

# APPENDIX E

(CORPUD Standard Operating Procedures)

# ADMINISTRATIVE REGULATION

 <b>CITY OF RALEIGH, N.C.</b>	MANUAL			
SUBJECT  Fee-In-Lieu-of Assessment for Water and Sewer Mains	NUMBER 602-6	REV 2	EFFECTIVE DATE	PAGE OF 1 4
	SUPERSEDES 602-6	PREPARED BY Assistant Public Utilities Director		APPROVED BY City Manager

1.0 PURPOSE: To establish a procedure for tracking "fee-in-lieu-of assessment" water and sewer mains after they have been installed by City forces, or by contractor paid with City funds, and for collection of these fees.

2.0 ORGANIZATIONS AFFECTED:

Public Works Department  
 Finance Department  
 Development Services Division  
 Public Utilities Department

3.0 REFERENCE:

3.1 Chapter 8 of the City Code

4.0 POLICY:

4.1 Chapter 8 of the City Code states that when the City installs a utility main outside of the City Limits that a fee-in-lieu-of assessment will be collected for this main at the time of connection. The fee-in-lieu-of will be equal to the assessment that would be made against the property if it were within the City corporate limits for the year of that main installation.

5.0 GENERAL:

5.1 This procedure will outline a method so that fee-in-lieu of assessment mains are properly identified in order that City departments as well as citizens of the City are aware of their existence and so that the Development Services Division can collect the fees at the time of connection to the utility system.

5.2 Fee-in-lieu of assessment mains fall into two categories:  
 (1) Those that were installed prior to 1978 and (2) those installed during and after the year of 1978. In the first category, the City may collect a fee-in-lieu-of assessment at time of connection provided the property is still outside of the City. If there is no connection to the main and the property is annexed, the City will send a notice of assessment to the owner at time of annexation of the outstanding fee due for his property.

5.3 Fee-in-lieu of assessment will be paid in full at the time of connection to the system, unless it is assessed at the time of annexation. If assessed during annexation, the owner will have the option to pay in full or finance it over 10 years.

5.4 A payment form (see Appendix) with payment must be presented to the Development Services

Division for providing an accurate payment collection process.

#### 6.0 DEFINITION:

6.1 Fee-In-Lieu-Of Assessment -This fee is for any water and sewer main installed by City forces, or by a contractor working for the City, for any main installed outside of the City Limits of Raleigh. The fee is based on the assessment rate for a 6-inch water or 8-inch sanitary sewer main for the year the project has been approved by the City Council.

#### 7.0 RESPONSIBILITIES:

7.1 The Development Services Division is responsible for collecting the payment of fee-in-lieu-of assessment if it is outside the City limits as well as maintaining the fee record~ (once paid) in the Raleigh Property Data System (R.P.D.S.) "Fee File".

7.2 The Collection Division of the Finance Department is responsible for collecting and maintaining the assessment rolls if the property is inside or annexed into City limits.

7.3 The Public Works Department is responsible for identifying and adding the assessment records in the R.P.D.S. " Fee File" as pending records and maintaining them upon confirmation by the City Council

#### 8.0 PROCEDURE FOR MAINS INSTALLED PRIOR TO 1978 (SUBDIVISIONS):

8.1 The Public Works Department identifies and establishes fee records in the R.P.D.S. "Fee File" for all existing locations of fee-in-lieu-of assessment mains.

8.2 In the case of a subdivision for a tract of land abutting a fee-in-lieu-of assessment main, the Public Utilities Department will note on the preliminary subdivision plan that there is an outstanding fee-in-lieu-of assessment due for this tract. The Subdivision Administrator will incorporate this note as part of the conditions on utilities when preparing his certified recommendation. During the preliminary subdivision approval process, the developer will be advised via the note on the preliminary plan that the fee-in-lieu-of assessment must be paid for the total frontage inclusive of all street rights-of-way and greenways prior to the Public Utilities Department's approval of final construction plans.

8.3 Public Utilities Department before, Construction Approval, will assess fee maintenance file to check for fee-in-lieu of assessment payment.

8.4 Upon receipt of the payment notice and the issuance of state construction permits, the Public Utilities Director will sign the plans for construction approval which will enable the developer to record his subdivision plan.

#### 9.0 PROCEDURE FOR MAINS INSTALLED DURING AND AFTER 1978 (SUBDIVISION)

9.1 All water and sewer extensions outside of the City Limits will be treated as if they were an actual assessment project inside the City. When the Public Utilities work order form is completed, it will note the main or a portion of the main which will be a fee-in-lieu-of main. All of the affected property owners will be advised of the project installation and a public hearing will be held prior to the installation.

9.2 The Public Works Department will prepare an assessment roll for the properties abutting these mains outside of the City Limits. The Public Works Department will add the assessment rolls into the fee file in the Raleigh Property Data System as pending records.

9.3 In terms of subdivision review and provided the property is still outside of the City Limits, the Public utilities Department will note on the preliminary plan if a fee-in lieu of assessment payment is applicable. If so, it will be indicated on the plans. The Subdivision Administrator will include the fee-in-lieu-of assessment note as part of the conditions on utilities when preparing his certified recommendation.

9.4 After Council approval, the Public Works Department will maintain pending records to signify the confirmation of the fee-in-lieu-of assessment mains.

9.5 After payment of the fees and the issuance of state construction permits, the Public Utilities Director will approve the engineering drawings for construction of the proposed subdivision.

#### 10.0 INDIVIDUAL LOT. CONNECTIONS:

10.1 In case of individual lot connections to a fee-in-lieu-of main, the Development Services Division will collect the outstanding fee at the time the utility connection permit is issued.

