Affordability

Stormwater Finance Workshop

December 11, 2019

Chapel Hill, NC

Slide deck updated: November 22, 2019

UNC | SCHOOL OF GOVERNMENT
Environmental Finance Center

www.efc.sog.unc.edu

House Keeping

- Wi-Fi:
  - UNC Guest
  - Go to wifi.unc.edu and accept terms
- Handouts
  - Access on computer or print
- Restrooms and water fountains are out the entrance and to the left
  - Please feel free to leave or stretch at any time, should you need to

Agenda Screenshot

Day 2

Wednesday, December 11, 2019

8:30 Continental Breakfast

9:00 Affordability
A wholistic look at the costs of water services from a One Water approach. How charging fee structuring affects proportion of stormwater revenue responsibility by customer class.
Evan Kirk, Project Director, Environmental Finance Center

10:00 Break

10:15 Funding Programs and Activity
Overview of the Clean Water Management Trust Fund. Subsidized loan calculator demonstration and funding activity.
Steve Bevington, Restoration Program Manager, Clean Water Management Trust Fund
Erin Riggs, Senior Project Director, Environmental Finance Center

11:45 Lunch

12:45 Public Outreach and Communication
Local government outreach, communication, and education strategies for stormwater.
Erin Riggs, Senior Project Director, Environmental Finance Center
Laura Smith, Public Education Coordinator, City of Durham Stormwater

