

**WATER FOR LIFE**

*Safe, dependable, and affordable water now and into the future*



**Board of Water Supply**  
City and County of Honolulu

# Stakeholder Advisory Group

**Board of Water Supply  
City & County of Honolulu**

**Wednesday April 11, 2018**

# WATER FOR LIFE

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**Board of Water Supply**  
City and County of Honolulu

**Dave Ebersold**

Facilitator

# WELCOME

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# **Public Comments on Agenda Items**



# Meeting Objectives

- Receive updates regarding the BWS
- Seek your input on draft Water System Facilities Charge
- Seek your input on draft public presentation on proposed water rate increases
- Seek your input on the future direction of the Stakeholder Advisory Group

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**Board of Water Supply**  
City and County of Honolulu

**Ernest Lau P.E.**

BWS Manager and Chief Engineer

## **BWS UPDATES**

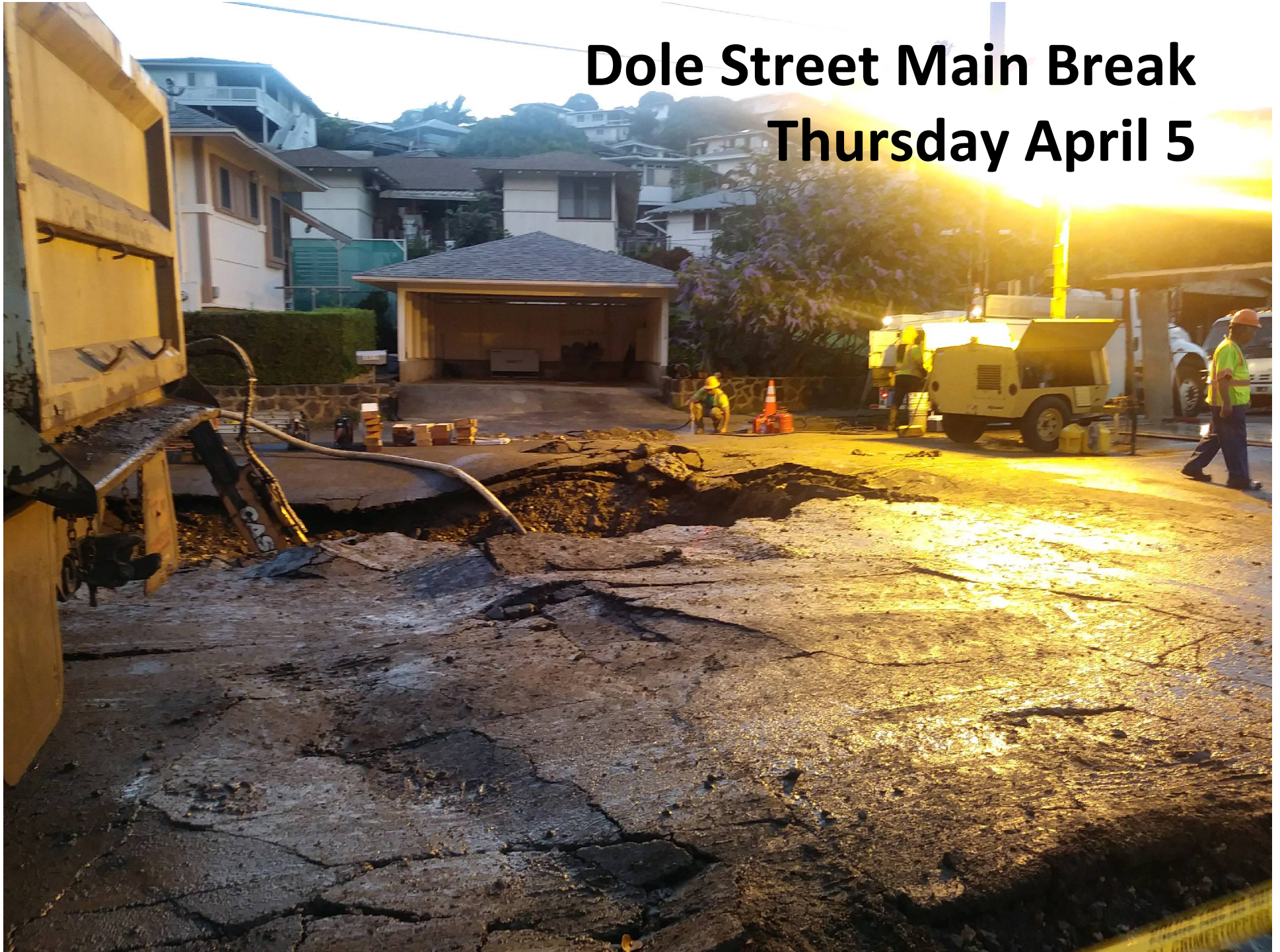


# U.S. Navy sponsored Red Hill Fuel Storage Tank Project Update Meeting

- ◆ March 14, 2018
- ◆ Information about the ongoing work at Red Hill and the AOC between the U.S. Navy, DLA and the Regulatory Agencies can be found at:
  - <https://www.epa.gov/red-hill>
  - <http://health.hawaii.gov/shwb/ust-red-hill-project-main>
  - [www.cnic.navy.mil/redhill](http://www.cnic.navy.mil/redhill)
- ◆ Alternative Site Study



# Dole Street Main Break Thursday April 5





# BWS Board approves seeking public input on proposed water rates

## Public Hearings

The public is welcome at any and all of these meetings and to send comments to the Board of Water Supply by June 30, 2018, by letter or email. Hearings are from 6:30-8:30 p.m. and are scheduled as follows:

<b>HONOLULU</b>	<b>Thursday, April 26, 2018</b> <i>Mission Memorial Auditorium</i> 550 South King Street, Honolulu, HI 96813	<b>KANEOHE</b>	<b>Tuesday, May 15, 2018</b> <i>Benjamin Parker Elementary School Cafeteria</i> 45-259 Waikalua Road, Kaneohe, HI 96744
<b>KAPOLEI</b>	<b>Monday, May 14, 2018</b> <i>Kapolei Hale, Ground Floor Conference Room</i> 1000 Uluohia Street, Kapolei, HI 96707	<b>MILILANI</b>	<b>Thursday, May 24, 2018</b> <i>Mililani Recreation Center #5</i> 95-1101 Ainamakua Drive, Mililani, HI 96789

Presentations on proposed water rates are offered May – June 2018. To schedule a presentation, contact the Board of Water Supply at:

Email: [kelliott-pahinui@hbws.org](mailto:kelliott-pahinui@hbws.org)  
Phone: (808) 748-5319  
Address: 630 South Beretania Street, Honolulu, HI 96843  
Attn: Communications Office





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**Mahalo!**

**Questions & Answers**



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## Action

Review and accept notes from

- Stakeholder Advisory Group Meeting #25  
held on Tuesday, March 13, 2018

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**Dave Ebersold**

Facilitator

**Brian Thomas**

Public Financial Management

## **DRAFT UPDATES TO WATER SYSTEM FACILITIES CHARGE**



# Water System Facilities Charge (WSFC)

- 💧 A one-time charge based on water use capacity
- 💧 Applies to
  - All new development requiring water from the BWS's system
  - Additional supplies needed for an existing water service
- 💧 Excludes
  - Developments that have paid for and installed all of a water system;
  - Portion of the system installed by developers, e.g., source, transmission and/or storage

