

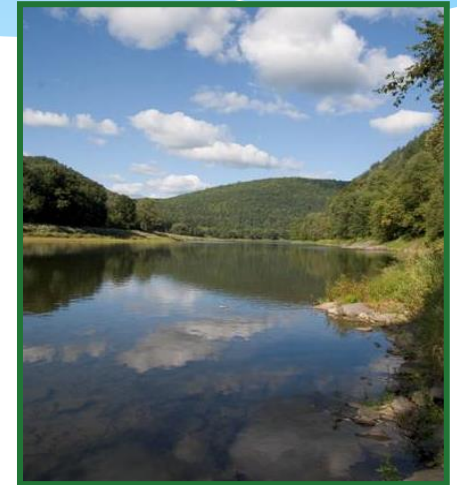
Delaware River Basin Commission

Status Update on DRBC's Socio Economic Evaluation in support of HADO project: WQAC

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*Manager, Water Quality
Assessment*

May 18, 2022

Presented to an advisory committee of the DRBC on May 18, 2022. Contents should not be published or re-posted in whole or in part without permission of DRBC.



Delaware River Basin Commission

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PENNSYLVANIA • NEW YORK
UNITED STATES OF AMERICA

Resolution 2017-4

Section 6(g)

- (g) evaluation of the physical, chemical, biological, social and economic factors affecting the attainment of uses, as described in EPA's water quality standards regulations at 40 CFR 131.10(g)(1)-(6); and

https://www.state.nj.us/drbc/library/documents/Res2017-04_EstuaryExistingUse.pdf

40 CFR 131.10(g)(1)-(6)

(g) States may designate a use, or remove a use that is *not* an existing use, if the State conducts a use attainability analysis as specified in paragraph (j) of this section that demonstrates attaining the use is not feasible because of one of the six factors in this paragraph. If a State adopts a new or revised water quality standard based on a required use attainability analysis, the State shall also adopt the highest attainable use, as defined in § 131.3(m).

(1) Naturally occurring pollutant concentrations prevent the attainment of the use; or

(2) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met; or

(3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

(4) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or

(5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or

(6) Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

Some Milestones

- Presentation to WQAC on **April 15, 2021**
https://www.nj.gov/drbc/library/documents/WQAC/041521/Yagecic_SocioEconomicEvaluation.pdf
- Letters to Tier 1 dischargers dated **June 29, 2021**
- Commissioners passed a resolution **March 9, 2022** authorizing DRBC to enter into an agreement with the Environmental Finance Center at the University of Maryland for technical review
https://www.nj.gov/drbc/library/documents/ResForMinutes030922_EFC_UMd.pdf
- DRBC staff performing the evaluation

Focused on 2 Guidance Documents / Sets of Metrics



United States
Environmental Protection
Agency

Office of Water
Washington, DC 20460

800B21001
January 2021

2021 Financial Capability Assessment Guidance

January 2021

Developing a New Framework for Household Affordability and Financial Capability Assessment in the Water Sector

April 17, 2019

Prepared for The American Water Works Association, National Association of Clean Water Agencies, and Water Environment Federation by R. Raucher, PhD. and J. Clements Corona Environmental Consulting E. Rothstein, CPA Galardi Rothstein Group J. Mastracchio, CFA and Z. Green Raftelis Financial Consultants