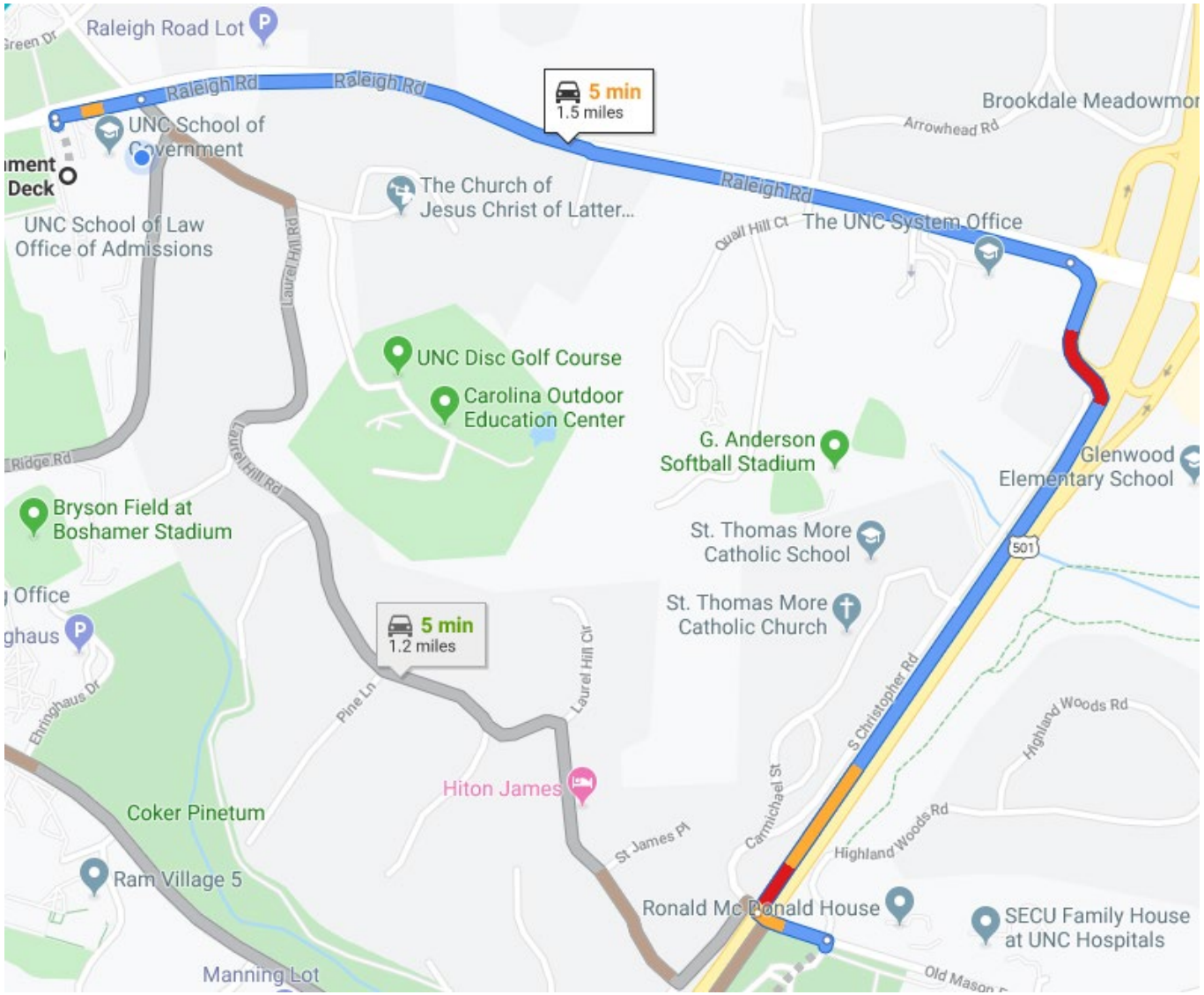
2:00 Course Evaluation

2:15 Stormwater and Green Infrastructure tour of Battle Grove
Walking tour followed by discussion of ancillary benefits of the installation and the funding structure for the project.
Sally Hoyt, Stormwater Engineer, University of North Carolina

3:45 Dismissal

Today's outside tour

- Leaving at 2:00
- Display parking pass on your car's dash
  - Parking code is #5916
- Park at UNC School of Government parking deck



