision of legal advice by such counsel.

Motion to Certify Closed Meeting at its Conclusion *[At the conclusion of the Closed Meeting, immediately re-convene in open meeting and take a roll call vote on the following:]*

I move that Council certify that to the best of each member's knowledge, as recognized by each Council member's affirmative vote, that only such public business matters lawfully exempted from Open Meeting requirements under the Virginia Freedom of Information Act as were identified in the motion by which the Closed Meeting was convened were heard, discussed or considered in the Closed Meeting by Council, and that the vote of each individual member of Council be taken by roll call and recorded and included in the minutes of the meeting of Town Council.

*Note: Motions are the formal & final proposal of Council,
proposed motions are offered by Staff for guidance

*To be clear and concise, motions should be made in the positive

Approved By: JB