New Information



United States
Environmental Protection
Agency

Office of Water
Washington, DC 20460

800B21001
February 2022

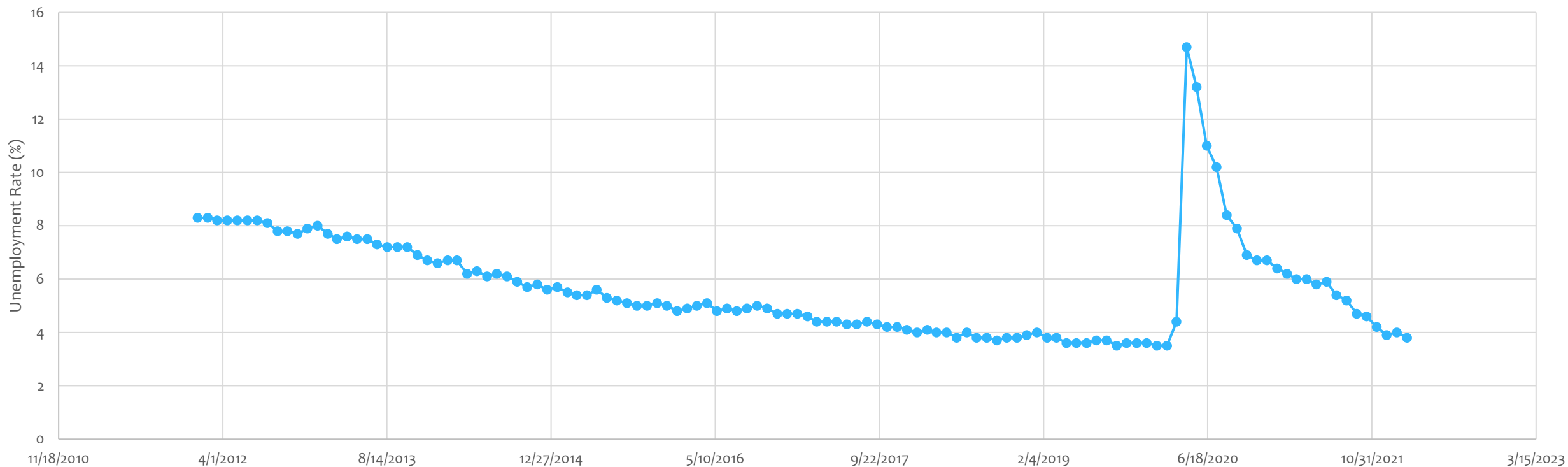
**Proposed 2022 Clean Water Act
Financial Capability Assessment
Guidance**

February 2022

- 2016-2020 American Community Survey (ACS) ACS 5-year Estimates Released March 17, 2022
- EPA Updates Proposed CWA Financial Capability Assessment Guidance in February 2022

