

## City of Bismarck, North Dakota

Utility Cost of  
Service & Rate  
Design Study:

*Stakeholder  
Meeting:  
Phase II –  
Capital Charges*

*October 18, 2018*

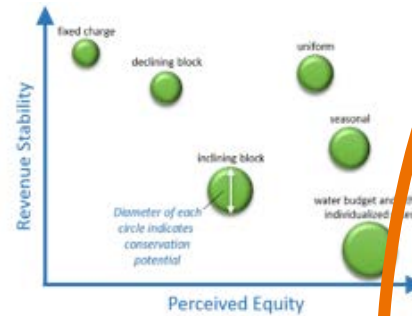
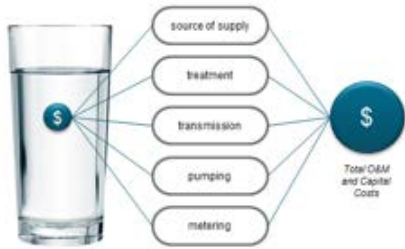


# Big picture refresher

- Initial review of strengths, weaknesses, and opportunities (Phase I)
  - Public meetings on 5/7 and 6/11; Commission on 6/26
- **Detailed analytical work (Phase II)**
  - Public meeting on 8/1 – revenue requirements
  - Public meeting on 9/5 – cost of service
  - Public meeting on 9/19 – rate design
  - Public meeting on 10/18 – capital charges
- Final documentation and report, delivery of models and training (Phase III)

# Where we are in the process

Phase II Steps



## Revenue Requirements

- Operating Costs
- Capital Costs
- Financial Policies
- Debt Coverage
- Reserves

## Cost Allocation

- Evaluate Available Data
- Establish Classes
- Identify Methodology
- Compare Results to Current Revenue

## Rate Design

- Evaluate Objectives
- Identify Structures
- Set Parameters
- Customer Impacts

## Other Fees/Charges

- Trunk line Assessment
- Miscellaneous Fees
- Capital Charges
- Unannexed Surcharge

Active Stakeholder Participation

# Water & Sewer Capital Charges

# Capital charges overview

**Purpose:** a mechanism through which new customers pay their fair share of the costs of expansion; i.e. “Growth pays for growth”

## **Application:**

- Enabling legislation requires specific processes in many states, but the core calculations are consistent nationwide based on well-defined “case law”
- Operations, maintenance, repair, and rehabilitation costs cannot be included in such fees as those expenditures are required to provide services to current customers
- Capital charge revenues are used to pay for growth-related capital projects

# Capital charges overview

## **Key concepts:**

- Capital charges will only recover a proportional share of capacity related costs
- The calculation process subtracts donated assets
- The calculation process subtracts existing indebtedness
- In the absence of capacity fees, rate payers are forced to bear the full cost of providing capacity for new customers
- These cases result in a subsidy from existing customers to future customers and the development process

## Example charges for a single family unit

	<b>Water capital charge (residential)</b>	<b>Sewer capital charge (residential)</b>	<b>Total capital charge (residential)</b>
Billings, MT	\$ 2,850	\$ 1,890	\$ 4,740
Colorado Springs, CO	10,197	1,868	12,065
Idaho Falls, ID	1,575	1,074	2,649
Portland, OR	4,211	6,446	10,657
Fort Worth, TX	6,593	3,914	10,507
Chaska, MN	4,861	3,332	8,192
Union County, NC	3,300	4,440	7,740
Henrico County, VA	4,635	5,605	10,240
Pasco County, FL	1,298	3,198	3,496

# Water rate plan

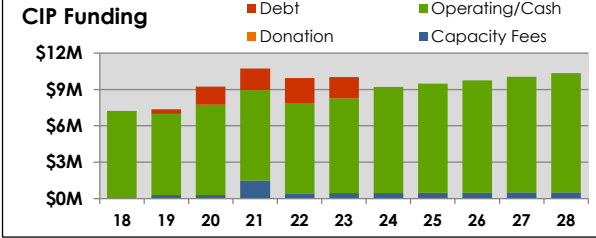
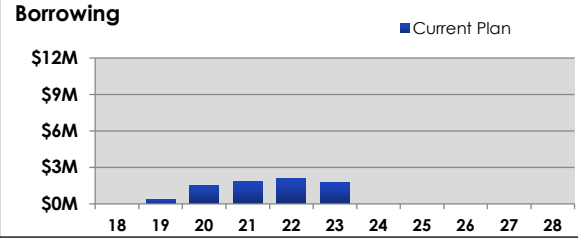
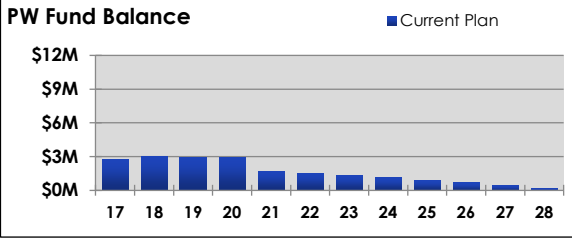
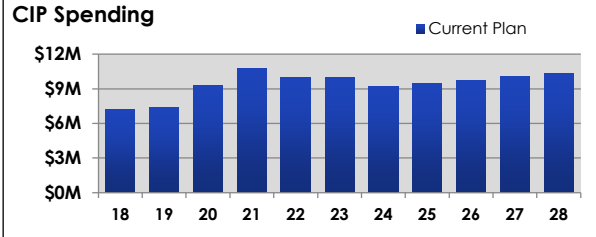
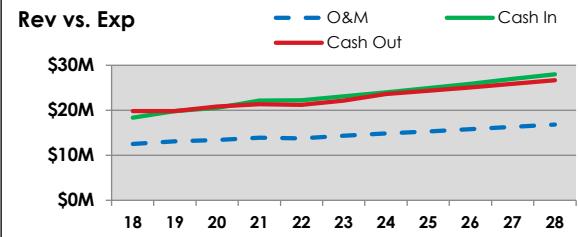
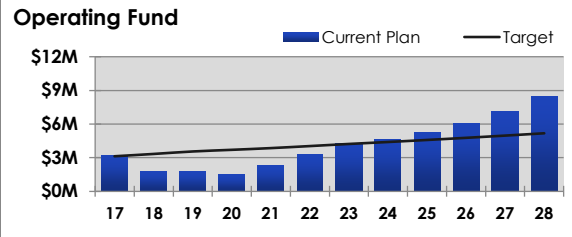


## FAMS-XL

Bismarck, ND - Water Fund

CALC LAST2  
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CTRL

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2022	FY 2027
Water Rate Plan	0.00%	8.00%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	19.83%	42.43%
Curb Stop Rate Plan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
Senior-Lien DSC	2.70	2.93	2.98	2.99	3.64	3.60	3.67	3.80	3.93	4.06	4.22		
Average Bill (9 CCF)	\$31.65	\$34.03	\$35.16	\$36.33	\$37.54	\$38.79	\$40.07	\$41.40	\$42.77	\$44.21	\$45.69		
Change \$		\$2.38	\$1.13	\$1.17	\$1.21	\$1.25	\$1.28	\$1.33	\$1.37	\$1.44	\$1.48	Check	-