## WSFC Purpose

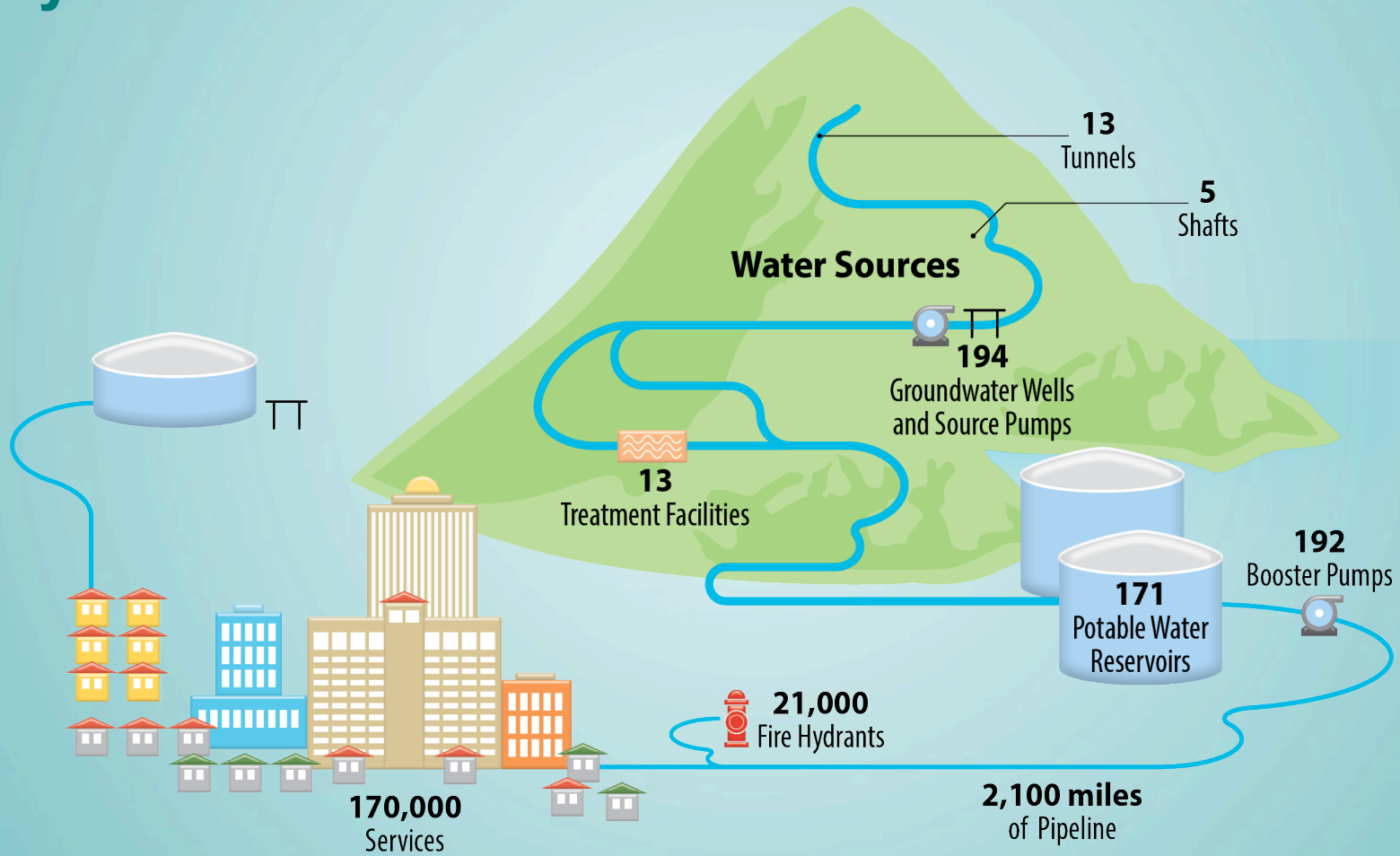
- ◆ Fund growth-related capacity expansions
- ◆ Equitably reimburse the existing rate payers for their investment in oversizing of infrastructure to accommodate future customers

# BWS's authorization for WSFC

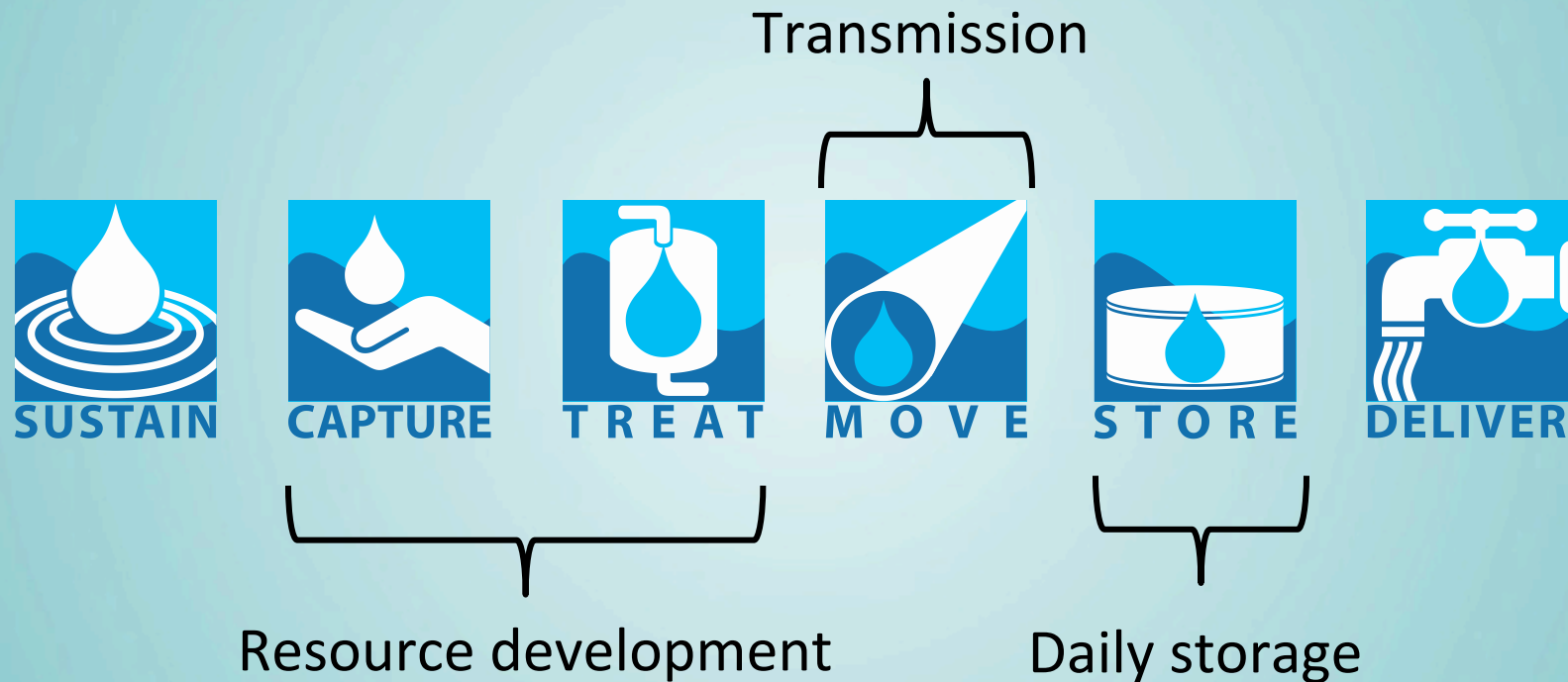
- ◆ Hawaii Revised Statutes Chapter 46, Sections 141 – 148
  - **46-142(a)(2)**: Impact fees may be assessed, imposed, levied, and collected by: Any board for any development, or portion thereof, involving water supply or service
  - **46-143(d)**: An impact fee shall be substantially related to the needs arising from the development and shall not exceed a proportionate share of the costs incurred or to be incurred in accommodating the development
  - **46-146**: Assessment of impact fees shall be a condition precedent to the issuance of a grading or building permit and shall be collected in full before or upon issuance of the permit
- ◆ Rules and Regulations, Chapter I, Section 1-102
  - Stipulates who is charged the WSFC and allows the Department to negotiate a charge, when appropriate



# Water System Facilities Charge pays for your share of the system's "backbone"



# WSFC is for the backbone system only (general use facilities)



[AWWA M1 Manual]