#### 11.0 PROCESSING THE FEES COLLECTED:

Private Reimbursement Contract

Water A

Sewer B

Paving C

Sidewalk D

Fee-In-Lieu-Of Codes

01 Pre 1978 Projects

02 Post 1978 Projects

11.4 During the subdivision and permit issuance stage, Public Utilities and Development Services will check the Geo file to determine if any fee-in-lieu-of assessments are due. The property will be advised of the amount due. Development Services will collect all fees.



# ADMINISTRATIVE REGULATION

 <b>CITY OF RALEIGH, N.C.</b>	MANUAL			
SUBJECT  Recording of Utility Easements Outside of a Subdivision	NUMBER 602-4	REV 2	EFFECTIVE DATE	PAGE 1 OF 2
	SUPERSEDES	PREPARED BY  Assistant Public Utilities Director		APPROVED BY  City Manager

**1.0 PURPOSE:**

To establish a procedure for approving and recording utility easements outside of a subdivision.

**2.0 ORGANIZATIONS AFFECTED:**

Public Utilities Department, Public Works Department, Planning Department, City Clerk, Right-of-Way, City Council, Private Developers, City Attorney’s Office and Development Services Division.

**3.0 REFERENCES:**

City Code, Section 8-2063 and 8-2066

**4.0 POLICY:**

4.1 It shall be the policy of the City of Raleigh to require that all easements for water and sewer mains dedicated to the City are properly recorded by the Wake County Register of Deeds

4.2 It shall be the policy of the City of Raleigh to assure that all water and sewer mains shall be constructed to conform to the plans and policies approved by the Raleigh City Council and the Director of Public Utilities.

**5.0 PROCEDURE:**

5.1 The Public utilities Department will review and approve those applications for extensions of utility mains within the City limits.

5.1.1 At the recommendation of the Director of Public Utilities Department, the City Council will grant a conditional approval of those applications for extensions of utility mains outside of the City limits. The City Council may indicate to the developers any requirements which must be met as a prerequisite for approving the application.

5.2 Once approval has been granted, the developer may prepare construction plans and easement maps and may negotiate to purchase the necessary easements.

5.2.1 A map showing all negotiated easements must be returned to the Planning Department for certification. The developer must then record the certified map with the Wake County Register of Deeds.

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5.2.2 When easements have been procured, the deeds of easement must be recorded with the Wake County Register of Deeds.

5.2.3 Copies of the recorded deeds of easement and a record of the recorded easement maps and deeds of easement (book and page numbers) must be delivered to the City Clerk.

5.3 The developer must then present to the Public Utilities Department a properly prepared engineering plan, profile map bearing the seal and signature of a registered engineer and showing the proposed utility extension and stating references (book and page numbers) of all recorded easement maps and deeds of easement through the Development Services Division

5.3.1 The original of the engineering plan-profile will be approved and signed by the Public Utilities Department and the Public Works Department and prepared for duplication.

5.4 After the plan-profile drawings are approved and signed, the developer may begin the actual construction of the project.

5.4.1 The Public Utilities Department must be notified of any changes in the construction plan. All changes in easement must be properly recorded and the City Clerk notified.

5.5 The Public Works Department will inspect all projects to assure conformity to City standards and the approved engineering plan-profile drawings.

5.6 Upon completion of construction work, the developer's engineer is required to provide a certificate that the project was completed within the easements as recorded. This certificate should be sent to the Department of Public Works.

5.7 The City Engineer of the City will check the project engineer's certificate against the easement references filed in the City Clerk's office and the project inspection record. .

5.7.1 The City will not accept any utility extensions for maintenance unless the certificate of conformance submitted by the project engineer agrees with the record of utility easements filed in the City Clerk's office.

5.7.2 If conforming, the City Engineer may prepare a letter of acceptance for maintenance of the completed utility extension and easements.

5.8 A copy of the letter of acceptance must be signed by the City Engineer before maintenance of the utility line by the City begins. A copy of the signed letter of acceptance will be forwarded to the developer, The Public Utilities Director, the engineer, and to the City Clerk.

# ADMINISTRATIVE REGULATION

 <b>CITY OF RALEIGH, N.C.</b>	MANUAL  Public Utilities			
SUBJECT  Utility Tap Fees	NUMBER 602-7	REV 2	EFFECTIVE DATE	PAGE      OF 1            2
	SUPERSEDES	PREPARED BY Assistant Public Utilities Director		APPROVED BY City Manager

1.0 PURPOSE:

The purpose of this Standard Procedure is to develop a procedure for locating, dating and collecting of fees for the water and sewer service stubs installed either by City forces or by contract.

2.0 ORGANIZATIONS AFFECTED:

Public Utilities Department  
 Development Services Division

3.0 REFERENCE:

Code Section 8-2039

4.0 POLICY:

The City Council has adopted a policy which provides that tap fees shall be fixed for one year after availability when installed by City forces or by contract as a part of any utility main extension project. The tap fee will be based on the prevailing rate at time of installation and that fee will be held firm for a period of 1 year after installation.

5.0 DEFINITION:

- 5.1 Taps may be either, water, sewer or both service laterals extending from the main in a public right of way to the right of way line to serve a particular piece of property.
- 5.2 Prevailing rate shall be the rate in effect and as established in the City Code on the date of approval of the project by the City Council or in the case of contracted service on the date of award of the contract by the City Council.
- 5.3 Tap fee shall be that fee established in Code Section 8-2039 adopted annually by the City Council for the various tap sizes installed.

6.0 PROCEDURE:

- 6.1 All main extension requests will be processed by the Public Utilities Department and must be approved by the City Council after holding the necessary public hearings, prior to any installation
- 6.2 The Public Utilities Department will be responsible for the plans for all public main extensions. These plans will show the abutting lots and include property owner's name and address along with PIN (Parcel Identification Number) and the proposed service stub locations.