Which 5-year window? Impact of Covid

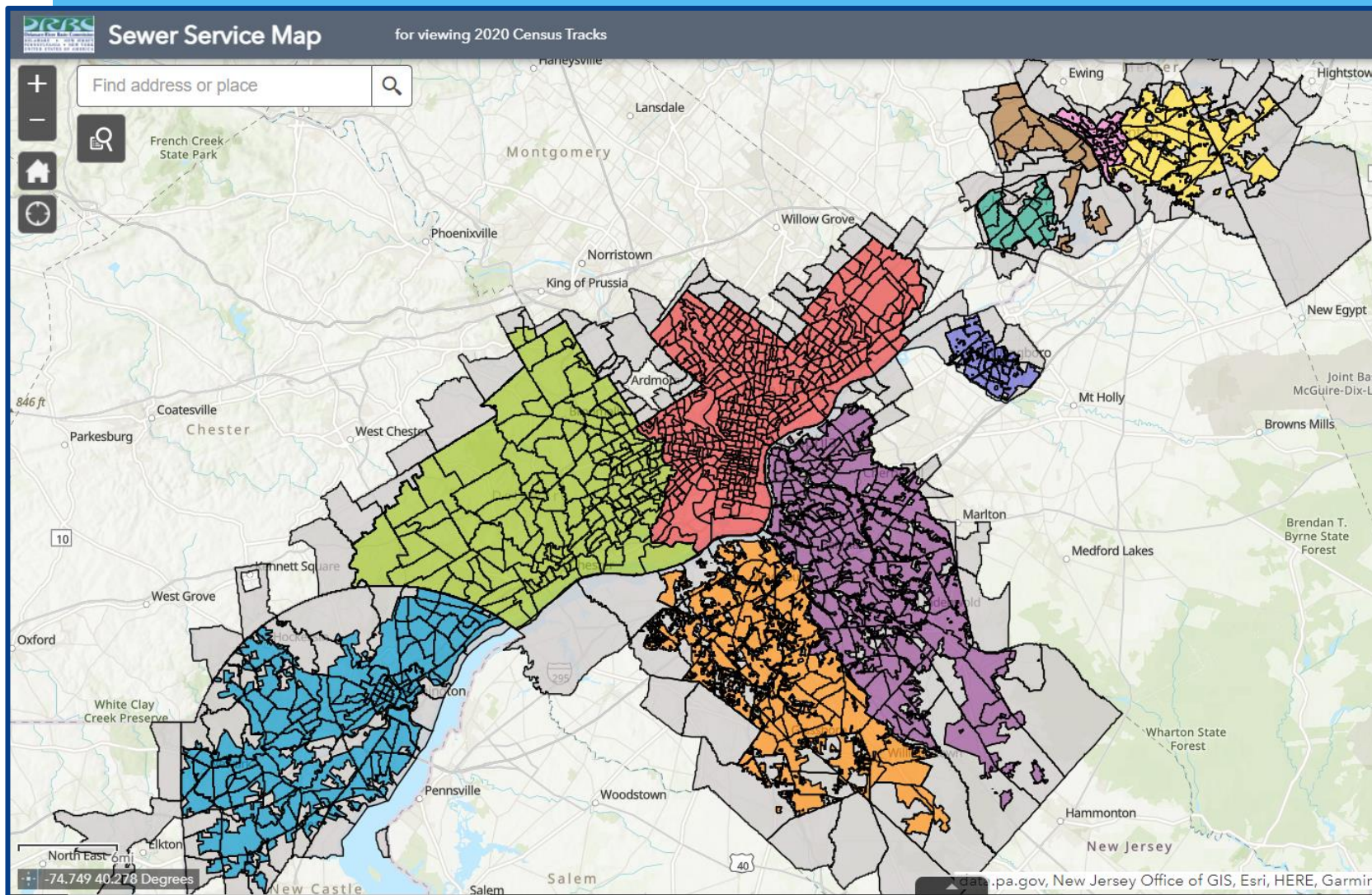
National Unemployment Rate



Caveat – DRAFT results

- Everything from this point forward is *draft*
- Known revisions are forthcoming
 - Adjustments to service areas
 - Revisit different guidance values on gallons per person per day
- Some results in the upcoming draft report will be different than what you see here

Service Area / Census Tract Mapping



- Proportion of tract within each service area
- Population weighted computations indicators at the census tract level
- All scripted

Total Cost of Water per Household

SSAname	Water Per gallon	Wastewater Per gallon	Stormwater Per month
Wilmington	0.0082	0.006	7.32
PWD	0.0062	0.0045	15.04
CCMUA	0.00907	0.00979	0
City of Trenton	0.0078	0.00585	0
Hamilton Twp WPCF	0.00996	0.00717	0.85846
Willingboro WPCF	0.00795	0.00634	0
DELCORA	0.00953	0.0159	1.4
Morrisville	0.00963	0.00746	0
LBCJMA	0.00323	0.00539	0
GCUA	0.00507	0.003272	0

- **Drinking Water + Wastewater and Sewer + Stormwater**
- Some utilities provide all 3 (PWD)
- Some utilities only provide DW with multiple 3rd party drinking water providers within the service area (GCUA)
- “Representative” DW cost
- 50 gal/person/day
- 2.65 People per household
- 3975 Gal per household per month
- Gals WW = Gals DW

Other Assumptions

- Population served estimated by census tracts within service area
 - Not counting suburban contract wastewater customers
 - No accounting of commercial customers
- Baseline (pre-project) cost per household based on total cost of water. *More on this later*
- Cost of new effluent limits is distributed among residential households within the service area only
 - Conservative
 - Approximates a worst case

