Domestic Water Use and Water & Sewer Rates

Town of Winchester
Board of Selectmen Meeting
Neil H. Amwake, P.E.
January 21, 2014

Presentation Outline
Goals and Objectives

1. Typical domestic water use
   1. Sewer sociology
2. Winsted Water Works statistics
3. Current water and sewer rates
4. Leak detection
Daily Demand

Average

- 75 – 125 gpcd (gallons per capita-day)
  - More affluent customers use more water per day

Winsted Water Works

- 0.89 MGD Average Daily Demand
- 1.22 MGD Maximum Day Demand (July 14, 2012)

- 2,694 Customer accounts
Daily Demand
Hourly Variations

- Winter = 0.80x Average Daily Demand
- Summer = 1.30x Average Daily Demand

- Early Morning = 0.25x – 0.40x
- Noon = 1.50x – 2.0x

Daily Demand
Average

Daily Water Uses

Typical Residential Consumption

- Water-saving shower: 2.5 gallons per minute
- Nonwater-saving shower: 7 gallons per minute
- Conventional toilet flush: 3 - 5 gallons
- Water-saving toilet flush: 1 - 2 gallons
- Urinal flush: 1 gallon
- Washing hands: 0.25 – 1 gallon
- Brushing teeth w/ water running: 1.5 – 3 gallons per min.
- Dishwasher load: 4 - 15 gallons
- Hand washing dishes: 2 – 3 gallons per minute
- Laundry: 15 - 25 gallons per load

Daily Demand

Sewer Sociology

Figure 1. Hydrograph of Sewer Flow Monitor Data
Daily Demand
Sewer Sociology (continued)

Water Demand

ccf

1 ccf = 100 cubic feet

1 cubic foot = 7.48052 gallons

1 ccf = 748.052 gallons
“... a residential user who has historically consumed 2,406 cubic feet per quarter (a standard used by CT DEEP) will see a 20% increase in water bills, and a 33% increase in sewer bills. The quarterly increase is $28 for water and $35 for sewer, a total of $63 per quarter.”

### Water and Sewer Rates

#### Current Water Rates

**Water Base Rates**
- 5/8” Meter (Single Family) $79.00 per Quarter
- 3/4” Meter (2-family) $94.00 per Quarter
- 1” Meter (Multi Family) $160.00 per Quarter

**Water Usage Charge**
- $3.626 per ccf (100 cubic feet) First 20,000 gallons
  - Previous usage charge of $2.47 per ccf
    - Increase of $1.156 (46.80%)
- $3.302 per ccf (100 cubic feet) Usage > 20,000 gallons
  - Previous usage charge of $2.25 per ccf
    - Increase of $1.052 (46.76%)

**Base Charge + Usage Charge + High Usage Charges = Water Bill**
Water and Sewer Rates
Current Sanitary Sewer Rates

Sewer Base Rate
- 5/8” Meter (Single Family) $50.00 per Quarter
- 3/4” Meter (2-family) $50.00 per Quarter
- 1” Meter (Multi Family) $92.50 per Quarter

Sewer Usage Charge
- $3.47 per ccf (100 cubic feet)
  - Previous usage charge of $2.02 per ccf
  - Increase of $1.45 (71.78%)

Base Charge + Usage Charge = Sewer Bill

Water Meter
Leak Quantity

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<th>Leak Rate (gph)</th>
<th>Loss Per Day</th>
<th>Loss Per Month</th>
<th>Leak Rate (gph)</th>
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Water Meter

Leak Quantity

![Image](water_meter_leak_quantity.png)

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Water Meter

Leak Detection

- Locate the water meter dial
  - May include a meter interface unit (MIU)
- Turn off water demand inside the residential dwelling
  - Faucet(s)
  - Shower(s)
  - Toilet(s)
  - Washing machine
- With all of the water off, is the red triangle spinning
  - If so, there is a potential leak inside your home
    - Toilet
    - Dripping faucet
**Water Meter**

Leak Detection

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**Water & Sewer**

Future Presentations

1. Water Supply, Treatment & Distribution (2Q 2014)
2. Sanitary Sewer Collection (3Q 2014)
   1. Highland Lake Grinder Pumps
3. Wastewater Treatment (4Q 2014)
Domestic Water Use

Questions

- Comments?
- Questions?