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- 6.3 On main extensions where taps have been installed by City forces or contract. The Public utilities Department will advise the Development Services Division of the date, type, and size of the service stub installed.

# ADMINISTRATIVE REGULATION

<b>CITY OF RALEIGH, N.C.</b> 	MANUAL  Public Utilities			
SUBJECT  Water and/or Sewer Services Renewal	NUMBER 604-1	REV 2	EFFECTIVE DATE	PAGE      OF 1            3
	SUPERSEDES	PREPARED BY Assistant Public Utilities Director		APPROVED BY City Manager

1.0 PURPOSE:

To establish a policy for the renewal of water services other than copper or ductile iron and sewer services other than ductile iron and PVC.

2.0 ORGANIZATIONS AFFECTED:

Public Utilities Department and Inspections Division

3.0 REFERENCES:

Code of Ordinances of the City of Raleigh, North Carolina Sec. 8-2039; Sec. 10-6082

Departmental Operating Instructions 601-4, Revised.

4.0 DEFINITIONS:

4.1 Water service: The lateral water line which extends from the water main to the right of way line for conveyance of potable water to an individual parcel of property. It shall include the corporation stop, meter yoke, meter and meter box.

4.2 Sewer service: The lateral sewer line which extends from the sewer main to the property line for the conveyance of sanitary sewer from an individual parcel of property to the sewer system. It shall include the saddle or wye and the lateral clean-out.

5.0 GENERAL:

5.1 All water services other than copper or ductile iron services that leak, are broken or perform unsatisfactorily shall be renewed with type “K” soft copper or ductile iron pipe and a City of Raleigh approved coppersetter.

5.2 All sewer services other than ductile or PVC that leak, break, settle or perform unsatisfactorily, shall be renewed with ductile iron or PVC sewer services pipe and clean-out plug.

5.3 All water services other than copper or ductile and sewer services other than ductile iron or PVC that are within a street right of way scheduled for paving shall be renewed prior to such paving.

5.4 Should discrepancies arise concerning water and/or sanitary sewer service materials or installation standards, the most recent edition of the City of Raleigh Public Utilities handbook

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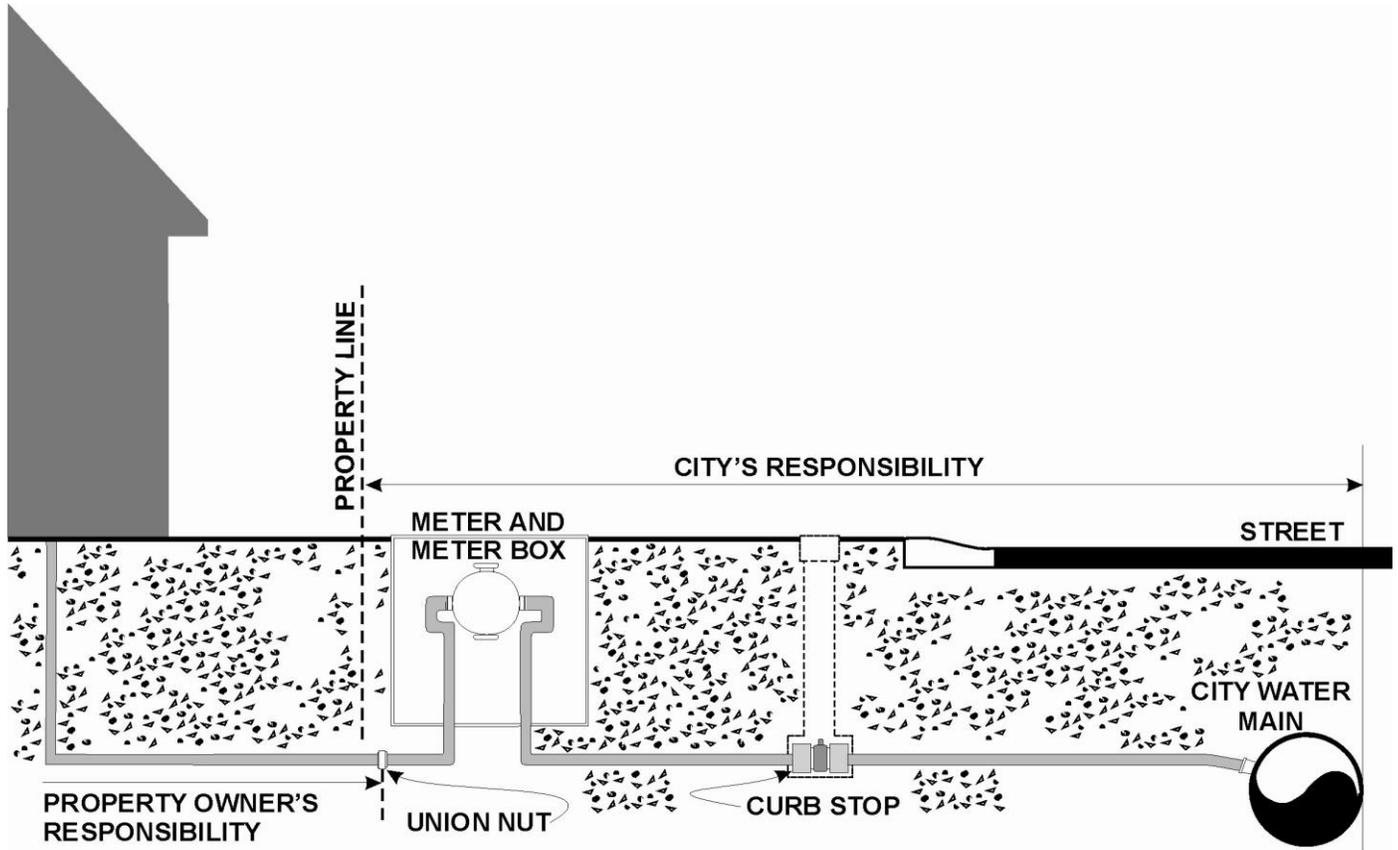
shall govern. This handbook shall supersede all documents regarding standards for water and sewer service renewals within the public right of way.