# Why update the WSFC now?

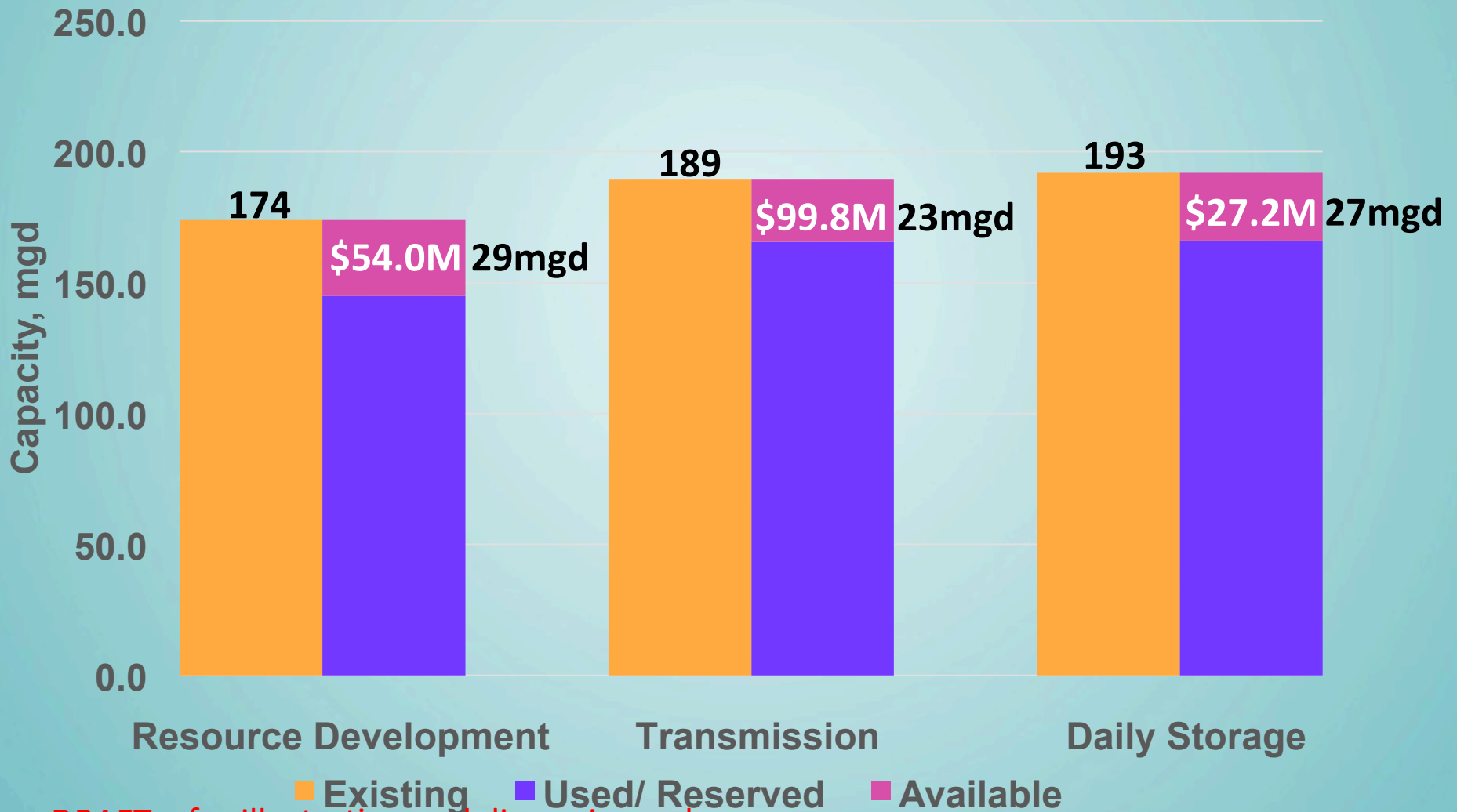
- 💧 Current charges adopted in 1993
- 💧 Water use patterns have changed
- 💧 Growth needs have changed
- 💧 Available capacities in existing system have changed
- 💧 Costs have increased
- 💧 Technical analysis needs to be updated
- 💧 Concurrent with other changes to BWS's rates and charges



# Five basic steps to updating the WSFC

1. Determine existing available capacity in the “backbone system” and its monetary value (buy-in)
2. From WMP and 10-year IIP, identify planned additions and upgrades to meet growth, and their cost (incremental)
3. Estimate how much capacity each customer type needs (gallons per day per fixture unit)
4. Calculate updated costs
5. Evaluate policy and implementation issues

# Step 1 – Determine available capacity for buy-in



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# Putting the buy-in costs on a unit price basis

Buy-in component	Resource Development	Transmission	Daily Storage
Total Backbone System Value, RCNLD, \$ million	\$354.7	\$900.2	\$215.2
Outstanding Debt Principal, \$ million	(\$18.2)	(\$46.3)	(\$11.1)
Cash on Hand, \$ million (25.5%)	\$6.6	\$16.8	\$4.0
WSFC Fund Balance, \$ million	(\$23.1)	(\$58.6)	(\$14.0)
Adjusted System Value, \$ million	\$319.9	\$812.1	\$194.2
Amount Available for Growth, \$ million	\$54.0	\$99.8	\$27.2
Available Existing Capacity, mgd	29	23	27
Buy-in, \$/gpd	\$1.83	\$4.29	\$1.01

RCNLD = replacement cost new less depreciation

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# Step 2 – Identify the planned projects to meet growth needs over the next 10 years



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# Sample of growth-related projects in 10-year Infrastructure Investment Program

Project	Percent Growth	Description
Honolulu District 42-Inch Mains	50%	Redundant 42-inch pipeline to increase capacity and increase reliability
Kuwale 242 Reservoir	100%	New reservoir to alleviate coming shortfall in leeward
Ala Moana 24-inch Main	50%	Expanded pipeline to replace existing 12-inch at end of useful life and provide additional transmission to Kakaako and Waikiki
Waialae West Well	100%	New source to provide for growth
Waikele Gulch Wells	100%	New source to provide for growth

# Putting the incremental costs on a unit price basis

Incremental Component	Resource Development	Transmission	Daily Storage
Estimated Cost (\$ million)	\$133.1	\$97.0	\$89.0
New Capacity, mgd	12	15	10
Incremental, \$/gpd	\$11.09	\$6.57	\$9.37

# Putting the combined costs on a unit price basis

	Resource Development	Transmission	Daily Storage
Buy-in value, \$ million	\$54.0	\$99.8	\$27.2
Incremental value, \$ million	\$133.1	\$97.0	\$89.0
Total Value \$ million	\$187.0	\$196.8	\$116.1
Buy-in capacity, mgd	29	23	27
Incremental capacity, mgd	12	15	10
Total Capacity, mgd	41	38	37
Weighted Average, \$/gpd	\$4.51	\$5.18	\$3.18

# What's a fixture unit (fxtu)?

- A unit of measure, based on the rate of discharge, time of operation and frequency of use, that expresses the hydraulic load of that fixture on the system
- Equal to one cubic foot of water drained in an 1 1/4" pipe over one minute