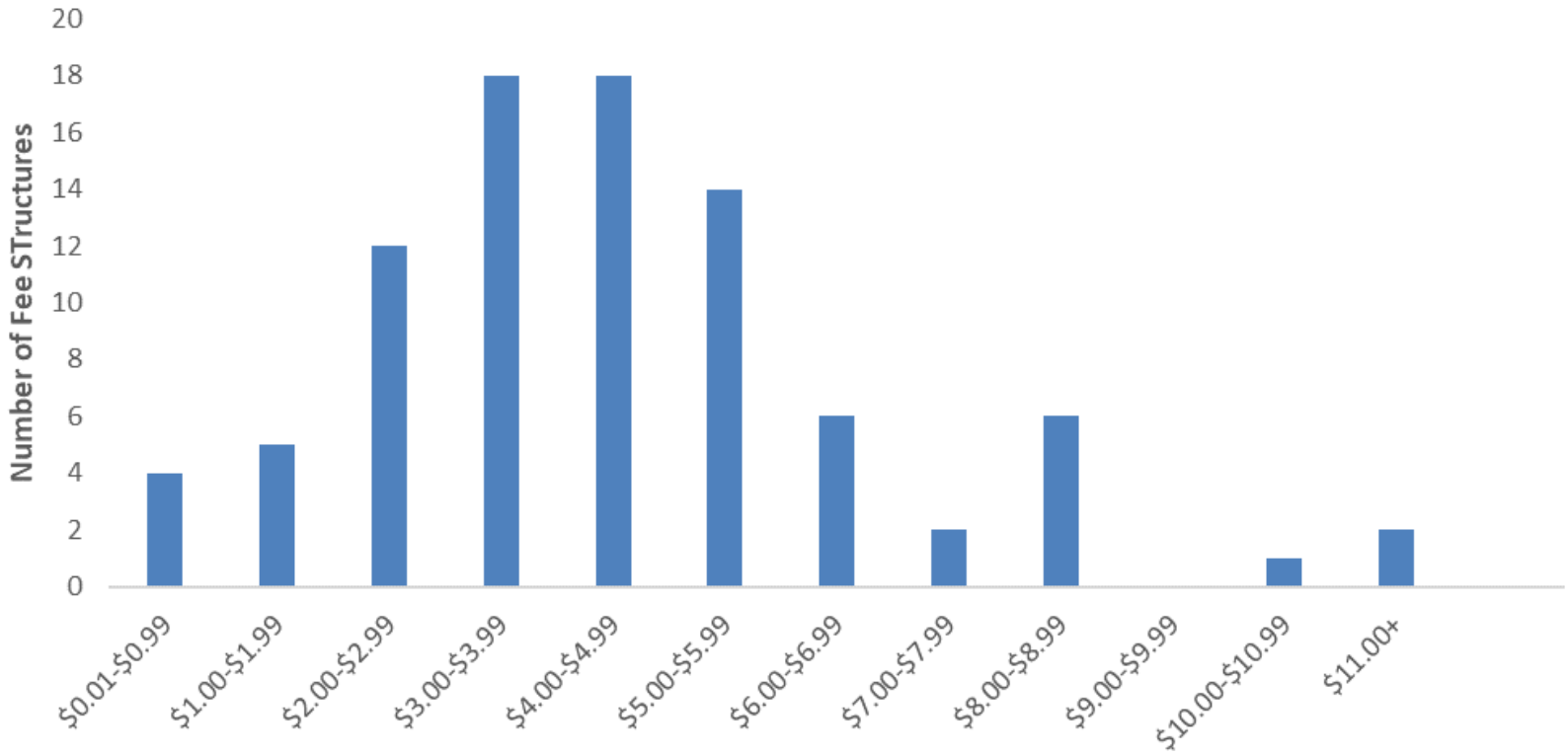
Session Topics

- Stormwater fee affordability
- One Water approach
- Holistic affordability considerations