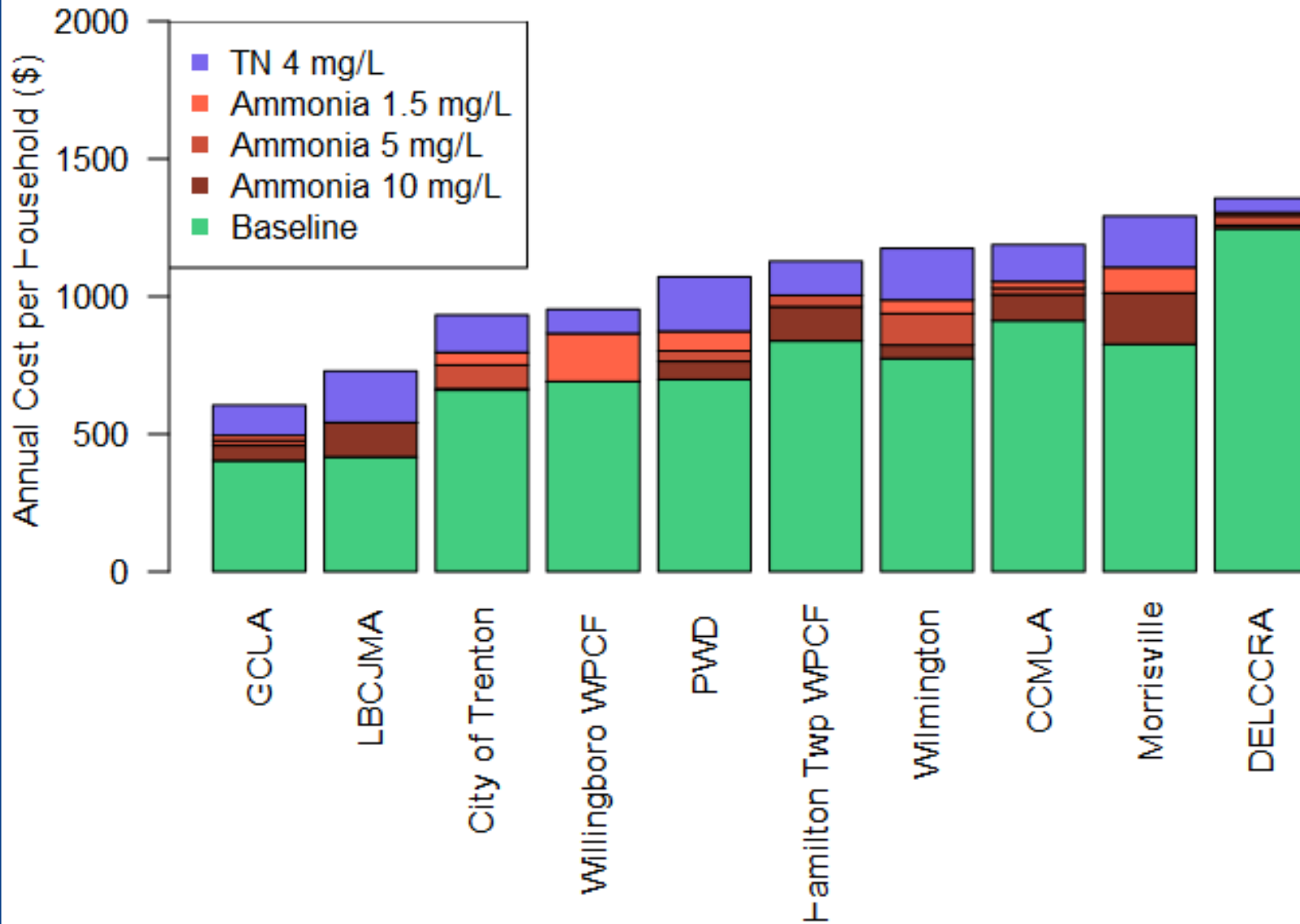
Annualized Cost in 2019 (\$ Million) dollars for Scenarios from Kleinfelder report

<u>SSAname</u>	<u>Base</u>	<u>Ammonia 10 mg/L</u>	<u>Ammonia 5 mg/L</u>	<u>Ammonia 1.5 mg/L</u>	<u>TN 4 mg/L</u>
Wilmington	0	6	20	26	49
CCMUA	0	12	15	18	35
City of Trenton	0	0.1	2	3	6
Hamilton Twp WPCF	0	3	4	4	7
Willingboro WPCF	0	0	0	2	3
DELCORA	0	2	8	10	19
Morrisville	0	2	2	3	5
LBCJMA	0	2	2	2	5
GCUA	0	3	4	5	11
PWD	0	32	50	84	179