1.6 fxtu



1.6 fxtu



2.0 fxtu

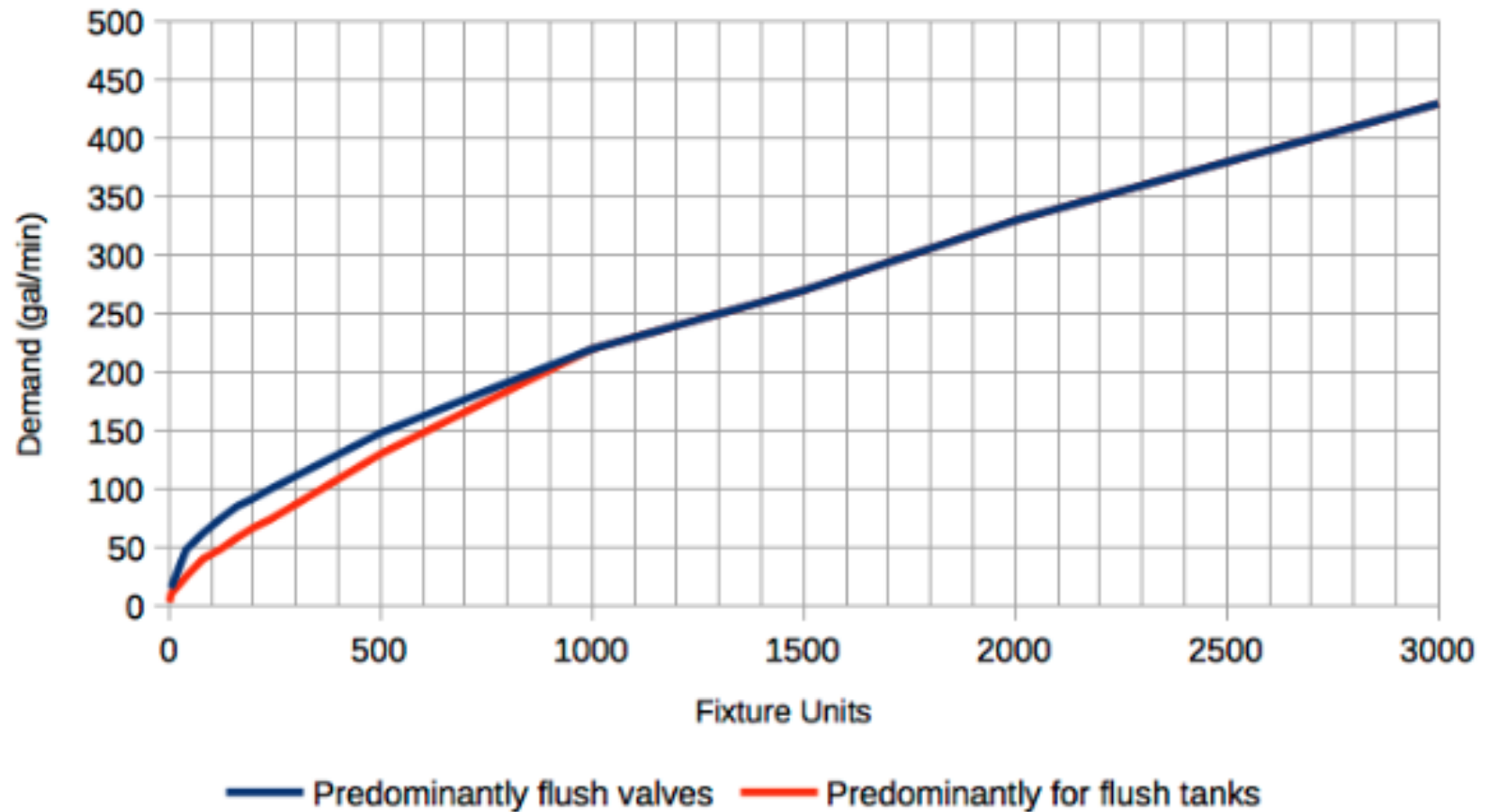


2.5 fxtu

Source: 1997 Uniform Plumbing Code



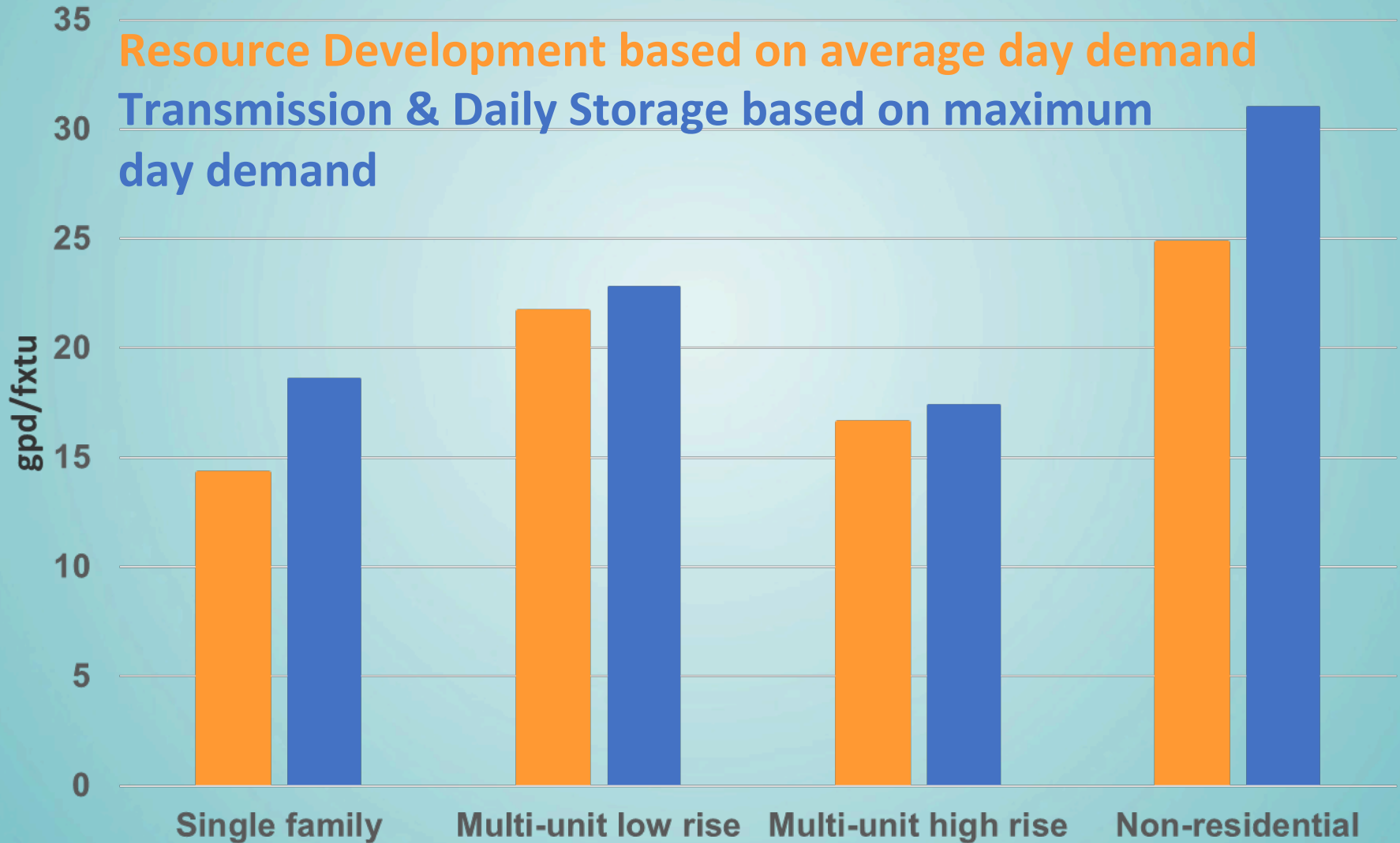
# More demand = more fixture units



**The Engineering ToolBox**

[www.EngineeringToolBox.com](http://www.EngineeringToolBox.com)