- Equity considerations of fee structure design

Affordability Research

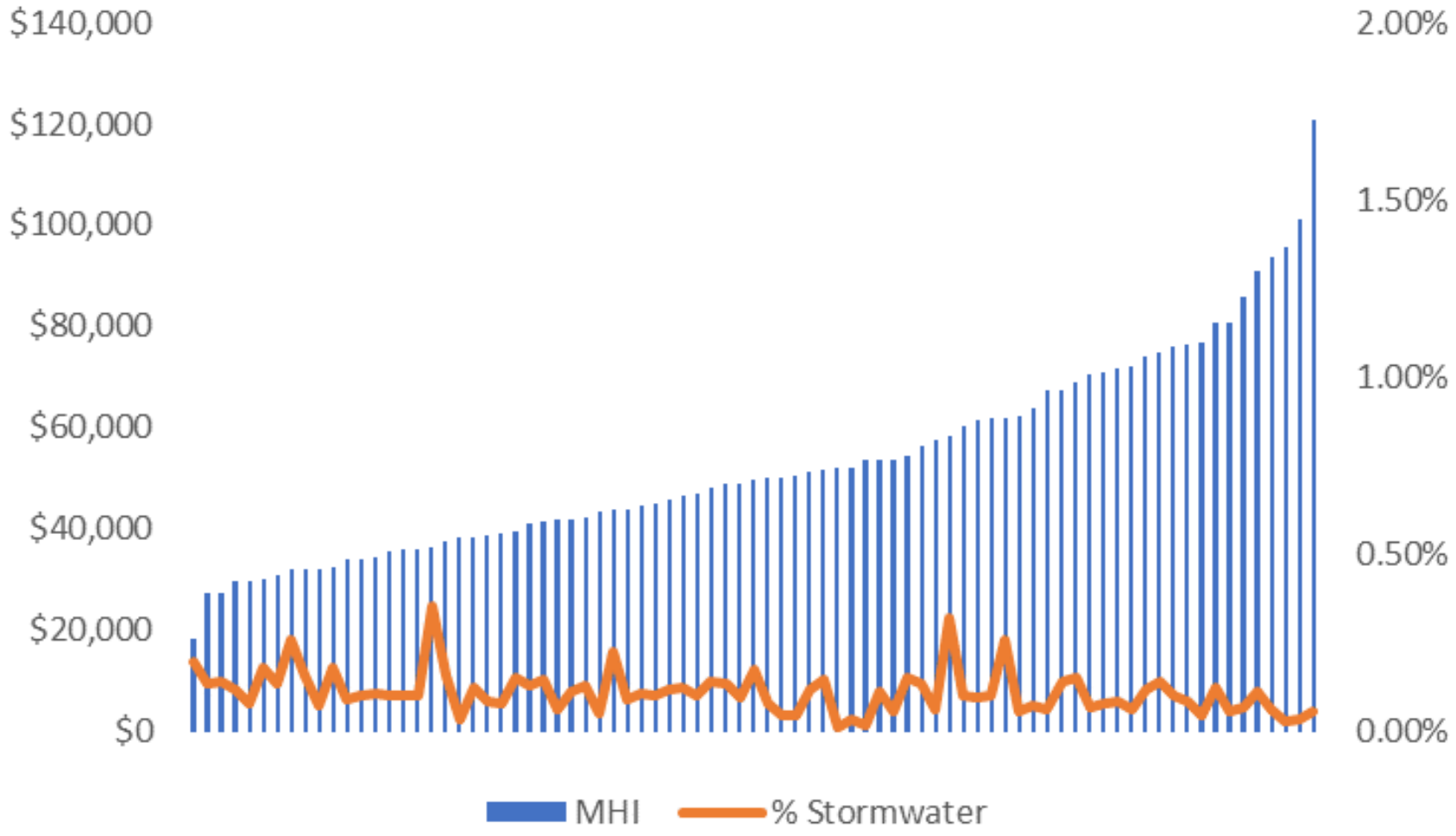
- Not much out there on stormwater affordability
- Why is this?