# Sewer rate plan

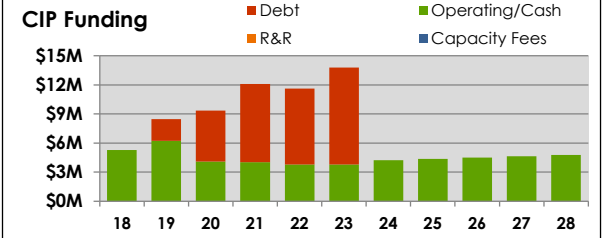
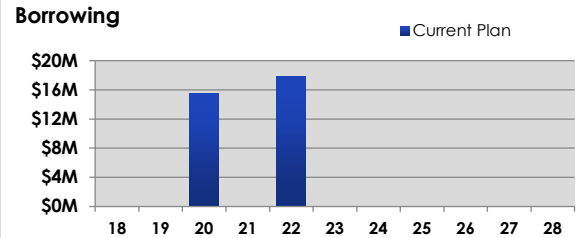
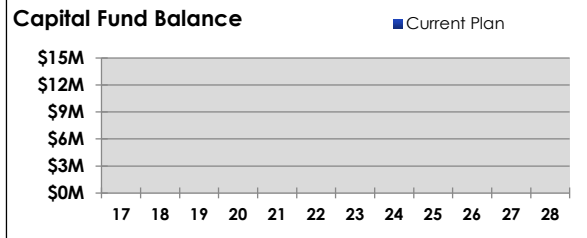
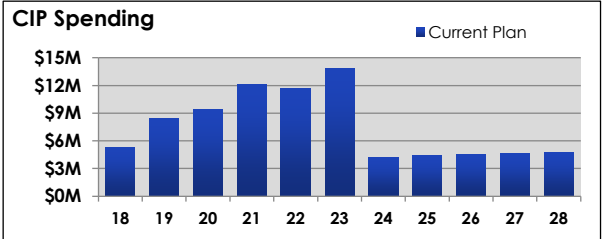
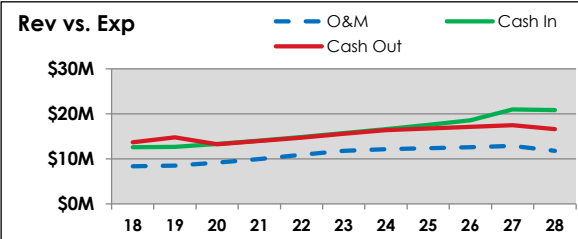
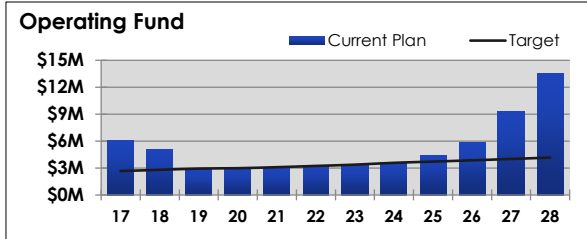
## FAMS-XL