## 6.0 PROCEDURE:

- 6.1 The replacement and/or repair of water and sewer services may be initiated by the Public Utilities Director; by request from the property owner; occupants or tenants of the property served; by direction of the Plumbing Inspector; or by prescription of Sec. 10-6082 of the City Code of Ordinances.
- 6.2 Requests by owners, occupants or tenants of the property served shall be considered only in the event the service is leaking, or is delivering and insufficient quantity of water
  - 6.2.1 In the case of a request due to insufficient quantity of water, only a service delivering less than 10 GPM (gallons per minute) will be considered.
- 6.3 There shall be no charge for replacement or repair except when the existing service is enlarged. If an existing galvanized water service or terra cotta sewer service is increased in diameter, a fee shall be charged equal to the differential cost between the existing size and the proposed size as set forth in Sec. 8-2039. If a copper water service is enlarged, a fee shall be charged for the proposed service size as set forth in Sec. 8-2039.
- 6.4 Replacement of water and/or sewer services shall extend from the main to the property line and shall conform to the provisions of the City Code and the Public Utilities handbook. Water meters shall be relocated as necessary.
- 6.5 Replacement of sanitary sewer service clean-outs that connect to a City sewer main located in a public right of way, shall be replaced at no cost to the customer if damaged by a “third party” or has deteriorated due to age, materials, or root intrusion. When damage is caused due to neglect, or abuse, such as vehicular or lawn maintenance equipment, the property owner shall be held financially liable for the necessary repairs. When the damage cannot be clearly determined, the repairs shall be made at the City’s expense.
  - 6.5.1 The property owner shall bear the cost of replacement of a damaged clean-out when it is located within a City of Raleigh sanitary sewer easement. CORPUD (City of Raleigh Public Utilities Department) Code Enforcement officers shall contact the affected property owner to establish a schedule for repair in order to ensure the integrity of the sanitary sewer system.
  - 6.5.2 Sanitary sewer services located within a City of Raleigh sanitary sewer easement, but outside a public right of way, that is connected to a City of Raleigh sanitary sewer main, shall be the responsibility of the property owner. The City of Raleigh bears no responsibility for the deterioration, corrosion, root intrusion or any other damage which results in interrupted service. All responsibility and associated cost for repair to a sewer service connection is the responsibility of the property owner.

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# ADMINISTRATIVE REGULATION

<b>CITY OF RALEIGH, N.C.</b> 	MANUAL  Public Utilities			
SUBJECT  Fire Hydrant Meter - Uses and Installation	NUMBER 604-3	REV 2	EFFECTIVE DATE	PAGE      OF 1            5
	SUPERSEDES	PREPARED BY  Assistant Public Utilities Director		APPROVED BY  City Manager

1.0 PURPOSE:

To establish procedures and regulations regarding the usage and metering of water from fire hydrants for the purchase of bulk water by any person(s), firm, or corporation.

2.0 ORGANIZATIONS AFFECTED:

Public Utilities Department  
 Finance Department

3.0 DEFINITIONS:

Fire Hydrant Meter: A water meter specifically designed, fabricated and leased from the City of Raleigh Public Utilities Department for consumers to purchase water from the City from fire hydrants in accordance with the City's Hydrant Meter Program.

4.0 REFERENCES:

5.0 GENERAL:

All customers will be required to complete a **Hydrant Meter Application** (attached) in person at the City of Raleigh Public Utilities Meters Division Office, 3304 Lake Woodard Drive, for the use of fire hydrant metering devices. The application must be accompanied by a deposit of \$500.00 per hydrant meter that will be applied to the final bill, paid by check, Visa or MasterCard – no cash will be accepted by the City for hydrant meter deposits.

5.1 Hydrant meter assemblies are subject to availability.

5.2 Customers will be billed on a monthly cycle by Utility Billing for all water usage at the current applicable outside City retail rate per CCF (748 gallons)

5.3 Upon return of the hydrant meter assembly (and associated equipment) deposits shall be refunded to the customer within thirty (30) days, providing the following has occurred:

5.3.1 Hydrant meter assembly (and associated equipment) have been returned in good working condition, with no excessive wear or damage

5.3.2 Customer has paid for any damaged and/or missing equipment

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5.3.3 All outstanding water usage and rental charges for the hydrant meter assembly have been paid in full by the customer

6.0 **PROCEDURES:**

6.1 Customers may apply for temporary bulk water sales through the City’s hydrant meter program. The City also offers bulk reuse water. For more information concerning bulk reuse water contact the Neuse River Waste Water Treatment Plant at (919) 996-3700.

6.2 Customers will be allowed to rent the hydrant metering devices by the day, month, or year. Non-refundable rental rates for the hydrant meter and backflow preventer assembly are listed in the table below, no pro-rating will be allowed on monthly and yearly accounts. In addition to the rental charge, the customer is responsible for paying for the actual amount water used (consumed) and will be billed by the City based on the meter readings for the rental period. Rental and consumption charges shall be billed monthly or at the end of the applicable rental period, whichever comes first.