Current Stormwater Fees



Data Source: 2018-19 NC Stomwater Fees Survey: Environmental Finance Center at the University of North Carolina (n = 88)

Stormwater fees are a small fraction of MHI



So let's think holistically…

One Water 

"…an integrated planning and implementation approach to managing finite **water** resources for long-term resilience and reliability, meeting both community and ecosystem needs."

-Water Research Foundation

"A mindset that all water has value." "A focus on achieving multiple benefits - economic, environmental, & social."

-Jordan Lake One Water

Looking at Cost Holistically

- Water
- Wastewater
- Stormwater

One Water

- What else?
  - Non-water items include… housing, food, energy, taxes, healthcare
    - We won't go into these here

Ways to looks at holistic costs in the water sector

Household Burden Indicator (HBI)

HBI = Total basic water service cost / 20th Income Percentile

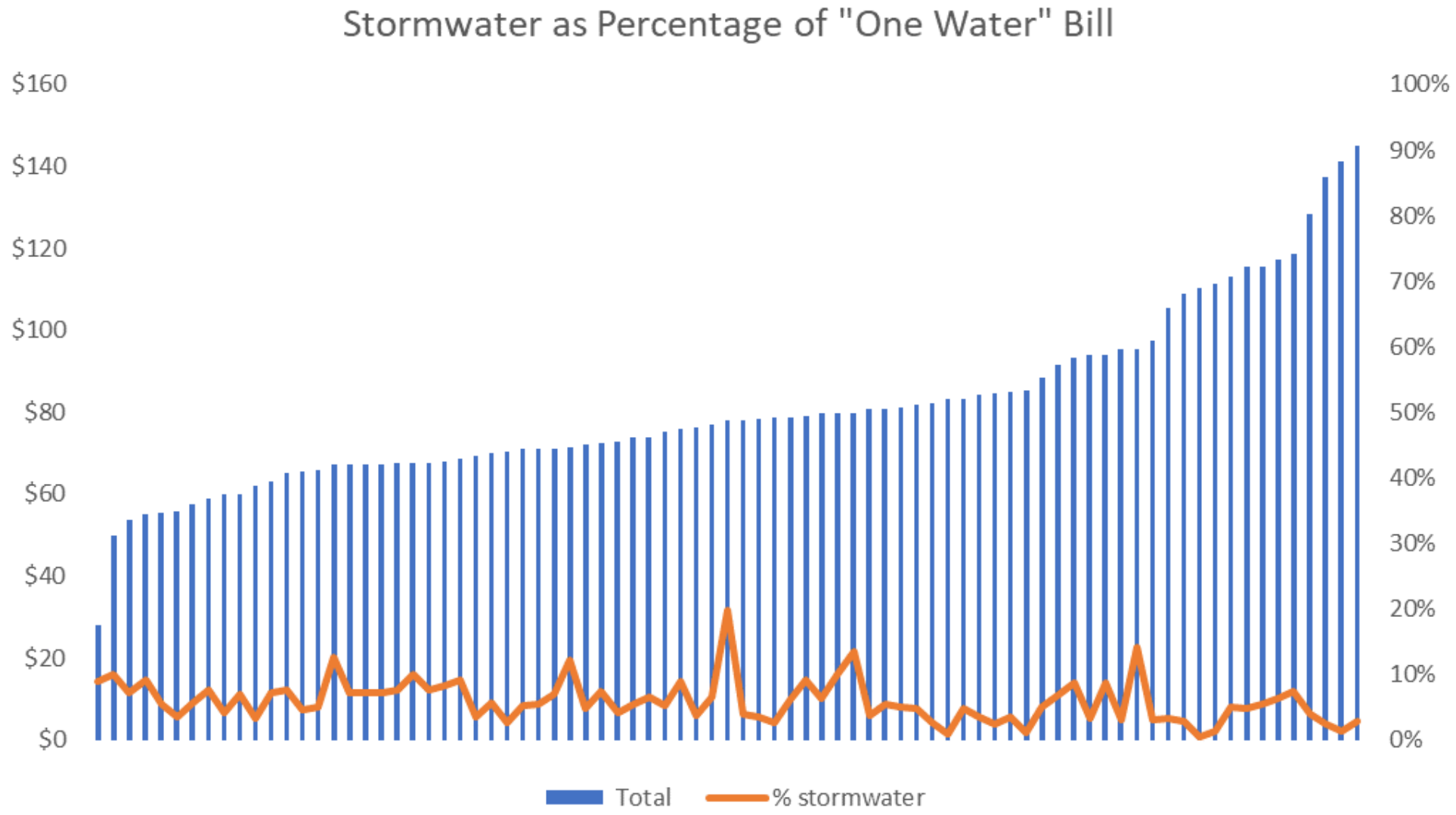
AR20

AR20 = Basic Monthly Cost for Service / ((20th Income Percentile - Essential Costs)/12)

Basic Monthly Cost for Service = ((Wastewater Rate Per Gallon + Water Rate Per Gallon) * 4 People Per Household * 50 Gallons Per Person Per Day * (365 Days Per Year /12 Months Per Year)

Essential Costs = Housing + Food + Healthcare + Home Energy + Taxes

Stormwater fees are a small fraction of “One Water” Bill



But affordability still matters…

Fee vs. No Fee

Durham Stormwater Fees

2018-2019 Annual Revenue = $18,601,206

- Residential:
  - X < 2,000 sq. ft of impervious surface → $3.26/mo.
  - 2,000< X <4000 sq. ft of impervious surface →$6.75/mo.
  - X ≥ 4,000 sq. ft of impervious surface → $13.50/mo.
- Nonresidential/Commercial: $6.75 per month for each ERU (2,400 sq. ft.)

Durham Property Taxes

- Property tax rate = 57.96 cents per $100 property valuation
- Assessed Value - Real Property = $25,266,438,689
- Tax Levy on Real Property = $146,444,279