Bismarck, ND - Sewer Fund

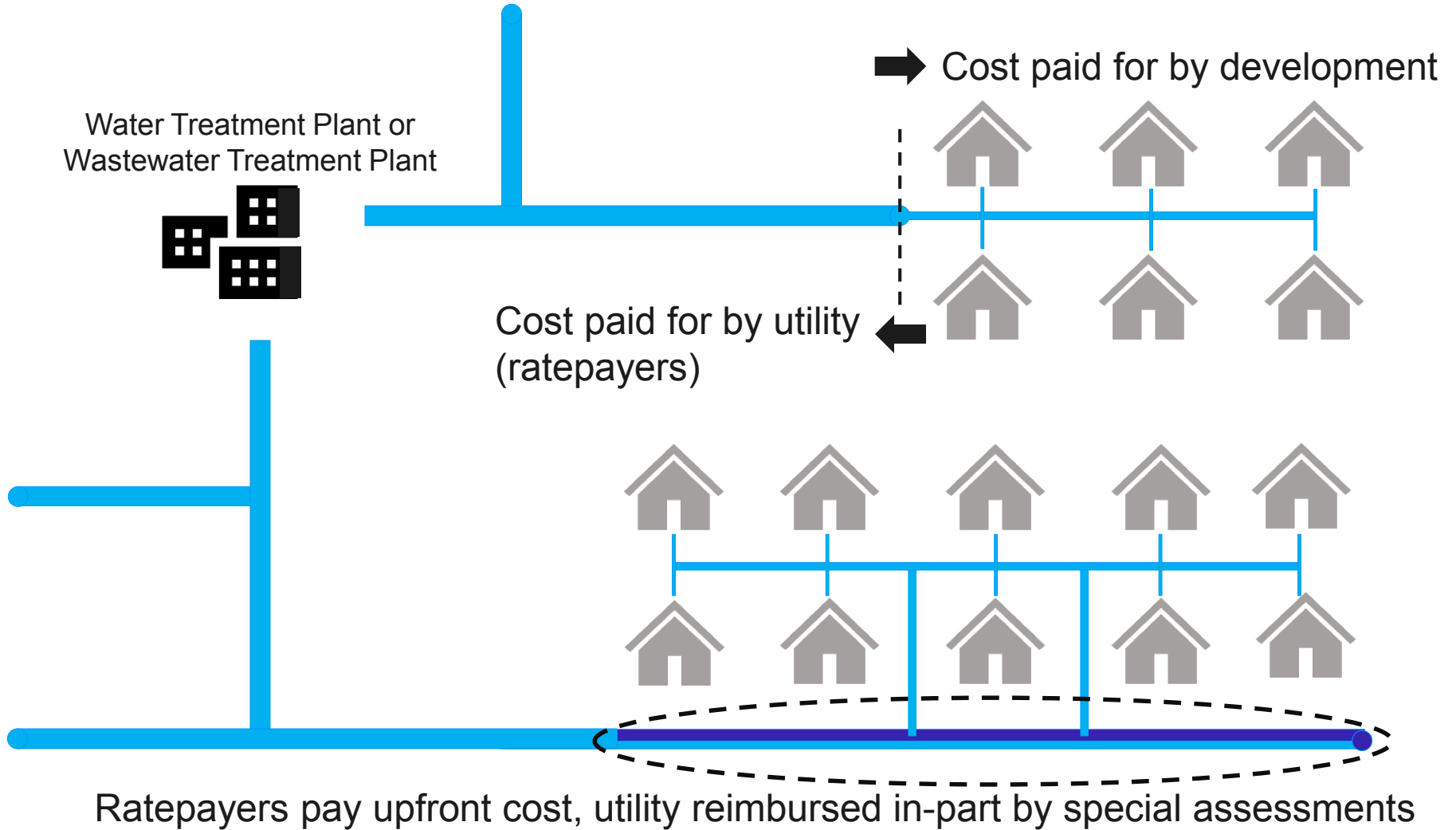


- CALC LAST2
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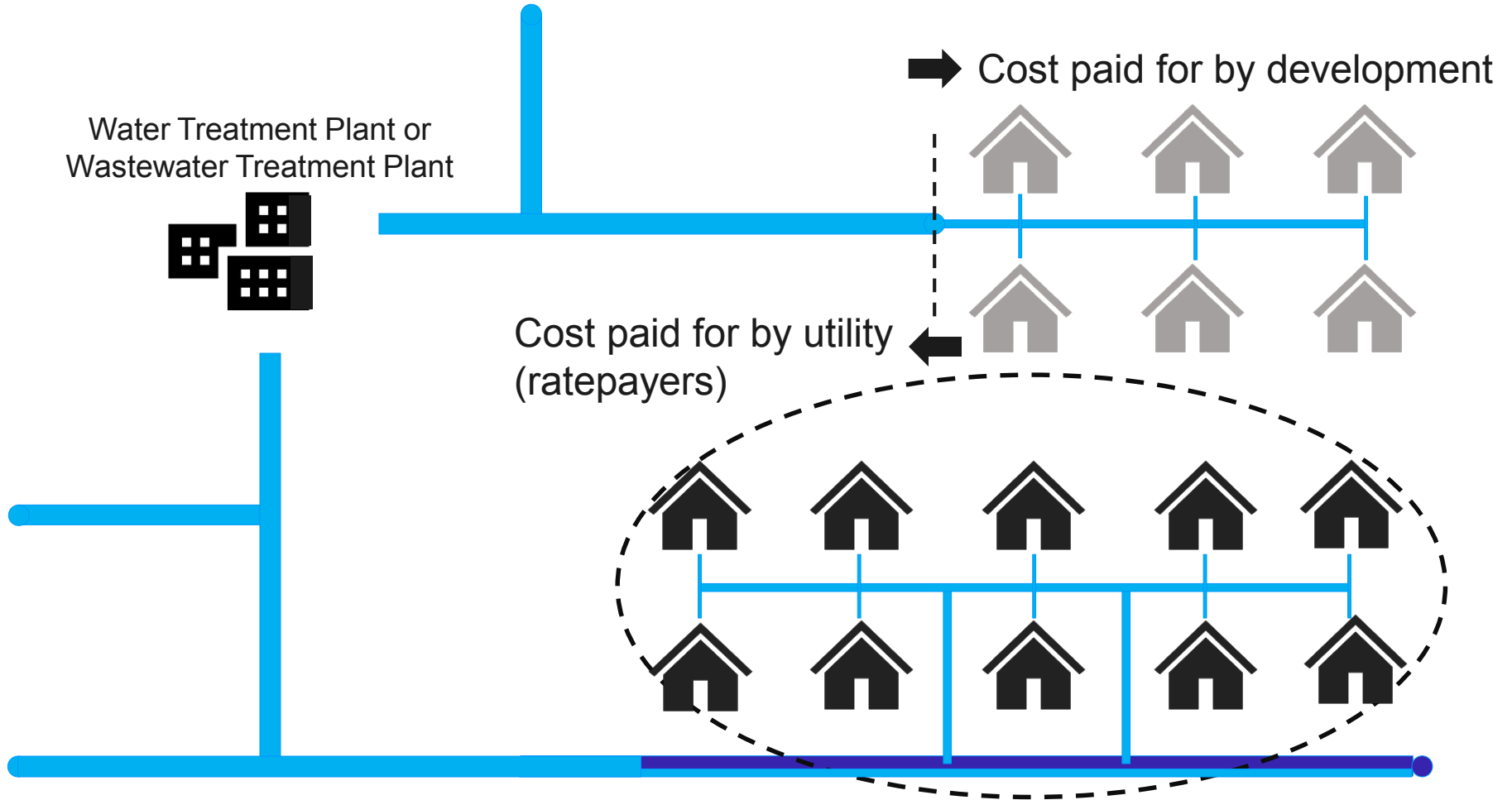
	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2022	FY 2027
Sewer Rate Plan	0.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	21.56%	55.10%
Backup Surcharge	0.00%	-33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		
Senior-Lien DSC	2.14	2.27	2.11	1.97	1.79	1.70	1.80	1.92	2.06	2.20	3.05		
Avg Bill (9 CCF)	\$35.95	\$37.57	\$39.45	\$41.45	\$43.48	\$45.62	\$47.88	\$50.24	\$52.73	\$55.34	\$58.07		
Change \$		\$1.62	\$1.88	\$2.00	\$2.03	\$2.14	\$2.26	\$2.36	\$2.49	\$2.61	\$2.73	Check	-