# Step 3: Estimate customer capacity needs



# Step 4 – Calculate updated costs for WSFC (\$/FXTU)

	Single family	Multi-unit Low Rise	Multi-unit High Rise	Non-Res <= 50 FXTU	Non-Res Additional > 50 FXTU
Existing					
Resource Development	\$80.04	\$117.14	\$88.14	\$257.74	\$95.15
Transmission	\$37.87	\$55.46	\$41.73	\$130.65	\$45.04
Daily Storage	<u>\$67.42</u>	<u>\$98.67</u>	<u>\$74.25</u>	<u>\$232.46</u>	<u>\$80.10</u>
Total	\$185.33	\$271.27	\$204.12	\$620.85	\$220.29
Updated					
Resource Development	<b>\$64.43</b>	<b>\$98.17</b>	<b>\$74.73</b>	<b>\$123.10</b>	<b>\$111.34</b>
Transmission	<b>\$96.02</b>	<b>\$118.17</b>	<b>\$89.96</b>	<b>\$176.41</b>	<b>\$159.55</b>
Daily Storage	<u><b>\$59.00</b></u>	<u><b>\$72.62</b></u>	<u><b>\$55.28</b></u>	<u><b>\$108.41</b></u>	<u><b>\$98.05</b></u>
Total	<b>\$219.45</b>	<b>\$288.96</b>	<b>\$219.97</b>	<b>\$407.92</b>	<b>\$368.94</b>

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# Step 4 – Calculate updated costs for WSFC (\$/FXTU)

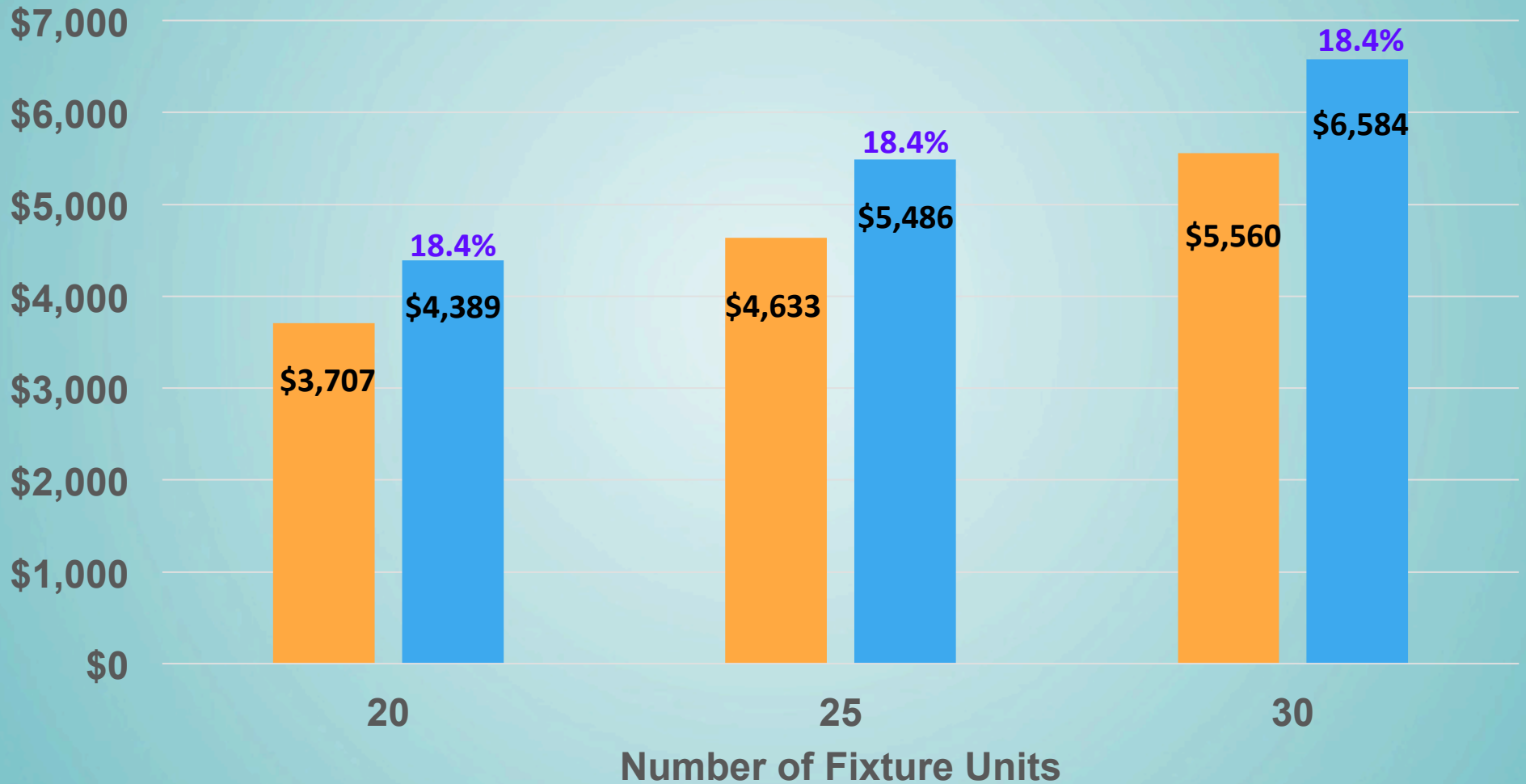
	Single family	Multi-unit Low Rise	Multi-unit High Rise	Non-Residential
Resource Development	<b>\$64.43</b>	<b>\$98.17</b>	<b>\$74.73</b>	<b>\$111.88</b>
Transmission	<b>\$96.02</b>	<b>\$118.17</b>	<b>\$89.96</b>	<b>\$160.33</b>
Daily Storage	<b><u>\$59.00</u></b>	<b><u>\$72.62</u></b>	<b><u>\$55.28</u></b>	<b><u>\$98.53</u></b>
Total	<b>\$219.45</b>	<b>\$288.96</b>	<b>\$219.97</b>	<b>\$370.74</b>