**It would take approximately 7.3 cents/$100 to generate $18.6 Million*

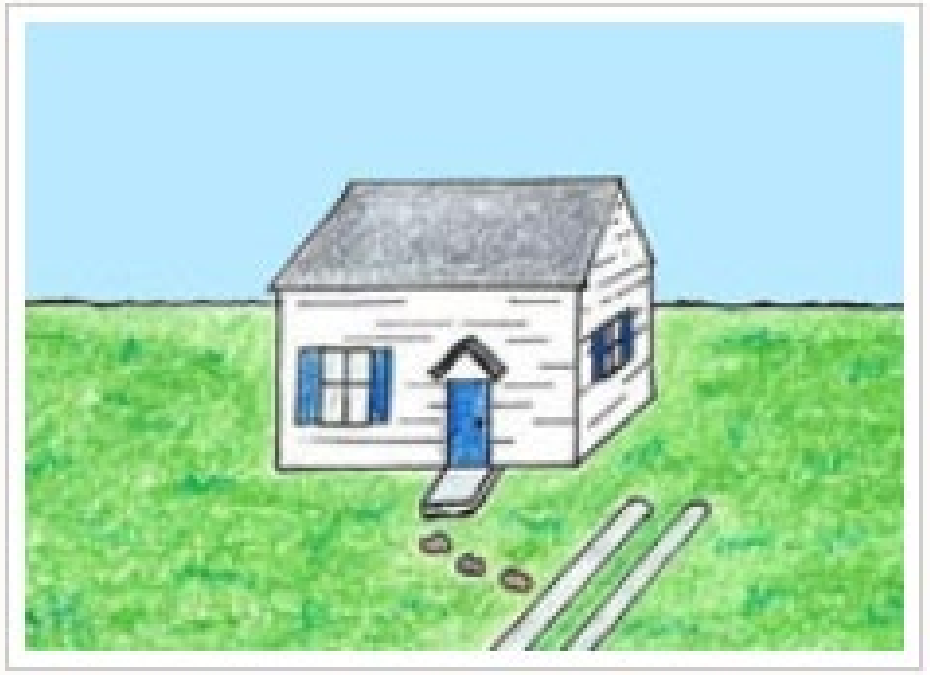
Residential tiered fee structure

Tier 1
Total impervious area less than 2,000 square feet - $39.12 annually

Tier 2
Total impervious area between 2,000 and 3,999 sq. ft. - $81.00 annually

Tier 3
Total impervious area 4,000 sq. ft. or more - $162.24 annually

$10,000 House



- Current fees
  - **$39.12/yr.** ($3.26/mo.)
  - < 2,000 sq. ft of impervious surface
- If budget funded by property tax
  - **$60/yr.**

$600,000 House

- Current Fees
  - **$162/yr.** ($13.50/mo. on water bill)
  - X ≥ 4,000 sq. ft of impervious surface
- If budget funded by property tax
  - **$360/yr.**

Church (24,000 Sq. Ft Impervious Area)

- Current fees
  - **$810/yr.** ($67.5/mo.)
  - 10 ERU's ($6.75/ERU)
- If budget funded by property tax
  - **$0**

Durham Bulls Ballpark (163,200 Sq. Ft Impervious Area)

- Current fees
  - Fee = $306/mo. **($3,672/yr.)**
- If funded by property tax
  - **$0**

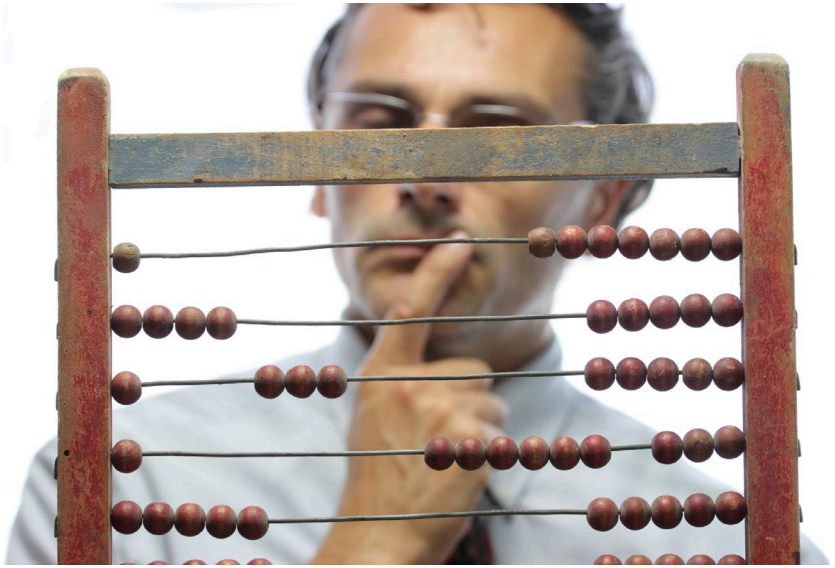
Equity among customer classes

…and the fee structure affects equity

- Flat fee for all customer classes
- Flat fee differs by customer class
- Per ERU fee
- Flat fee for residential, per ERU for non-residential

Activity

- We will calculate stormwater fees for four customers using four fee structure mechanisms
- Take out your abacus… or phone to use as a calculator



Using methods borrowed from this paper

Technical Paper | Full Access

The Financial Impact of Different Stormwater Fee Types: A Case Study of Two Municipalities in Virginia†

Amanda Fedorchak, Randel Dymond, Warren Campbell

First published: 27 October 2017 | https://doi.org/10.1111/1752-1688.12590 | Citations: 1

Waterdale, NC

- Typical North Carolina medium sized town
  - 30,000 residents
- Re-evaluating stormwater fee structure
- Finance director is concerned about ‘equitable’ revenue generation

Calculating Fees for Waterdale, NC

- $170,830 in monthly stormwater revenue
- 38,904 parcels
  - 28,995 residential, 9,909 non-residential
- 281 million sq ft impervious
  - 82.3 million sq ft res, 198.7 million sq ft non-res