# Current capital cost recovery Water and sewer systems

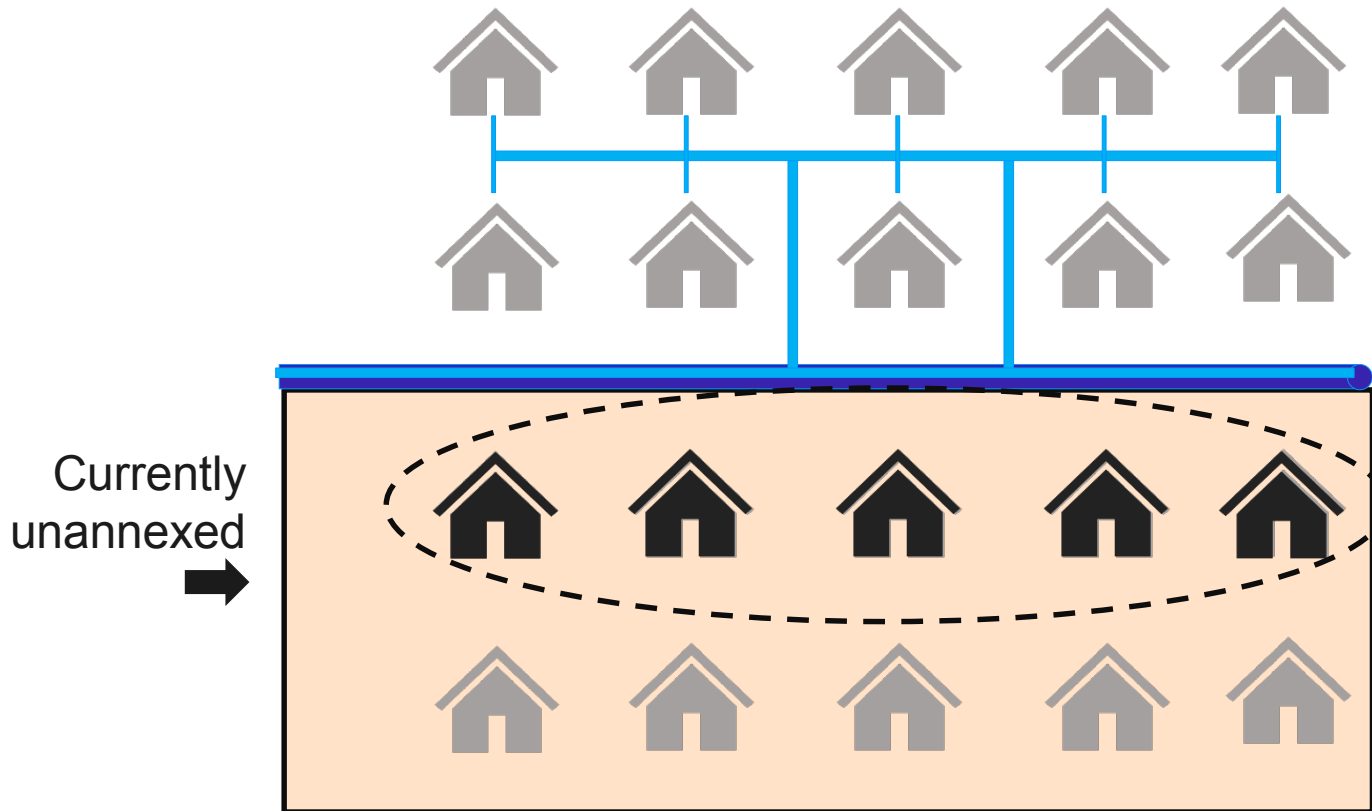


# Current capital cost recovery Water and sewer systems



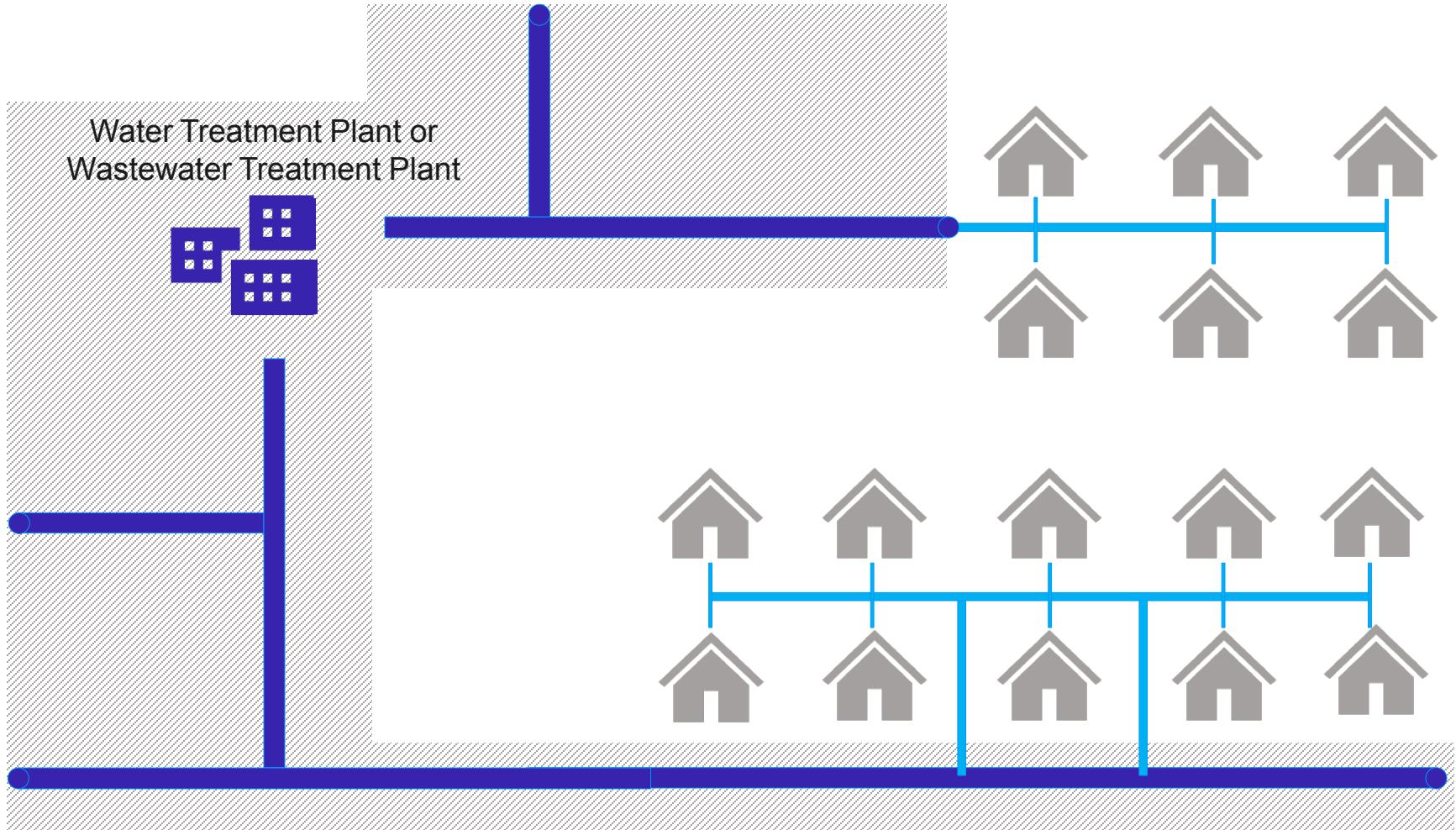
Upsized cost (difference between 8" and larger line) paid by ratepayers, partially reimbursed at \$300 / 1,000 assessed sq. ft., paid over 15 years