Cost Per Household

<u>SSAname</u>	<u>Baseline</u>	<u>Ammonia 10 mg/L</u>	<u>Ammonia 5 mg/L</u>	<u>Ammonia 1.5 mg/L</u>	<u>TN 4 mg/L</u>
CCMUA	\$912.12	\$1,006.83	\$1,030.51	\$1,054.19	\$1,188.36
City of Trenton	\$660.15	\$664.69	\$751.00	\$796.43	\$932.70
DELCORA	\$1,246.66	\$1,258.26	\$1,293.06	\$1,304.66	\$1,356.86
GCUA	\$403.44	\$458.49	\$476.84	\$495.19	\$605.29
Hamilton Twp WPCF	\$838.75	\$962.78	\$1,004.12	\$1,004.12	\$1,128.15
LBCJMA	\$416.88	\$541.75	\$541.75	\$541.75	\$729.05
Morrisville	\$826.52	\$1,012.79	\$1,012.79	\$1,105.92	\$1,292.19
PWD	\$697.96	\$764.66	\$802.18	\$873.05	\$1,071.06
Willingboro WPCF	\$691.10	\$691.10	\$691.10	\$865.80	\$953.15
Wilmington	\$774.59	\$823.63	\$938.05	\$987.09	\$1,175.07

Annual Cost per Household of Water Baseline and Nitrogen Reduction Effluent Concentrations



Baseline and Costs per Household

Household Burden Indicator (HBI) National Framework

<u>SSAname</u>	<u>Baseline</u>	<u>Ammonia</u> <u>10 mg/L</u>	<u>Ammonia</u> <u>5 mg/L</u>	<u>Ammonia</u> <u>1.5 mg/L</u>	<u>TN</u> <u>4 mg/L</u>
CCMUA	2.64	2.92	2.99	3.06	3.44
City of Trenton	4.17	4.2	4.74	5.03	5.89
DELCORA	3.26	3.29	3.38	3.41	3.55
GCUA	0.95	1.09	1.13	1.17	1.43
Hamilton Twp WPCF	1.95	2.24	2.33	2.33	2.62
LBCJMA	0.92	1.19	1.19	1.19	1.61
Morrisville	1.28	1.57	1.57	1.71	2
PWD	3.23	3.54	3.71	4.04	4.96
Willingboro WPCF	1.66	1.66	1.66	2.08	2.29
Wilmington	2.36	2.51	2.86	3.01	3.58

The Household Burden Indicator (HBI), defined as basic water service costs (combined) as a percent of the 20th Percentile of Lowest Quintile of Income (LQI) for the Service Area)

HBI & PPI Yield Household Affordability Metrics National Framework

The Poverty Prevalence Indicator (PPI), defined as the percentage of community households at or below 200% of Federal Poverty Level (FPL).

Figure 8-1: Benchmarks for Recommended Household Affordability Metrics

HBI - Water Costs as a Percent of Income at LQI	PPI - Percent of Households Below 200% of FPL		
	>=35%	20% to 35%	<20%
>=10%	Very High Burden	High Burden	Moderate-High Burden
7% to 10%	High Burden	Moderate-High Burden	Moderate-Low Burden
< 7%	Moderate-High Burden	Moderate-Low Burden	Low Burden

Household Affordability National Framework

SCALE
LOW BURDEN
MODERATE-LOW BURDEN
MODERATE-HIGH BURDEN
HIGH BURDEN
VERY HIGH BURDEN

SSAname	PPI	Baseline	Amm10	Amm5	Amm1.5	TN4
CCMUA	25.94	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden
City of Trenton	52.1	Moderate-High Burden	Moderate-High Burden	Moderate-High Burden	Moderate-High Burden	Moderate-High Burden
DELCORA	21.52	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden
GCUA	17.69	Low Burden	Low Burden	Low Burden	Low Burden	Low Burden
Hamilton Twp WPCF	18.46	Low Burden	Low Burden	Low Burden	Low Burden	Low Burden
LBCJMA	16.7	Low Burden	Low Burden	Low Burden	Low Burden	Low Burden
Morrisville	11.89	Low Burden	Low Burden	Low Burden	Low Burden	Low Burden
PWD	43.48	Moderate-High Burden	Moderate-High Burden	Moderate-High Burden	Moderate-High Burden	Moderate-High Burden
Willingboro WPCF	23.49	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden
Wilmington	27.53	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden	Moderate-Low Burden

Residential Indicator - Annual Wastewater and CWA Control Costs per Household as a percent of Adjusted Median Household Income

EPA Residential Indicator

SCALE
LOW
MID-RANGE
HIGH

Financial Impact	Residential Indicator (CPH as % MHI)
Low	Less than 1.0 Percent of MHI
Mid-Range	1.0 - 2.0 Percent of MHI
High	Greater than 2.0 Percent of MHI