How this may impact customers

1,000 sq ft impervious

3,000 sq ft impervious

10,000 sq ft impervious

20,000 sq ft impervious

Flat fee for all classes

Stormwater Fee

Stormwater Charge	$2.00 per month per utility account

Flat fee for all classes

- $\frac{\text{Monthly Revenue}}{\text{Total Parcels}} = \$$ per month per parcel
- $\frac{\$170{,}830}{38{,}904} =$ $4.39 per parcel

Option 1: Flat fee for all classes

$4.39	**$4.39**	**$4.39**	**$4.39**

Flat fee for all properties

Flat fee by customer class

Stormwater	Residential	$3.07 per month
	Commercial	$6.00 per month
	Industrial	$12.00 per month

Flat fee by customer class

- Separate fees for residential versus non-residential
- Multiplier= $\frac{NR\ IA}{Res.\ IA} = \frac{198.7\ million\ sq\ ft}{82.3\ million\ sq\ ft} = 2.41$
- Residential rate $= \frac{Monthly\ Revenue}{(multiplier)(No.\ NR\ Parcels)+(No.\ Res.\ Parcels)} =$

$$\frac{\$170{,}830}{(2.41)(9{,}909)+(28{,}995)} = \$3.23$$

- Non-res rate $= (multiplier)(Res.rate) = (2.41)(3.23) = \$7.78$

Option 2: Flat fee by customer class

$3.23	**$3.23**	**$3.23**	**$7.78**

Per ERU fee

Single Family or Single Owner Properties

IMPERVIOUS SURFACE AREA (SQUARE FEET)	FEE
0 – 199	$0.00
200 – 1,000	$32.15
1,001 – 2,000	$64.30
2,001 – 3,000	$96.45
3,001 – 4,000	$128.60
4,001 – 5,000	$160.75
5,001 – 6,000	$192.90

The fee increases by $32.15 for every additional 1,000 square feet or portion thereof.

Per ERU fee

- $ERU = \frac{Res.\ Impervious\ Area}{No.\ Res.\ parcels} = \frac{82.3\ million\ sq\ ft}{28{,}995} = 2{,}838$ sq ft

- Total ERUs $= \frac{Total\ Impervious\ Area}{ERU\ Size} = \frac{281\ million\ sq\ ft}{2{,}838\ sq\ ft} = 99{,}013$ ERUs

- ERU Rate $= \frac{Monthly\ Revenue}{Total\ Number\ of\ ERUs} = \frac{\$170{,}830}{99{,}013} = \$1.81$

Option 3: Per ERU

0.35 ERU	1.05 ERU	3.52 ERU	7.04 ERU
$0.63	$1.90	$6.37	$12.74

Flat fee residential, per ERU nonresidential

Why is there a stormwater fee?

The City created a stormwater utility fee to fund the Federal and State mandated Phase II Stormwater Program. The City's Stormwater Management Program is funded completely through this stormwater fee. This is a separate utility fee, not tax dollars. The residential fee is $3 per month. The nonresidential fee is based on the amount of impervious surfaces on each property at $3 per 2,500 square feet of impervious surfaces per month.

Flat fee residential, per ERU nonresidential

- Rate $= \frac{Monthly\ Revenue}{(No.\ Res.\ Parcels)+(Total\ NR\ ERUs)} = \frac{\$170{,}830}{(28{,}995)+(70{,}014)} = \$1.73$
- Residential bill = Rate = $\$1.73$
- Non-residential bill = (Rate)(Total ERUs) = $(\$1.73)$(Total ERUs)

Option 4: Flat fee residential, per ERU nonresidential

0.35 ERU	1.05 ERU	3.52 ERU	7.04 ERU
$1.73	$1.73	$1.73	$12.18

Percentage of monthly revenue paid by each customer class

Residential: 29.3% of impervious area

Non-residential: 70.7% of impervious area

Fee structure	Residential	Non-Residential
Flat for all customer class	74.5%	25.5%
Flat by customer class	67.7%	32.3%
Per ERU	29.3%	70.7%
Flat (Res), Per ERU (NR)	30.1%	69.9%

Evan Kirk
emkirk@sog.unc.edu
919.962.2789

Environmental Finance Center at the University of North Carolina
School of Government, Knapp-Sanders Building
CB #3330
Chapel Hill, NC 27599-3330
USA

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