# Current capital cost recovery Water and sewer systems



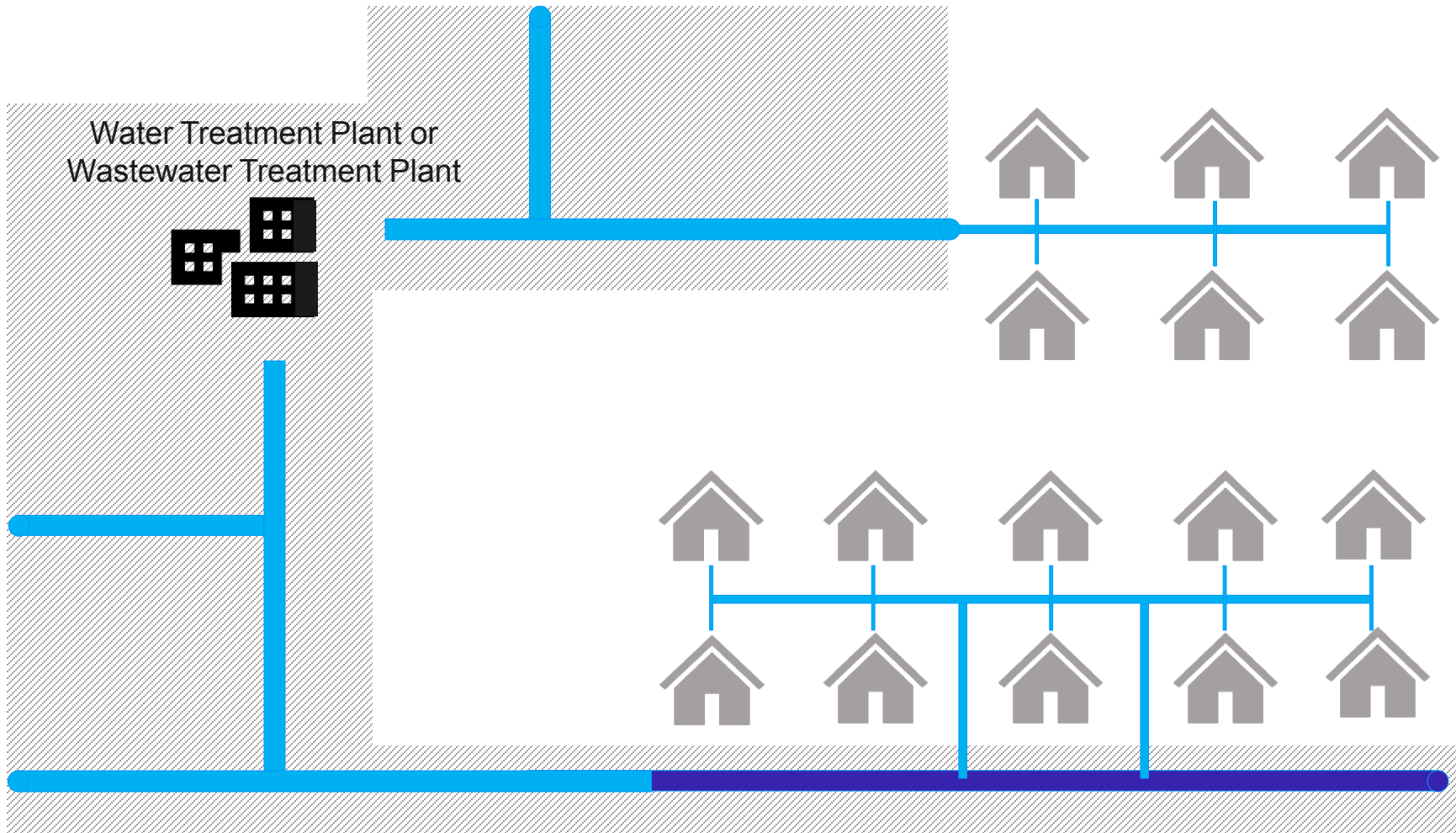
Ratepayer pays  $\frac{1}{2}$  of 8" line cost, reimbursed by properties immediately adjacent to 8" line, special assessed over 15 years, following annexation

# Proposed capital cost recovery Water and sewer systems



Cost supported in part by capital charge revenues

# Proposed capital cost recovery Water and sewer systems



Special assessments are not applied. To meet development schedules, transmission lines can be constructed by developers and capital charges partially credited

# Capital charge methodologies

Methodology	Description	Appropriate for
Buy-in method	Fees are based on cost of constructing existing utility system	System with ample existing capacity to sell
Incremental cost method	Fees are based on planned capital improvements	System with no/very limited existing capacity to sell
Combined method	Fees are based on cost of existing system and planned capital improvements	System with existing capacity to sell and with significant growth related capital projects

Stantec recommends using the buy-in method for the City's water and sewer capital charges

# Capital charge calculation

$$\text{Capital charge} = \frac{\text{Value of system} - \text{Debt}}{\text{System capacity}}$$

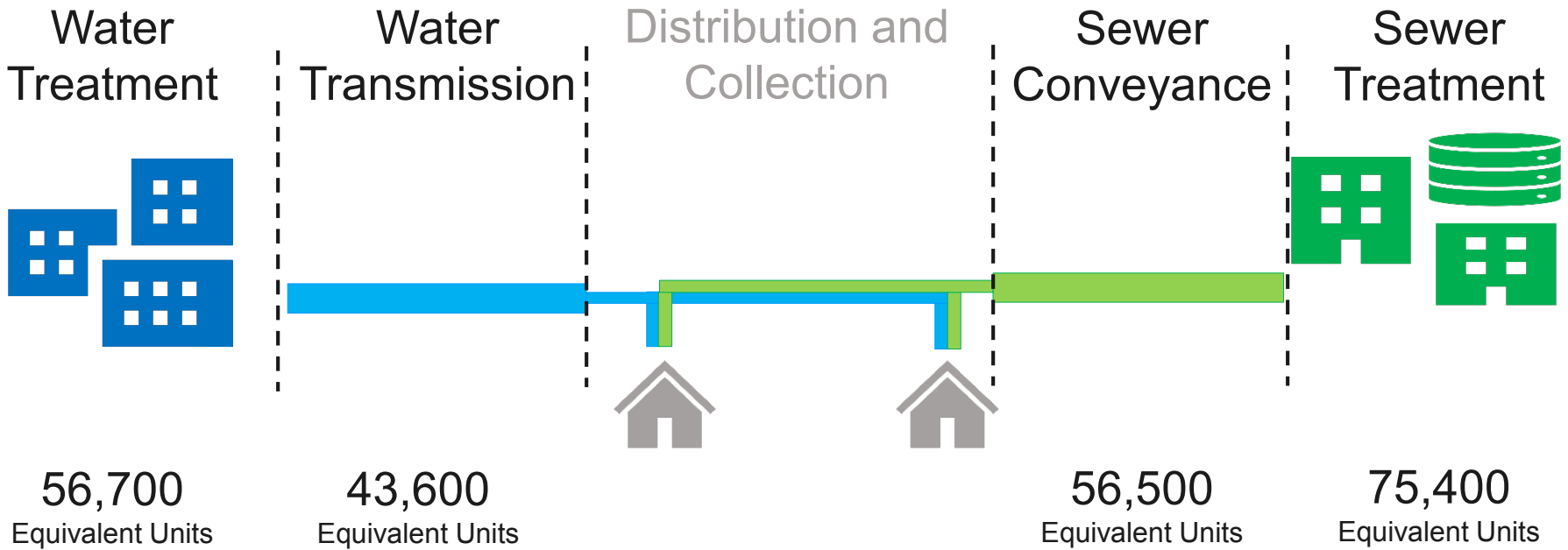
**Value of system:** Depreciated value escalated to current replacement cost (excludes contributed assets)

**Debt:** Outstanding principal on existing utility debt

**System capacity:** Total capacity in utility system measured in equivalent units



# System and fee components



Credits may be applied to water transmission and/or sewer conveyance for upsizing of lines, at City's request

# Water capital charge calculation Treatment system

Value of system: \$86M

Debt: \$15M

System capacity: 56,700 units

$$\frac{\$86\text{M} - \$15\text{M}}{56,700} = \$1,252 \text{ per Equivalent Unit}$$

Equivalent Units

# Water capital charge calculation

## Transmission system

Value of system: \$97M

Debt: \$17M

System capacity: 43,600 units

$$\frac{\$97\text{M} - \$17\text{M}}{43,600 \text{ Equivalent Units}} = \$1,833 \text{ per Equivalent Unit}$$

# Sewer capital charge calculation

## Treatment system

Value of system: \$83M\*

Debt: \$19M

System capacity: 75,400 units

$$\frac{\$83\text{M} - \$19\text{M}}{75,400 \text{ Equivalent Units}} = \$852 \text{ per Equivalent Unit}$$

\*Includes cost of biosolids and master plan capital projects.