Daily Hydrant Meter Rental Rate	◆ \$10.00 / day
Monthly Hydrant Meter Rental Rate	◆ \$280.00 / Month
Yearly Hydrant Meter Rental Rate	◆ \$1,500.00 IF paid in advance when account is first established, otherwise customer is charged monthly rental
Consumption Rate	◆ \$5.90/ccf (1 ccf = 748 gallons)

Rental rates are for the actual time customer has the meter, regardless of usage, and will be billed monthly unless an annual rental fee is paid in advance.

6.3 No meter shall be issued unless temperature is 35 degrees Fahrenheit or above and rising. City staff will provide training and written instructions to all applicants on the proper operation of fire hydrants, and the proper techniques for the connecting and removing of the hydrant meter assembly.

**BILLING**

**Customer Billing:**

All customers will be billed monthly, for water usage and rental fees. The customer will send their readings to the Meters Division by the 7<sup>th</sup> day of each month. Readings can be sent by fax @ 919-996-2750, by e-mail to [hydrant.meter@ci.raleigh.nc.us](mailto:hydrant.meter@ci.raleigh.nc.us), by mail to the City of Raleigh, Meters Division, 3304 Lake Woodard Dr, Raleigh NC 27604, or bring the hydrant meter to the Meters Division at 3304 Lake Woodard Dr to be read.

**NOTE:** If readings are not received by the 7<sup>th</sup> day of each month, accounts with 5/8” hydrants meters will be charged for 25 CCF and larger hydrant meter accounts will be billed for 100 CCF. When accurate readings are acquired, and if the usage is under, there will be a credit adjustment; if the usage is over, the customer will be billed for the difference. Failure to report readings for two consecutive months will result in a \$50.00 per month penalty to be deducted from the \$500.00 deposit at the end of the rental period. Continued failure to report meter readings in a timely manner for billing or accounts

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that are not paid in full will result in the loss hydrant meter privileges, forfeiture of hydrant meter deposits and the permanent closing of the hydrant meter account with the City.

**DEPOSIT:**

Deposit refunds will be processed at the end of the rental period, once all water charges and rental fees accrued by the customer have been satisfied. The cost of repairs or replacement for the hydrant meter and/or back flow prevention device will be deducted from the deposit prior to any refund being processed. Deposits will be forfeited in their entirety if all charges and fees are not paid within 30 days of completion of the rental.

6.4 PENALTIES

Only City of Raleigh hydrant meters with approved back flow prevention devices provided by the City may be used to obtain bulk water from a fire hydrant in the City of Raleigh service area. The City of Raleigh service area includes Raleigh, Garner, Rolesville, Knightdale, Wendell, Zebulon and Wake Forest.

The use of any hydrant meter assembly other than those provided by the City of Raleigh will be subject to the issuance of Civil Penalties as outlined in the Raleigh City Code Section 8-2002 and 8-2014.

Continued use of a hydrant meter, when usage readings are not being registered will be considered a violation of the Raleigh City Code Section 8-2002 and will be subject to civil penalties in the amount of \$500.00 per day, per violation. It is the responsibility of the customer to notify the Meters Division at 919-996-2797 when the meter is not registering / recording the water usage.

All hydrant meters assemblies are the property of the City of Raleigh Public Utilities Department. Failure to return the hydrant meter assembly at the end of the rental period will be considered theft of City property and will be prosecuted to the fullest extent of the law.

**Individuals using City water that is unmetered and unauthorized by the Public Utilities Director are subject to a civil penalty of \$500.00 per day, and applicable water consumption charges.**

**Hydrant Meter Usage**

- A. Customers shall be trained in proper usage prior to issuance of a hydrant meter assembly.
- B. The customer must notify the Meters Division @ (919)996-2797 prior to relocating the hydrant meter to a new location. Customer must specify the fire hydrant location where the unit is being relocated to.
- C. 3” hydrant meter assemblies shall not be used in any residential neighborhood, with the exception of filling a swimming pool directly from a fire hydrant.

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- D. At not time shall any hydrant meter/backflow assembly be disassembled by anyone other than City of Raleigh staff.
- E. At not time shall any hose be left connected to a fire hydrant that is not connected to a hydrant meter assembly.
- F. Hydrant meter assemblies may be securely mounted to water truck/tankers. Truck mounted hydrant meter assemblies must clearly display the provided placard at all times.

**Note: Failure to comply with the above conditions will result in the immediate suspension of hydrant meter privileges and forfeiture of the hydrant meter deposit.**

## **6.5 Water Restrictions**

All hydrant meters may be subject to immediate recall/return in the event of the implementation of Water Restrictions due to severe drought conditions.

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## CITY OF RALEIGH HYDRANT METER APPLICATION

Date Requested \_\_\_\_\_ Service Date \_\_\_\_\_

*Name of Company* \_\_\_\_\_

Federal I.D # \_\_\_\_\_ or Social Security # \_\_\_\_\_

Requested by \_\_\_\_\_

Email Address \_\_\_\_\_

**Billing Address:** \_\_\_\_\_

(street)

(city)

(state)

(zip)

**Service Address:** \_\_\_\_\_

(street)

(city)

(state)

(zip)

Office Telephone # \_\_\_\_\_ Cell Telephone # \_\_\_\_\_

Will you be working in Garner /Rolesville/Wake Forest/Knightdale/Wendell/Zebulon? Yes or No

### I have received, read, and understood the City of Raleigh Hydrant Meter Policy

Print Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

*(office use only)*

Received Hose: Yes or No

Complete Meter Assembly: Yes or No

Received Wrench Yes or No

Other: \_\_\_\_\_

Received Hot box Yes or No

Received NT/RT Adapter Yes or No

Meter Number \_\_\_\_\_

Meter Reading \_\_\_\_\_

Meter Size \_\_\_\_\_

Rental Period    Day    Month    Yearly

Customer Number \_\_\_\_\_ Premise Number \_\_\_\_\_

Sequence Number \_\_\_\_\_ Deposit Number \_\_\_\_\_

close out information

Date Closed \_\_\_\_\_ Meter Reading \_\_\_\_\_ Days \_\_\_\_\_

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(office use only)