Minimum charge of 20 fixture units



# WSFC charge comparison

## Single family

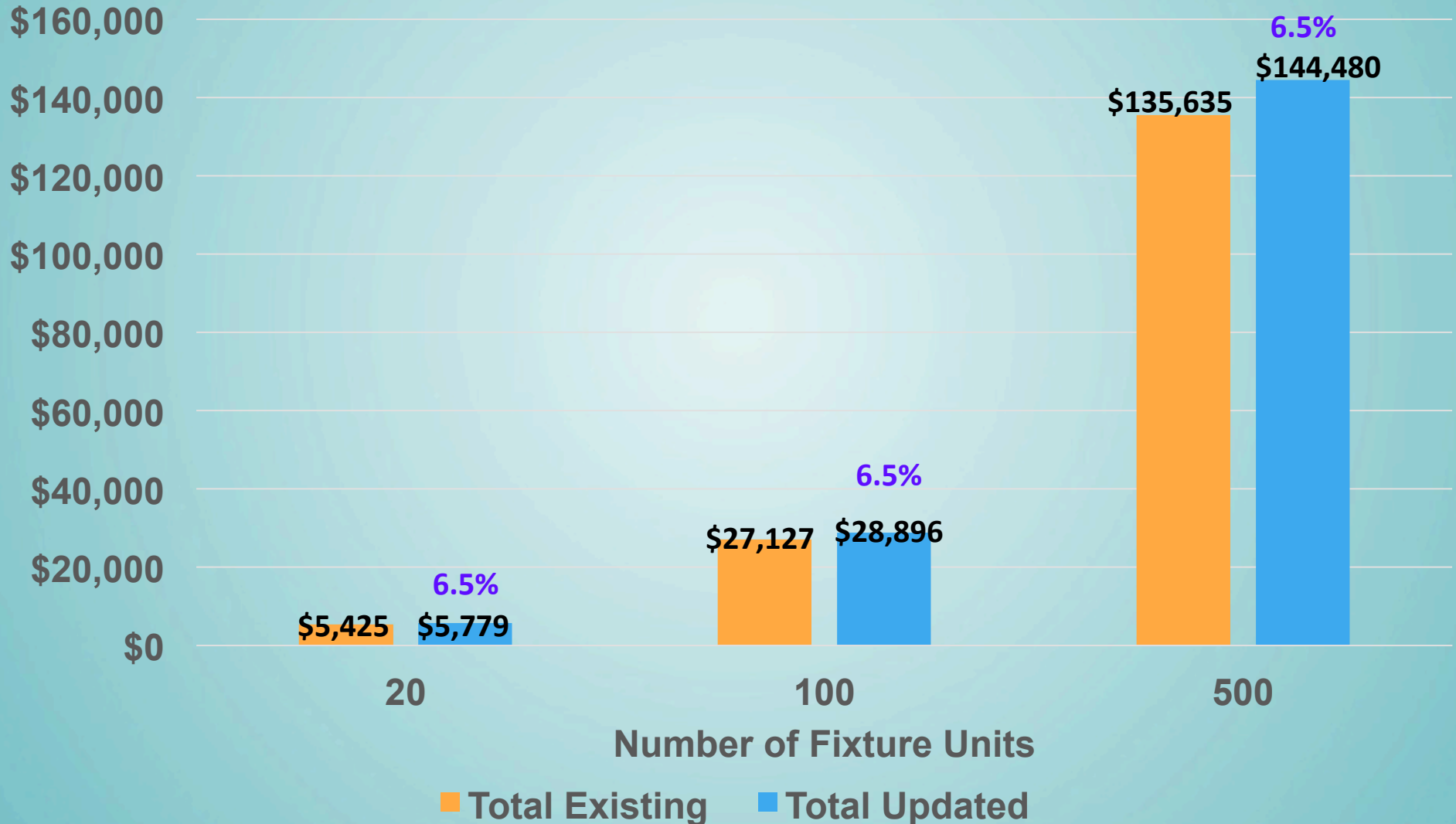


■ Total Existing ■ Total Updated

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# WSFC charge comparison

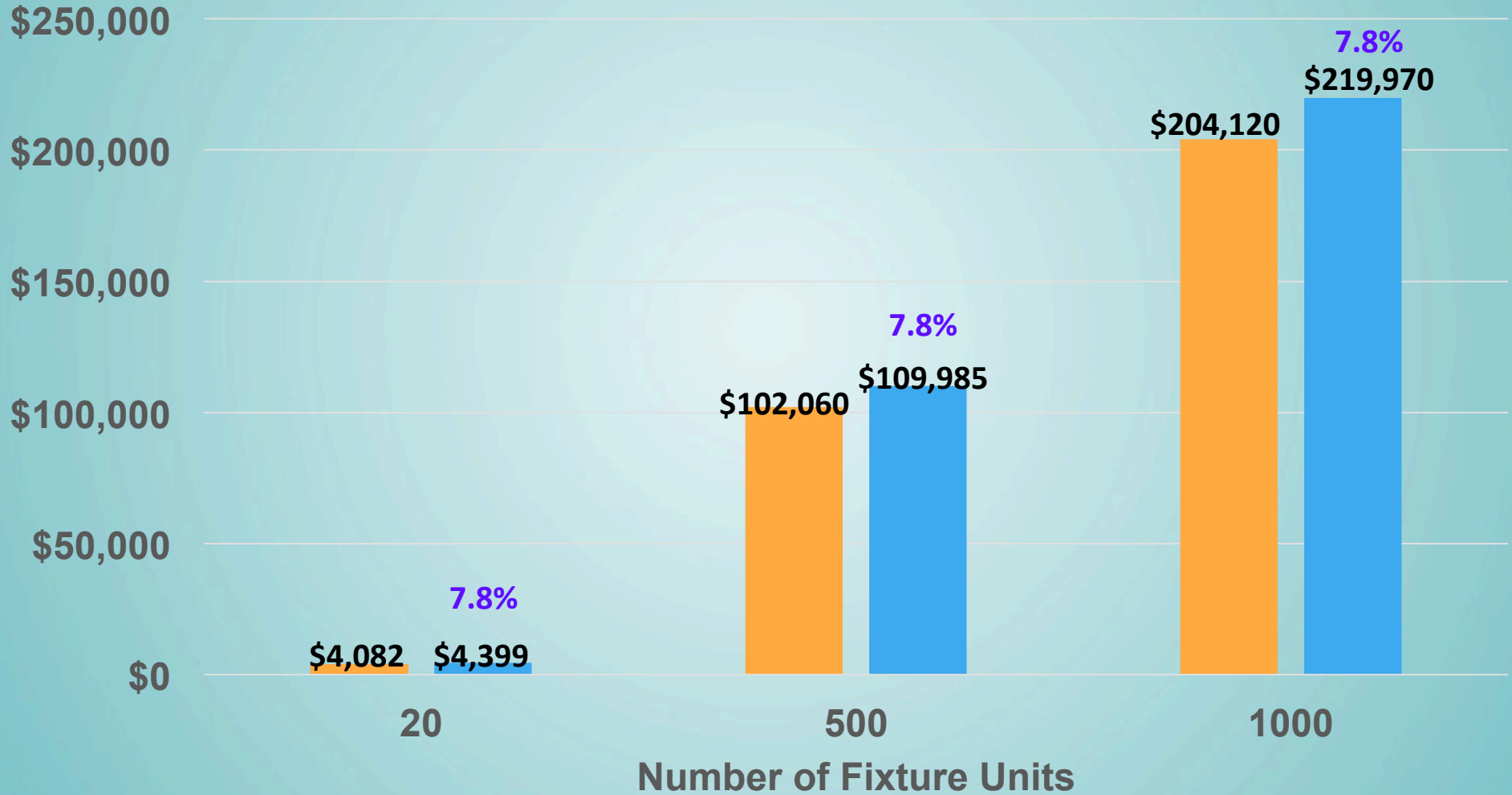
## Multi-unit low rise



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# WSFC charge comparison

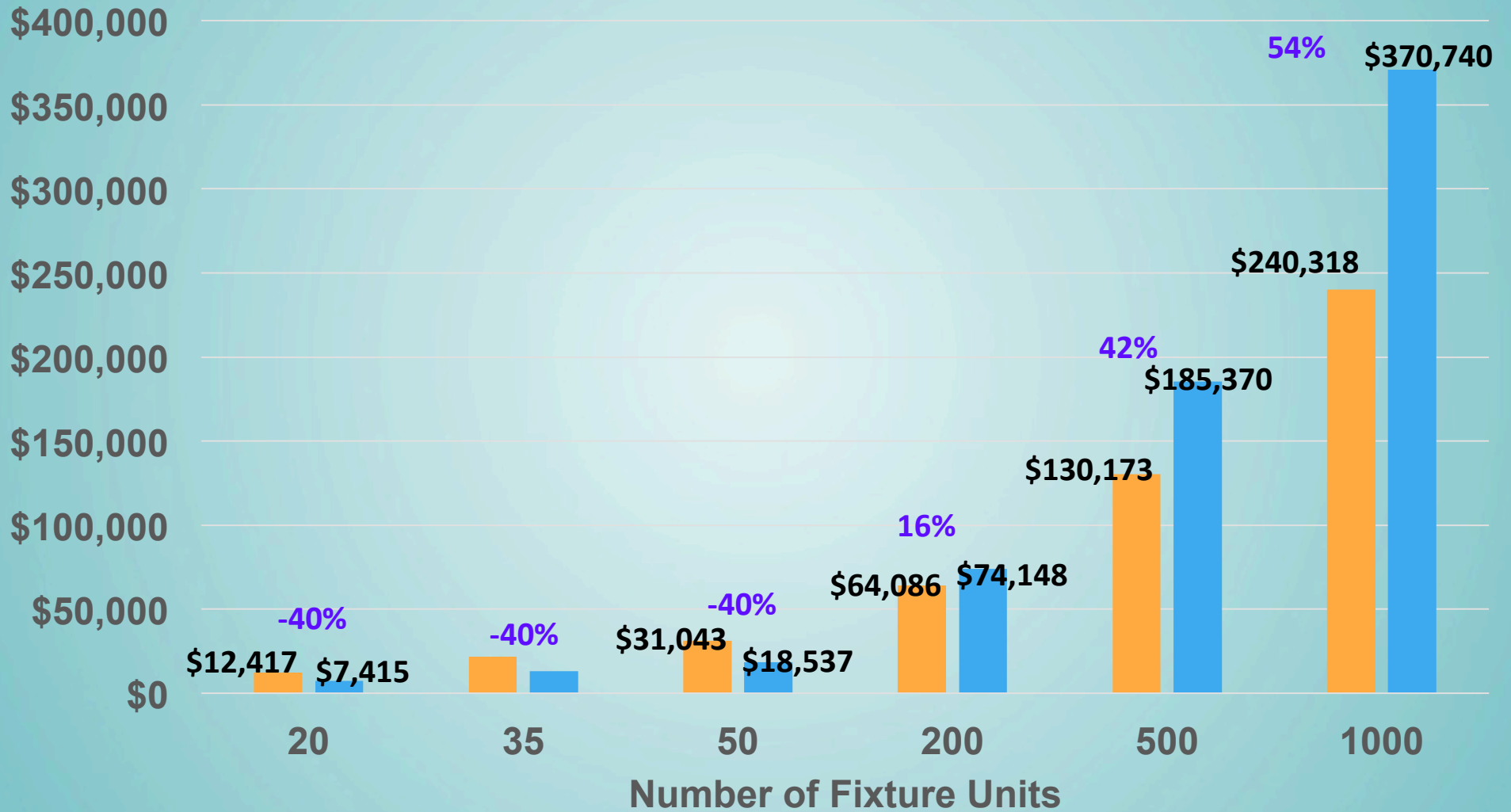
## Multi-unit high rise



■ Total Existing ■ Total Updated

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# WSFC charge comparison Non-residential



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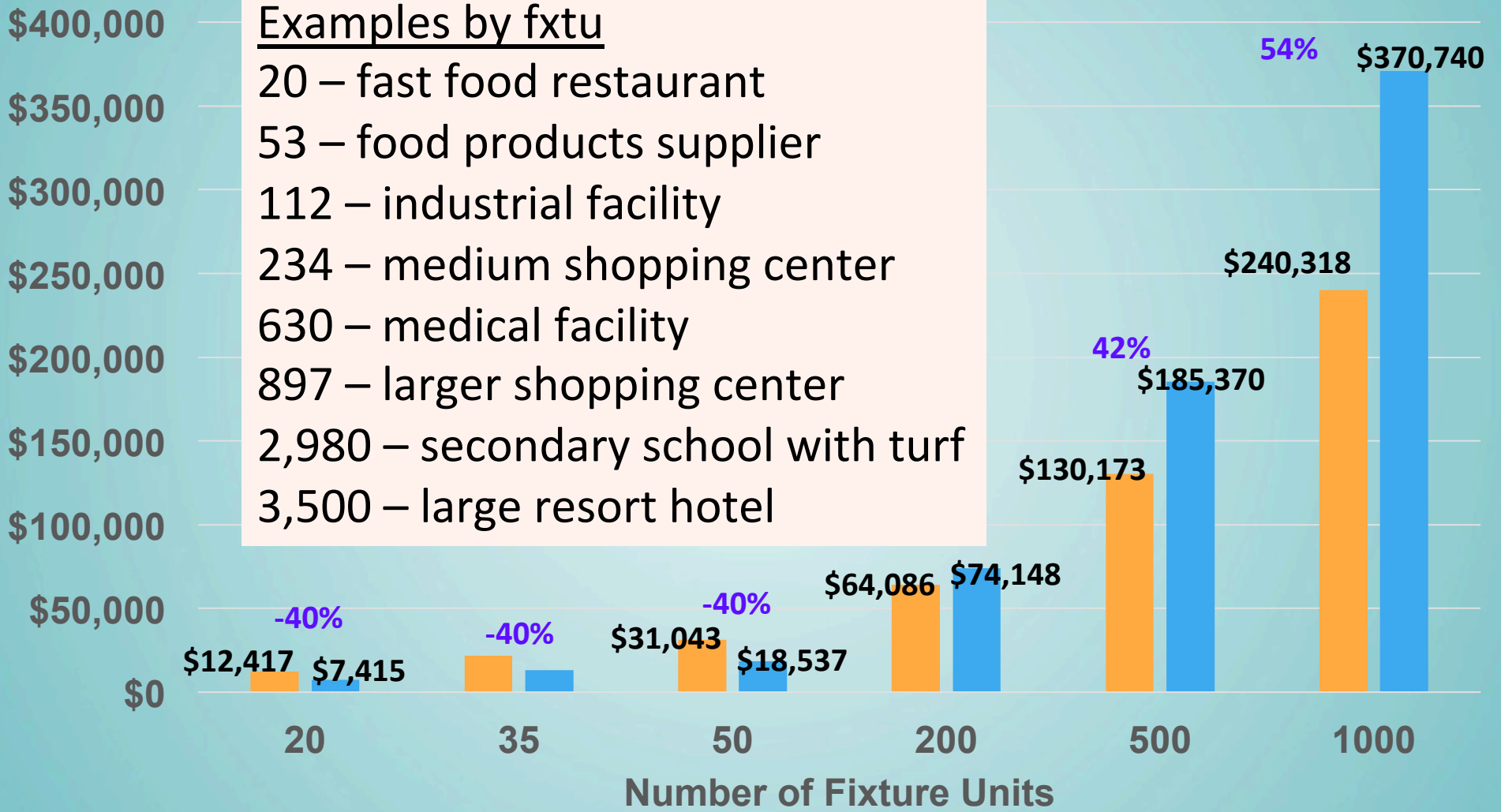
■ Total Existing ■ Total Updated



# WSFC charge comparison

## Non-residential

Examples by fxtu  
 20 – fast food restaurant  
 53 – food products supplier  
 112 – industrial facility  
 234 – medium shopping center  
 630 – medical facility  
 897 – larger shopping center  
 2,980 – secondary school with turf  
 3,500 – large resort hotel



■ Total Existing    ■ Total Updated

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# Agricultural WSFC currently based on single family residential (SFR) usage

- “The WSFC for the selected meter size is based on an average single-family residential fixture unit count for that meter size and the correlated average water use for a single-family residential unit.”

*Ernst & Young 1993*

Meter size	1993 fxtu for SFR	Updated fxtu for SFR
3/4”	36	20.0
1”	59	34.8
1 1/2”	160	63.5
2”	350	147.4

**In 1 day, the average agricultural customer uses 6,000 gallons, more than half of BWS's single family residential customers use in an entire month**