# Sewer capital charge calculation

## Conveyance system

Value of system: \$60M

Debt: \$20M

System capacity: 56,500 units

$$\frac{\$60\text{M} - \$20\text{M}}{56,500} = \$700 \text{ per Equivalent Unit}$$

Equivalent Units

# Combined capital charge

Water Treatment	Water Transmission
\$1,252	\$1,833
Sewer Treatment	Sewer Conveyance
\$852	\$700
<b>Total Combined Fee</b> (per Equivalent Unit)	
<b>\$4,637</b>	

## Combined capital charge by meter size

Meter size	Meter equivalency	Calculated charge
3/4"	1.00	\$ 4,637
1"	1.67	\$ 7,728
1 1/2"	3.33	\$ 15,457
2"	5.33	\$ 24,731
3"	11.67	\$ 54,098
4"	20.00	\$ 92,740
6"	45.00	\$ 208,665

# Capital charge implementation

## Current

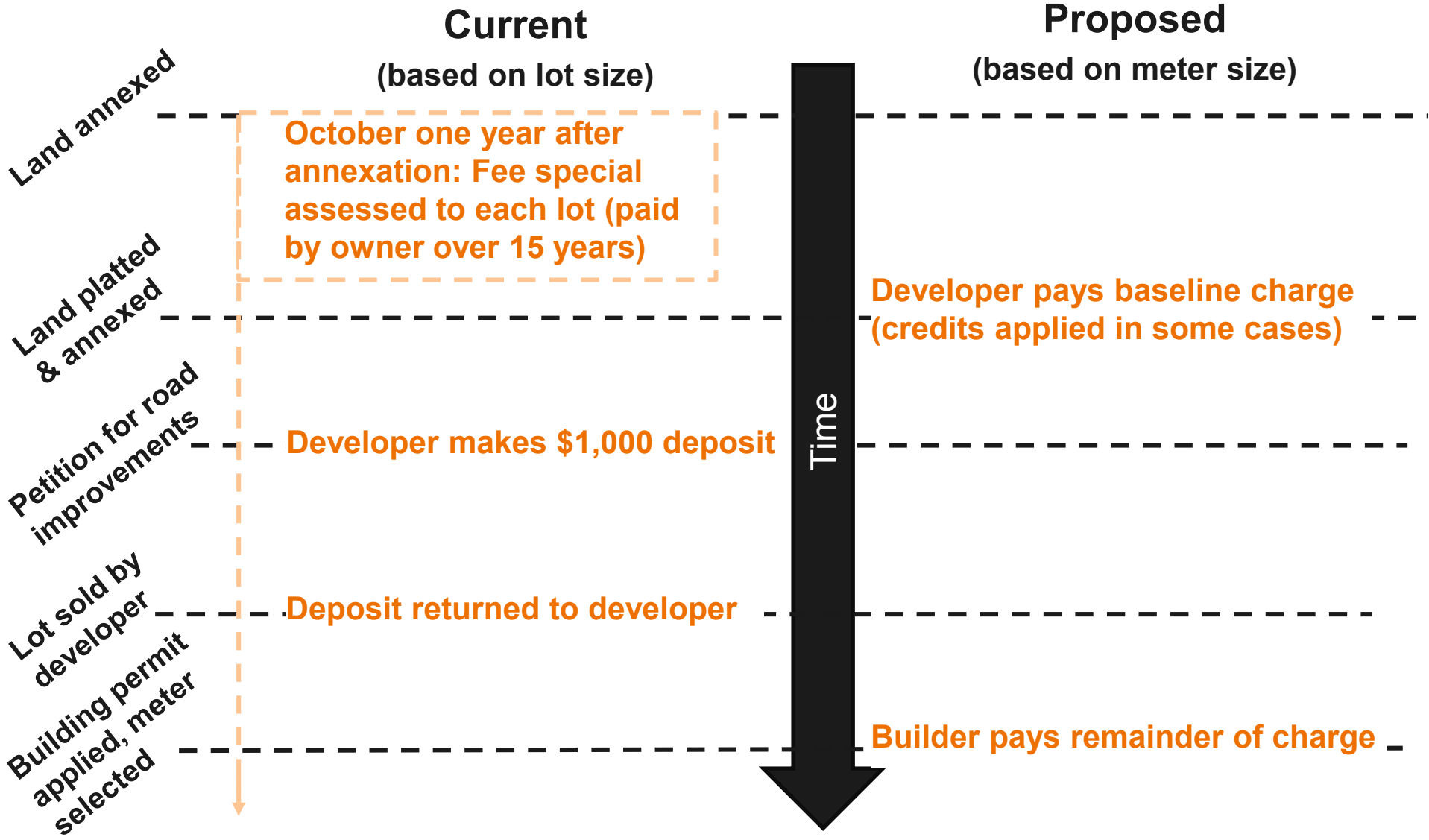
1. Developer makes \$1,000 deposit for trunk line assessment (water and sewer)
2. Trunk line fee (\$300 / 1,000 assessed sq. ft.) special assessed to properties, paid ~\$20 / 1,000 ASF each year over 15 years. Ratepayers front-end construction and carrying costs
3. Deposit returned to developer

## Proposed

1. Developer pays capital charges for 3/4" meters for each residential parcel, plus one capital charge for a 2" meter for commercial parcels
2. Developer may receive credits against water transmission and/or sewer conveyance fees for upsizing, at City's request
3. When water meters are purchased, builder pays remainder of meter size-based charges