# ADMINISTRATIVE REGULATION

 <b>CITY OF RALEIGH, N.C.</b>	MANUAL			
<b>SUBJECT</b>  Reporting fire hydrants that are out of service	<b>NUMBER</b> 604-6	<b>REV</b> 2	<b>EFFECTIVE DATE</b>	<b>PAGE</b> <b>OF</b> 1              1
	<b>SUPERSEDES</b>  604-6	<b>PREPARED BY</b>  Assistant Public Utilities Director		<b>APPROVED BY</b>  City Manager

**1.0 PURPOSE:**

To establish a procedure for reporting fire hydrants which are inoperative or out of service.

**2.0 ORGANIZATIONS AFFECTED:**

Public Utilities Department  
 Fire Department including Raleigh Merger Areas  
 Emergency Communications Center

**3.0 GENERAL:**

3.1 All fire hydrant interruptions shall be reported immediately by the person causing the interruption or by the person finding an inoperative hydrant.

3.2 Fire hydrant interruptions shall be held to the minimum amount of time possible.

**4.0 PROCEDURE:**

- 4.1 Fire hydrants found inoperative or placed out-of-service shall be reported by telephone directly to the Emergency Communications Center at 829-1911.
- 4.2 As soon as an inoperative or out-of-service fire hydrant is returned to service, it shall be reported by telephone using the same reporting schedule as for out of service reports.
- 4.3 Fire hydrants found by the Fire Department to be inoperative or having other problems will be reported by the Fire Department to the Public Utilities Field Operations Center, Water Distribution Division. An electronic mail response on repair activities and the reason a hydrant could not be repaired, if appropriate, will be returned to the Fire Department.
- 4.4 Fire hydrants that are out-of-service shall be marked by putting an out of service ring on the steamer nozzle.
- 4.5 Private fire hydrants that are out-of-service will be the responsibility of the Fire Department.

4.5.1 The Fire Department will send a notice to the Public Utilities Code Enforcement staff who will then contact the property owner about the out-of-service hydrant. The Public Utilities Department will then send a second notice to the property owner if the hydrant is not repaired. If the property owner does not fix the hydrant within 90 days, The Public Utilities Department will fix the hydrant and send the bill for the repairs to the property owner.

# ADMINISTRATIVE REGULATION

<b>CITY OF RALEIGH, N.C.</b> 	MANUAL  Public Utilities			
SUBJECT  Water Valve Operation	NUMBER  604-7	REV 2	EFFECTIVE DATE	PAGE      OF 1            2
	SUPERSEDES	PREPARED BY Assistant Public Utilities Director		APPROVED BY City Manager

1.0 PURPOSE:

To establish a formal procedure for operation of water valves within this existing city water system.

2.0 ORGANIZATIONS AFFECTED:

- Public Utilities
- Public Works
- Fire Department
- Emergency Communications Center

3.0 REFERENCES:

- 3.1 The Code of the City of Raleigh; Section 8-2013
- 3.2 Standard Procedure 604-6 (Reporting Hydrants out of Service)
- 3.3 Departmental Operating Instruction 601-5

4.0 GENERAL:

- 4.1 No valves in the existing water system shall be operated without following the procedures outlined below.
- 4.2 The City of Raleigh Public Utilities Department is the primary agency to operate any existing system hydrants valves.

5.0 DEFINITIONS:

- 5.1 System valves shall be defined as any valve which has main pressure against either gate face. Newly installed tapping valves and control valves to main extensions not yet accepted for service are considered as system valves. Valves with a main extension still under construction are not considered as system valves.
  - 5.1.1 During installation of a water main, connection to the existing system valve is not allowed since the valve may not be able to hold hydrostatic pressure. A new valve must be installed to limit this concern

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Water Valve Operation	604-7	2		2	2

5.2 Contractor shall be defined as any person or firm making repairs, attachments or extensions to the existing City water' system; including, but not limited to Public Utilities, Public Works, and

Fire Department personnel and their assignees.

## 6.0 PROCEDURE

6.1 A contractor requiring closing of valves must provide the Public Utilities Department with a 72-hour notice and at least 24-hour written notice to residents affected by the shut-down. The Public Utilities Department may be contacted at 919-996-2737 or after hour communication at 919-829-1930 for emergencies

6.1.1 Shut-down requests must be submitted by authorized personnel from the Public Utilities, Public Works, and Fire Departments.

6.1.2 Shutdown & valve request form shall be submitted to the Public Utilities Water Distribution Division through authorized personnel via e-mail, and/or fax at (919) 212-5939

**No exceptions to this rule**

6.3 Anytime a contractor or City personnel are flowing fire hydrants for any reason between 7:30 a.m. and 4:00 p.m. they shall notify Public Utilities Operations Center by telephone (831-6900) or radio between 7:30 a.m. to 4:00 p.m. Between 4:00 p.m. and 7:30 a.m. they shall notify Emergency Communications Center at (919-996-2737).

6.4 Anytime City personnel or contractors find a valve closed in the City water system they shall contact the City Valve Crew Supervisor or Water Operations Superintendent at (996-5921) before opening.

## 7.0 EMERGENCIES

7.1 In the case of an emergency, the contractor shall be allowed to take such steps with valves and hydrants as are necessary for the protection of life and property. Notification must be made after the first valve operations are completed as outlined in 6.5. An Emergency shall be defined as a break in an eight inch or larger water main, or where ruptured smaller lines are causing property damage.