<u>SSAname</u>	<u>Baseline</u>	<u>Amm10</u>	<u>Amm5</u>	<u>Amm1.5</u>	<u>TN4</u>
CCMUA	MID-RANGE	MID-RANGE	MID-RANGE	MID-RANGE	MID-RANGE
City of Trenton	MID-RANGE	MID-RANGE	MID-RANGE	MID-RANGE	HIGH
DELCORA	MID-RANGE	MID-RANGE	MID-RANGE	MID-RANGE	MID-RANGE
GCUA	LOW	LOW	LOW	LOW	LOW
Hamilton Twp WPCF	LOW	MID-RANGE	MID-RANGE	MID-RANGE	MID-RANGE
LBCJMA	LOW	LOW	LOW	LOW	LOW
Morrisville	LOW	LOW	LOW	LOW	MID-RANGE
PWD	MID-RANGE	MID-RANGE	MID-RANGE	MID-RANGE	HIGH
Willingboro WPCF	LOW	LOW	LOW	MID-RANGE	MID-RANGE
Wilmington	MID-RANGE	MID-RANGE	MID-RANGE	MID-RANGE	MID-RANGE

EPA Net Debt as % of Full Market Property Value

SCALE
STRONG
MID-RANGE
WEAK

<u>SSAname</u>	<u>NDpercent</u>	<u>Benchmark</u>
CCMUA	Insufficient Data	Strong (presumed)
City of Trenton	Insufficient Data	Strong (presumed)
DELCORA	7.3%	Weak
GCUA	Insufficient Data	Strong (presumed)
Hamilton Twp WPCF	3.1%	Mid-range
LBCJMA	Insufficient Data	Strong (presumed)
Morrisville	56.7%	Weak
PWD	4.5%	Mid-range
Willingboro WPCF	Insufficient Data	Strong (presumed)
Wilmington	47.5%	Weak