# Capital charge implementation



# Developer impact – individual lots

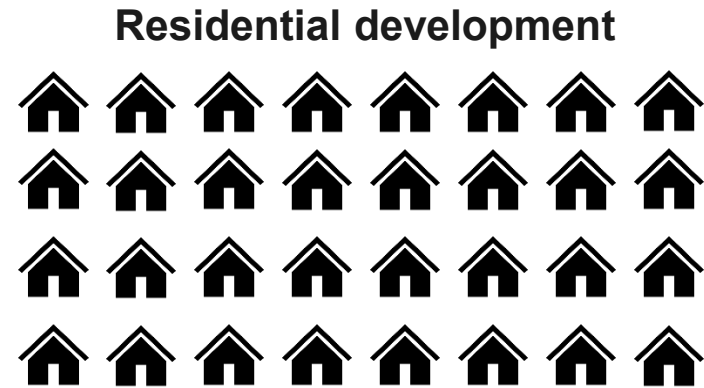
Summary

Development type	ASF	Meter size	Current charge (assessed to property owner)	Proposed charge	Cost to developer	Cost to builder
Single family home	10,000	3/4"	\$ 3,000	\$ 4,637	\$ 4,637	0
Single family home	15,000	3/4"	\$ 4,500	4,637	4,637	0
Single family home	30,000	3/4"	\$ 9,000	4,637	4,637	0
Single family home	10,000	1"	\$ 3,000	7,728	4,637	3,091
Single family home	15,000	1"	\$ 4,500	7,728	4,637	3,091
Single family home	30,000	1"	\$ 9,000	7,728	4,637	3,091

# Developer impacts – Case study 1

Summary

**Residential subdivision – 40**  
single family lots approx. 12,000  
ASF each, 3/4” meters



	Current charge	Proposed charge
Developer-paid	\$ 0	\$ 185,480
Builder-paid	\$ 0	\$ 0
Special assessed to homeowners	\$ * 144,000	\$ 0
<b>Total paid to utility</b>	<b>\$ 144,000</b>	<b>\$ 185,480</b>

\*Note added after meeting: Amount does not include ½ of the 8 inch waterline assessed to adjacent properties.

# Developer impacts – Case study 2

Summary

**Commercial development** – commercial lot approx. 500,000 ASF; developer pays for one 2” meter; builder needs three 2” meters and pays difference

Commercial development



	Current charge	Proposed charge
Developer-paid	\$ 0	\$ 24,731
Builder-paid	0	49,462
Special assessed to owners	150,000	0
<b>Total paid to utility</b>	<b>\$ 150,000</b>	<b>\$ 74,193</b>

# Developer impacts – Case study 3

Summary

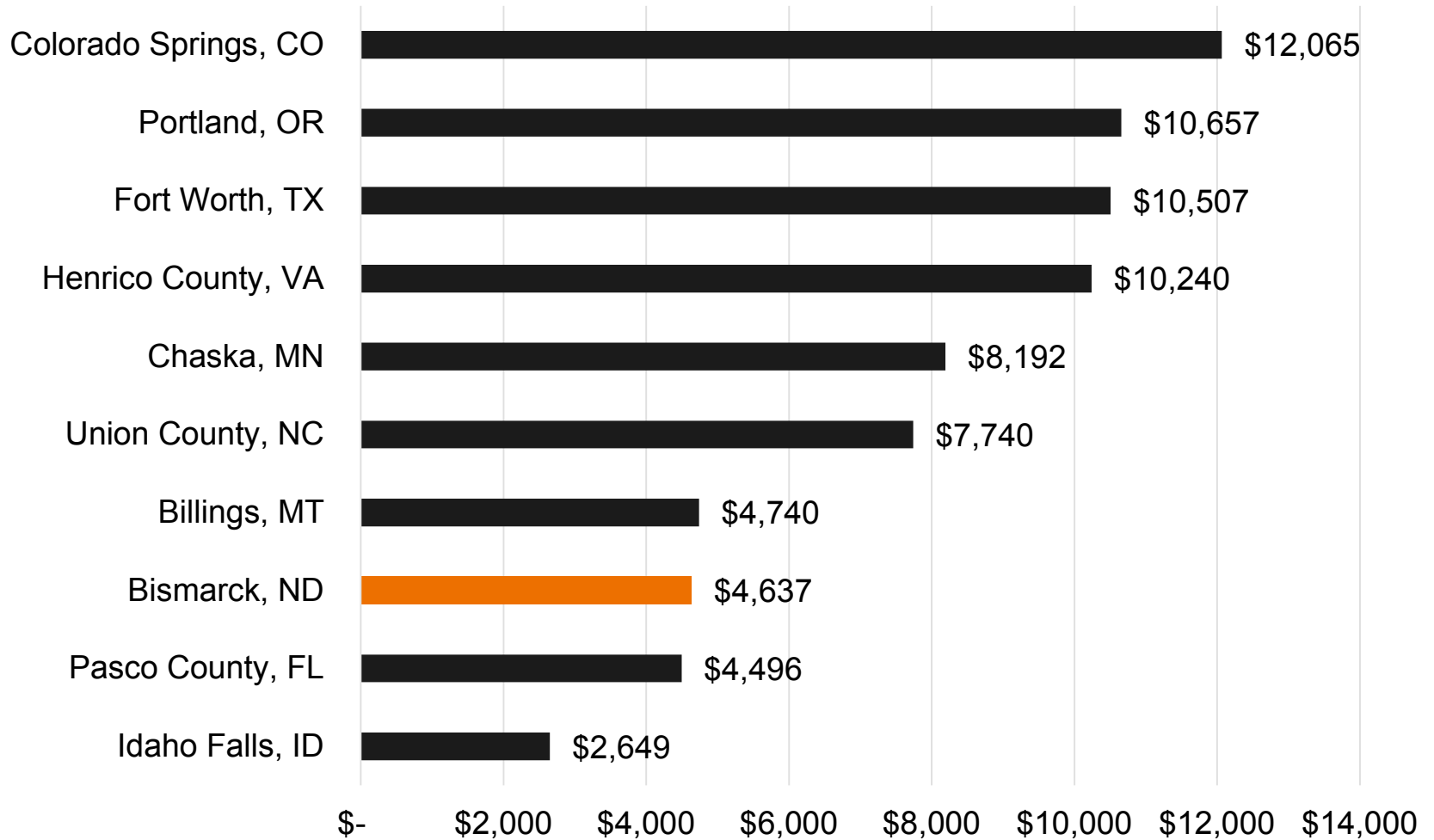
**Commercial development** – commercial lot approx. 500,000 ASF; developer pays for one 2” meter; builder needs three 3” meters and pays difference

Commercial development



	Current charge	Proposed charge
Developer-paid	\$ 0	\$ 24,731
Builder-paid	0	137,563
Special assessed to owners	150,000	0
<b>Total paid to utility</b>	<b>\$ 150,000</b>	<b>\$ 162,294</b>