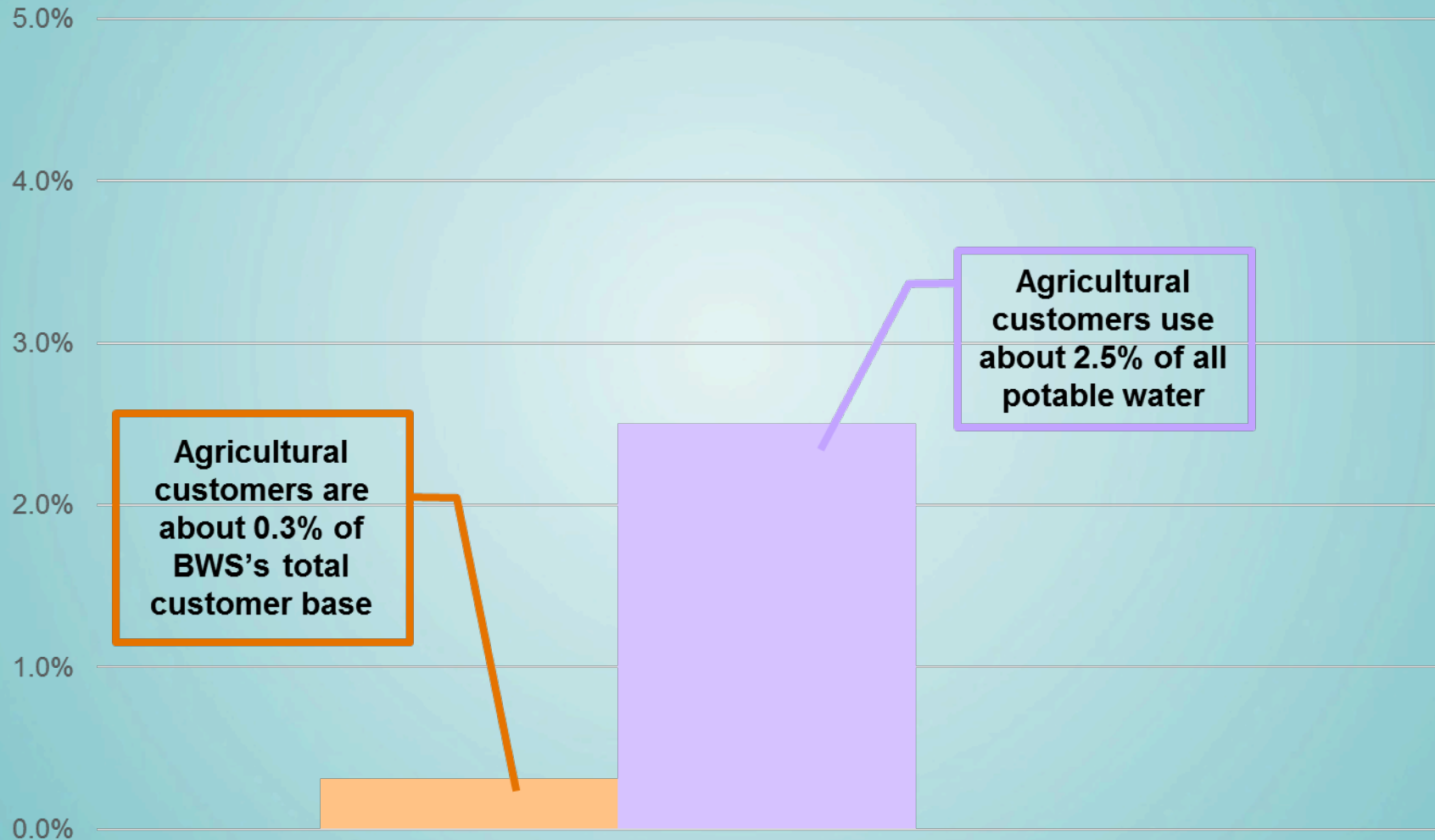
# Average agricultural usage by meter size

Meter size	Number of meters (FY2016)	Average Usage * gpd/account
5/8"	55	1,200
3/4"	92	2,600
1"	127	2,800
1 1/2"	116	8,300
2"	114	11,900
3"	2	10,800
4"	1	37,600
6"	0	0
8"	1	3,500
Total	508	6,000

\*Average of FY 15 and FY 16

Agricultural customer class is 2.5% of BWS's potable water usage

# Agricultural customers are large water users





# Other islands base their WSFC on meter size

Meter Size	AWWA Capacity Ratios
3/4	1
1	1.7
1.5	3.3
2	5.3
3	11.7
4	21.0
6	43.3
8	93.3

Agricultural  
base meter  
size

[AWWA M1 Manual]

# Agricultural WSFC for base meter size

	Resource Development	Transmission	Daily Storage
Unit Cost, \$/gpd	\$4.51	\$5.18	\$3.18
Usage, gpd/act	6,000	7,200	7,200
1.5" Meter	\$27,085	\$37,261	\$22,898

# Alternative WSFC for Agricultural

	Avg SFR FXTU	Res. Dev.	Trans.	Daily Storage	Total
Existing					
5/8"	26	\$2,081	\$985	\$1,753	\$4,819
3/4"	36	\$2,881	\$1,363	\$2,427	\$6,671
1"	59	\$4,722	\$2,234	\$3,978	\$10,934
1 1/2"	160	\$12,805	\$6,059	\$10,787	\$29,651
2"	350	\$28,015	\$13,255	\$23,596	\$64,866
Updated	Meter Ratios				
3/4"	1.0	<b>\$8,208</b>	<b>\$11,291</b>	<b>\$6,939</b>	<b>\$26,438</b>
1"	1.7	<b>\$13,953</b>	<b>\$19,195</b>	<b>\$11,796</b>	<b>\$44,944</b>
1 1/2"	3.3	<b>\$27,085</b>	<b>\$37,261</b>	<b>\$22,898</b>	<b>\$87,244</b>
2"	5.3	<b>\$43,502</b>	<b>\$59,842</b>	<b>\$36,777</b>	<b>\$140,121</b>

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# WSFC charge comparison Agricultural



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# WSFC charge comparison Agricultural



DRAFT – for illustration and discussion only



# Agricultural WSFC comparisons to other islands

	BWS*	Maui	Kauai	Hawaii
3/4"	\$26,438	\$18,884	\$21,170	NA
1"	\$44,944	\$33,356	\$35,290	\$13,750
1.5"	\$87,244	\$71,948	\$70,580	\$27,500
2"	\$140,121	\$125,012	\$112,920	\$44,000

\*based on meter size methodology

Other islands' WSFC based on meter size, same for all customers

DRAFT – for illustration and discussion only

## Step 5 - Evaluate policy and implementation issues

- 💧 The draft charges presented recover the full cost of the impact of new agricultural customers on the water system
- 💧 This is an update from 1993
- 💧 What issues or concerns do you have?
- 💧 What options are available to address them?

## Input from March 19 developers meeting

- ◆ How would the BWS look at WSFC for live-work units? Some are used for work only; others are lived in residentially.
- ◆ Can I go to a nearby building that I do not own, replace its high-flow plumbing fixtures with new low-flow fixtures, and receive a credit towards the WSFC for my new project? ENV does something like this for sewer connections now.
- ◆ We appreciate seeing the methodology shown today. It helps us understand and put the numbers in good perspective and good light.

## Input from April 6 and 9 agricultural meetings

- Attendees understand the WSFC, but the amount of the charge is a surprise
- Legislative - State could provide funding for BWS to offset costs specifically for agricultural WSFC
- Ernest willing to join meeting attendees in advocating for the State take a more active role in supporting agriculture
- In addition to WSFC, conversation should include other agricultural cost issues like Food Safety Modernization Act, Important Agricultural Lands incentives, etc.

## Input from April 6 and 9 agricultural meetings (Cont.)

- ◆ Opportunities for re-allocating portion of Barrel Tax receipts to support agriculture, or new food tax
- ◆ Education about agricultural water conservation
- ◆ Cost of BWS subsidies borne by other customers
- ◆ Pleased BWS reached out to schedule meetings, provide information, facilitate conversation



# WSFC subsidies under consideration

- ◆ DPP Affordable and Homeless Housing on City Properties
- ◆ City Council Resolutions for Affordable Housing 2012 to present
- ◆ Homeless Projects
- ◆ Fire Sprinkler Retrofit (6" meter)
- ◆ Important Agricultural Lands (IAL)

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**Questions & Answers**



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**Dave Ebersold**

Facilitator

## **SUMMARY AND NEXT STEPS**

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**Dave Ebersold**

Facilitator

**Barry Usagawa**

Board of Water Supply, Water Resources Program Administrator

## **FUTURE DIRECTION OF THE STAKEHOLDER ADVISORY GROUP**



# Questions for your input

- Would this group be willing and interested in continuing to advise the Board of Water Supply on a range of water-related issues?
- What topics are important to you going forward?
- What would be your recommended frequency of meetings?
  - Quarterly
  - Semi-annual
  - Annual



# Next Stakeholder Advisory Group meetings

- July XX, 2019  
4:00 – 6:30 pm  
Location TBD

## Objectives:

- Review and consider public input on proposed rates
- Consider making a recommendation for approval to BWS's Board

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