## DEPARTMENTAL OPERATING INSTRUCTIONS

 <b>CITY OF RALEIGH, N.C.</b>	MANUAL			
SUBJECT	NUMBER	REV	EFFECTIVE DATE	PAGE OF
Water and/or Sewer Services Renewal	DOI-604-1			1 2
	SUPERSEDES	PREPARED BY		APPROVED BY
		Assistant Public Utilities Director		City Manager

1.0 PURPOSE:

To establish a policy for the renewal of water services other than copper or ductile iron and sewer services other than ductile iron and PVC.

2.0 ORGANIZATIONS AFFECTED:

Public Utilities Department

3.0 REFERENCES:

Code of Ordinances of the City of Raleigh, North Carolina Sec. 8-2039; Sec. 10-6082

Departmental Operating Instructions 604-1, Revised.

4.0 DEFINITIONS:

4.1 Water service: The lateral water line which extends from the water main to the right of way line for conveyance of potable water to an individual parcel of property. It shall include the corporation stop, meter yoke, meter and meter box.

4.2 Sewer service: The lateral sewer line which extends from the sewer main to the property line for the conveyance of sanitary sewer from an individual parcel of property to the sewer system. It shall include the saddle or wye and the lateral clean-out.

5.0 GENERAL:

5.1 All water services other than copper or ductile iron services that leak, are broken or perform unsatisfactorily shall be renewed with type “K” soft copper or ductile iron pipe and a City of Raleigh approved coppersetter.

5.2 All sewer services other than ductile or PVC that leak, break, settle or perform unsatisfactorily, shall be renewed with ductile iron or PVC sewer services pipe and clean-out plug.

## CITY OF RALEIGH, N.C.

- 5.3 All water services other than copper or ductile and sewer services other than ductile iron or PVC that are within a street right of way scheduled for paving shall be renewed prior to such paving.
- 5.4 Should discrepancies arise concerning water and/or sanitary sewer service materials or installation standards, the most recent edition of the City of Raleigh Public Utilities handbook shall govern. This handbook shall supersede all documents regarding standards for water and sewer service renewals within the public right of way.

### 6.0 PROCEDURE:

- 6.1 The replacement and/or repair of water and sewer services may be initiated by the Public Utilities Director; by request from the property owner; occupants or tenants of the property served; by direction of the Plumbing Inspector; or by prescription of Sec. 10-6082 of the City Code of Ordinances.
- 6.2 Requests by owners, occupants or tenants of the property served shall be considered only in the event the service is leaking, or is delivering an insufficient quantity of water
  - 6.2.1 In the case of a request due to insufficient quantity of water, only a service delivering less than 10 GPM (gallons per minute) will be considered.
- 6.3 There shall be no charge for replacement or repair except when the existing service is enlarged. If an existing galvanized water service or terra cotta sewer service is increased in diameter, a fee shall be charged equal to the differential cost between the existing size and the proposed size as set forth in Sec. 8-2039. If a copper water service is enlarged, a fee shall be charged for the proposed service size as set forth in Sec. 8-2039.
- 6.4 Replacement of water and/or sewer services shall extend from the main to the property line and shall conform to the provisions of the City Code and the Public Utilities handbook. Water meters shall be relocated as necessary.
- 6.5 Replacement of sanitary sewer service clean-outs that connect to a City sewer main located in a public right of way, shall be replaced at no cost to the customer if damaged by a “third party” or has deteriorated due to age, materials, or root intrusion. When damage is caused due to neglect, or abuse, such as vehicular or lawn maintenance equipment, the property owner shall be held financially liable for the necessary repairs. When the damage can not be clearly determined, the repairs shall be made at the City’s expense.
  - 6.5.1 The property owner shall bear the cost of replacement of a damaged clean-out when it is located within a City of Raleigh sanitary sewer easement. CORPUD (City of Raleigh Public Utilities Department) Code Enforcement officers shall contact the affected property owner to establish a schedule for repair in order to ensure the integrity of the sanitary sewer system.
  - 6.5.2 Sanitary sewer services located within a City of Raleigh sanitary sewer easement, but outside a public right of way, that is connected to a City of Raleigh sanitary sewer main, shall be the responsibility of the property owner. The City of Raleigh bears no

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responsibility for the deterioration, corrosion, root intrusion or any other damage which results in interrupted service. All responsibility and associated cost for repair to a sewer service connection is the responsibility of the property owner.



Authorization and approval to impact any downstream sewer system must be obtained from the reviewing engineer. If such downstream sewer system has already been identified as critical or sub-critical in a monitoring report, the review engineer may require additional field monitoring to determine if adequate capacity is available. For an existing development and/or redevelopment, the capacity study shall address the existing capacity within the existing sewer collection system, and identify all existing facilities whose capacity will be exceeded by projected sewage flows.

Where applicable, the DESIGN ENGINEER shall incorporate into the City’s existing master sewer plan, including zoning changes and other specific plans, the proposed sewer system amendments resulting from the drainage basin evaluation.