# Capital charge comparison 3/4" Residential









# Stormwater Charges

# Stormwater rate plan



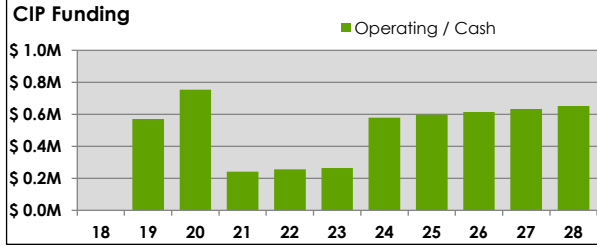
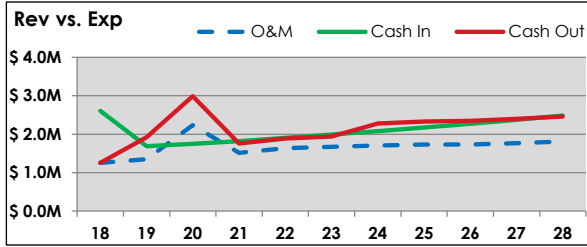
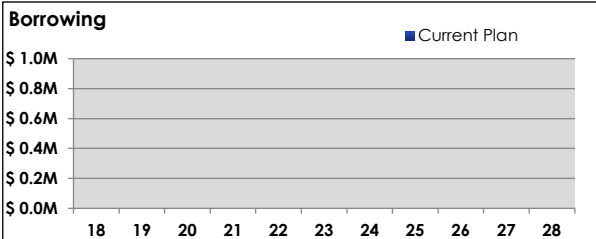
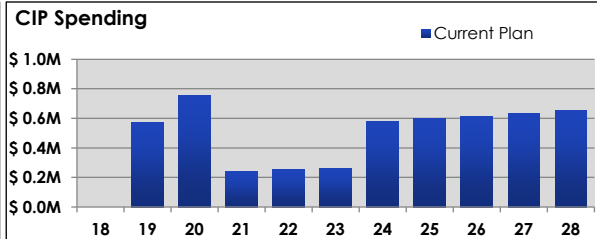
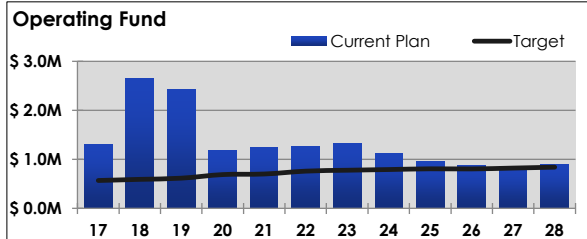
## FAMS-XL

Bismarck, ND - Stormwater Fund

Remove unannexed surcharge in FY 2019

CALC  
SAVE

	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2023	FY 2028	
Override ▶	0.00%	0.00%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%			
Stormwater Fee Rate Plan	0.00%	0.00%	3.60%	3.60%	3.60%	3.60%	3.60%	3.60%	15.19%	37.41%	
Surcharge Rate Plan	0.00%	-100%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-100.00%		
Res Charge (8-16k ASF)	\$4.65	\$2.70	\$2.80	\$2.90	\$3.00	\$3.11	\$3.22	\$3.34	\$3.46	\$3.58	\$3.71
Change \$		(\$1.95)	\$0.10	\$0.10	\$0.10	\$0.11	\$0.11	\$0.12	\$0.12	\$0.12	\$0.13
									Check	-	

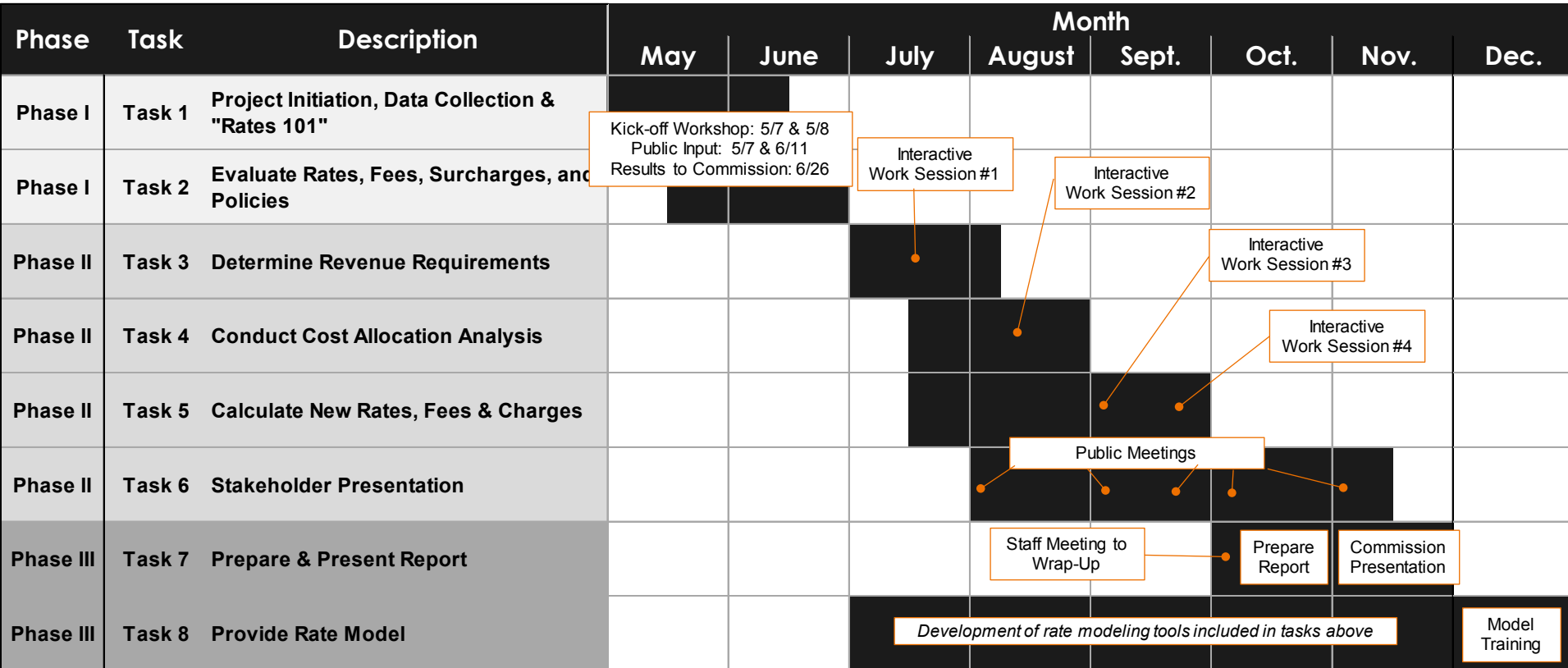


# Stormwater unannexed surcharge

- The City of Bismarck had funded regional ponds through unannexed surcharges billed to existing ratepayers in monthly stormwater bills
- Going forward: the City is moving away from new district formation for special assessed regional ponds
  - Developer constructs necessary ponds
  - Unannexed surcharge is removed from ratepayer fee schedule
  - When annexed, properties within existing special assessment districts will be assessed for past ponds

# Full schedule and remaining activities

Project Timeline



**Focus of next meeting: Bringing it all together**

Additional Questions & Answers