- 7.1.3 Drainage Basin:** The sewer capacity study shall address the sewage generating potential of the entire drainage basin where the development is located. It shall also include current topographic maps of the entire drainage basin and any and all adjacent new developments for which a sewer capacity study has not yet been submitted and/or approved. The maps shall demonstrate that no adjacent development, including existing pumped lands outside of the drainage basin will be precluded from obtaining sewer service. The sewer capacity study shall also show all proposed sewer system alignments and all potential points of entry of sewage from surrounding lands.
- 7.1.4 Depths of Mains:** The capacity study shall clearly identify all proposed facilities which will exceed standard depths for sewer mains. In cases where proposed sewers will exceed 20 feet in depth, other alternatives must first be demonstrated before approval of such depths will be allowed.
- 7.1.5 Existing Studies:** The City of Raleigh Public Utilities Department maintains a library of sewer capacity studies which were prepared for areas throughout the City. These studies are available for review at the Public Utilities Department. All studies are catalogued by basin or trunk sewer name. Logs of sewer flow study analyses for recently monitored trunk sewers and a map of sewers which meet the criteria for being critical or sub-critical may also be viewed. In many cases, an addendum or reference to one of the existing sewer capacity studies may be acceptable in lieu of an independent study.
- 7.1.6 Land Use:** Present or future allowable land use, whichever results in higher equivalent population, shall be used to generate potential sewage flows.
- 7.1.7 Flow Determination:** All gravity sewer mains shall be designed and sized to serve the total natural drainage basin. The total off-site drainage area in acres must be shown on the plans and calculations and should be submitted to the Public Utilities Department upon request to justify pipe sizing. An 8-inch main shall be the minimum size permitted.

Sewer size design shall be based on an average daily flow of 100 gpcpd (gallons per capita per day) and a peak/average ratio of 2.5. This ratio includes an allowance for infiltration. The following table should be used as a guide for determining the Equivalent Persons/Acre and the peak flow for various zoning classifications:

Zoning Classification	Equivalent Persons Per Acre	Average Flow (gpapd)	Peak Flow (gpapd)
Agricultural Production	2.5	250	625
Buffer Commercial	30	3,000	7,500
Business	25	2,500	6,250
Conservation Management	2.5	250	625
Industrial 1	50	5,000	12,500
Industrial 2	30	3,000	7,500
Manufactured Housing	14	1,400	3,500
Office & Institution – 1	13	1,300	3,250
Office & Institution – 2	30	3,000	7,500
Office & Institution – 3	13	1,300	3,250
Residential – 2	5	500	1,250
Residential – 4	8	800	2,000
Residential – 6	14	1,400	3,500
Residential – 10	21	2,100	5,250
Residential – 15	31.5	3,150	7,875
Residential – 20	42	4,200	10,500

Residential – 30	63	6,300	15,750
Rural Business	2.5	250	625
Rural Residential	2	400	1,000
Shopping Center	18	1,800	4,500
Thoroughfare District	50	5,000	12,500

For merger towns and UDO zoning classifications, use equivalent densities from the table above, or contact the Public Utilities Department.

**Sewer size design shall be to half full or 50% capacity for peak flow for grades  $\geq 0.10$ .**

**Example:**

Estimated Existing/Paper Flow	125,000	gpd	Based on flow meter data, field observation, billing records, zone of NCDENR
Estimated Peak Flow	75,000	gpd	

**Projected Future Flows**

Total Basin Area	750	acres	
Less Developed Areas with Sewer	250	acres	
Less Floodplains, Stream Buffers, etc.	75	acres	
Area for Future Development	425	acres	
Projected Average Flow	340,000	gpd	800 gpapd for R-4
Projected Peak Flow	850,000	gpd	2.5 times projected average daily flow
<b>Total Projected Flow</b>	<b>1,350,000</b>	<b>gpd</b>	

**7.1.8 Pipe Sizing Criteria**

**Hydraulic Requirements:** Manning’s formula for open-channel flows shall be used to calculate flows in gravity sewer mains. Manning’s coefficient for roughness “n” shall be assumed to be 0.013 for all types of sewer pipe. Sewer grades shall be designed for velocities of 2 to 5 feet per second (fps) where possible. This is extremely important in areas where peak flow will not be achieved for many years. The minimum allowable velocity is 2 fps at calculated peak dry weather flow, excluding infiltration. Sewer mains that do not sustain 2 fps at peak flows shall be designed to have a minimum slope of 1 percent. Additional slope may be required where fill of varied depth is placed below the pipe in order to provide adequate slope after expected settlement occurs. The maximum allowable velocity shall be 10 fps and shall be avoided by adjusting slopes by increasing the pipe diameter. If the Senior City Engineer approves a velocity greater than 10 fps, the pipe shall be upgraded to SDR 18 PVC (standard dimension ratio polyvinyl chloride).

**Slope:** Slope shall be calculated as the difference in elevation at each end of the pipe divided by the horizontal length of the pipe, and shall be a constant value between manholes. Grades for sanitary sewers must be such that a minimum flow velocity of 2 feet per second is maintained. The minimum grade for an 8-inch sewer line is 0.50%. For other pipe sizes, follow the table below from the NC Gravity Sewer Minimum Design Criteria:

Diameter of Pipe (inches)	Minimum Slope (feet per 100 feet)
6	0.60
10	0.40
12	0.28
14	0.17
15	0.15
16	0.14
18	0.12
21	0.10
24	0.08
27	0.07
30	0.06
36	0.05

**Ratio Depth of Flow to Pipe Diameter ( $d_n/D$ ):** New sewer mains 21 inches and smaller in diameter shall be sized to carry the projected peak flow at a depth not greater than half of the inside diameter of the pipe ( $d_n/D$  not to exceed 0.5). New sewer mains 24 inches and larger shall be sized to carry the projected flow at depth of flow not greater than  $\frac{3}{4}$  of the inside diameter of the pipe ( $d_n/D$  not to exceed 0.75).

**Minimum Pipe Sizes:** The size of a sewer pipe is defined as the inside diameter of the pipe. Sewer mains shall be a minimum of 8 inches in diameter in residential areas, and a minimum of 10 inches in commercial, industrial, and high-rise building areas.

**Sewer Study Exhibit Criteria:** The DESIGN ENGINEER's sewer study exhibits shall be used to evaluate hydraulics and to establish minimum street and easement widths. Therefore, these documents need to reflect depths and separation of mains from other utilities and improvements.