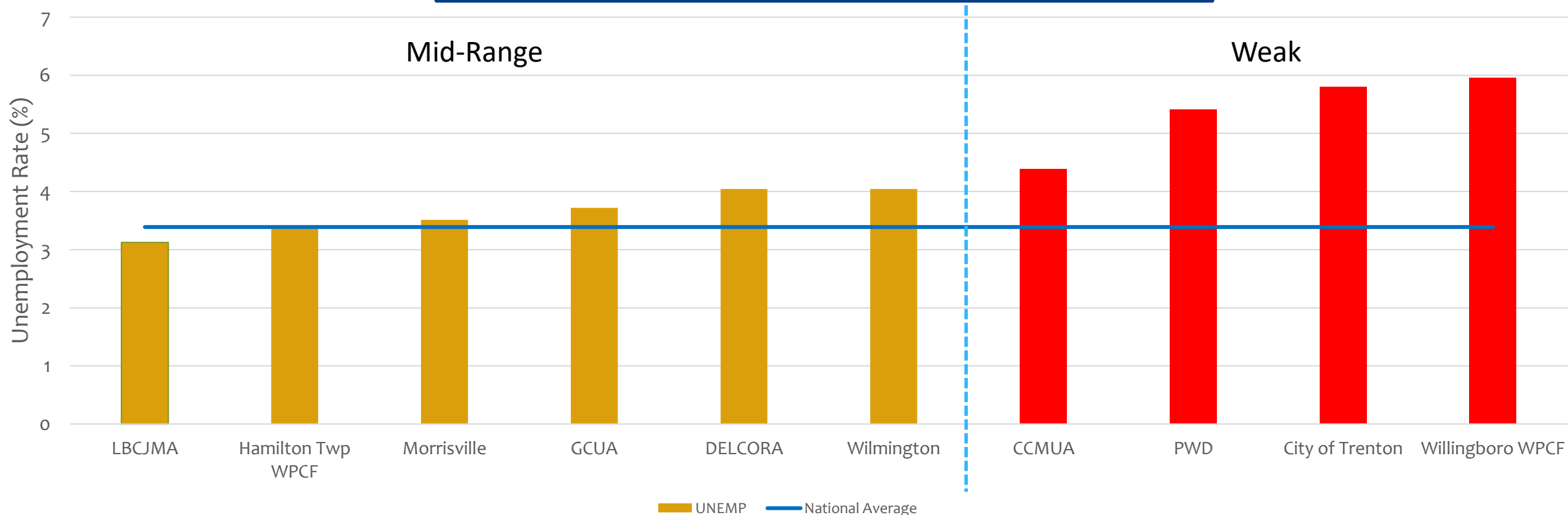
Benchmarks

- Weak: Above 5%
- Mid-range: 2-5%
- Strong: Below 2%

EPA: Unemployment Rate

SCALE
STRONG
MID-RANGE
WEAK

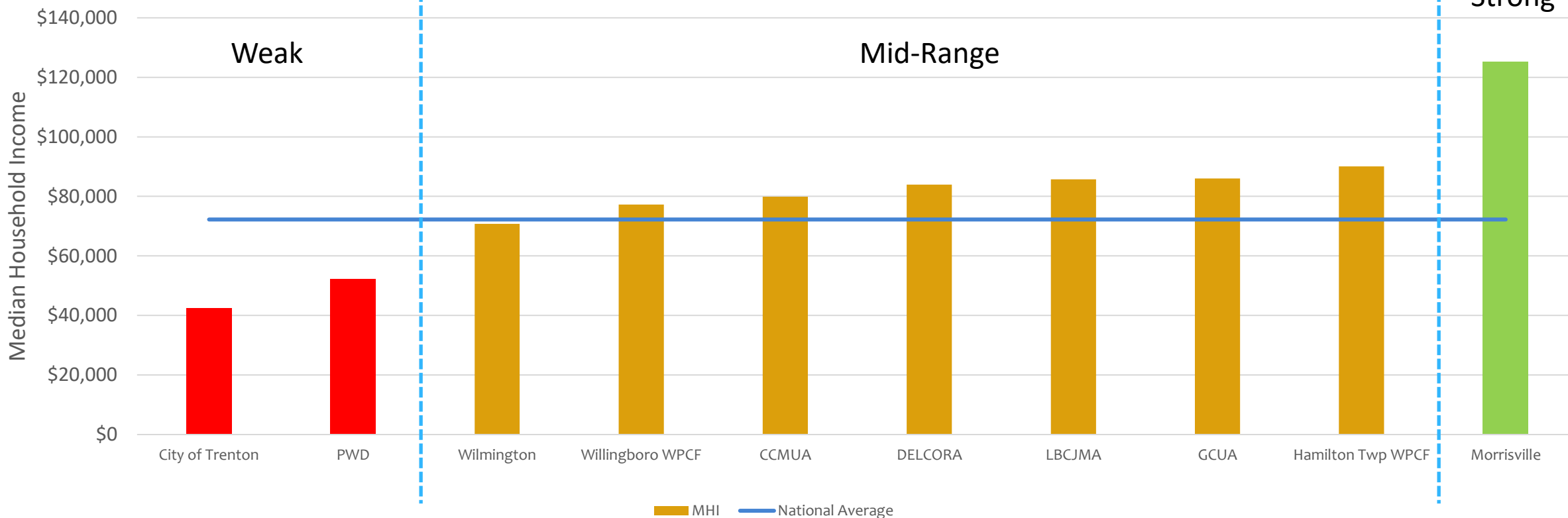
- Weak: More than 1 percentage point above the National Average
- Mid-range: ± 1 percentage point of the National Average
- Strong: More than 1 percentage point below National Average



EPA: Median Household Income

SCALE
STRONG
MID-RANGE
WEAK

- Weak More than 25% below Adjusted National MHI
- Mid-Range $\pm 25\%$ of the Adjusted National MHI
- Strong More than 25% above Adjusted National MHI

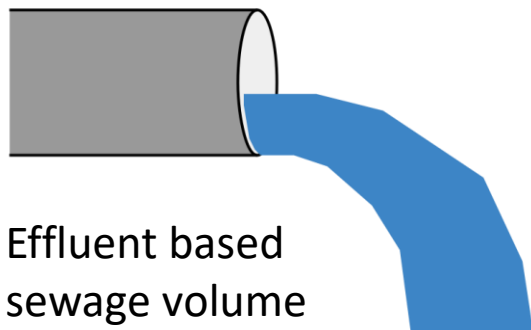


EPA: Property Tax Rate as % of Full Market Property Value

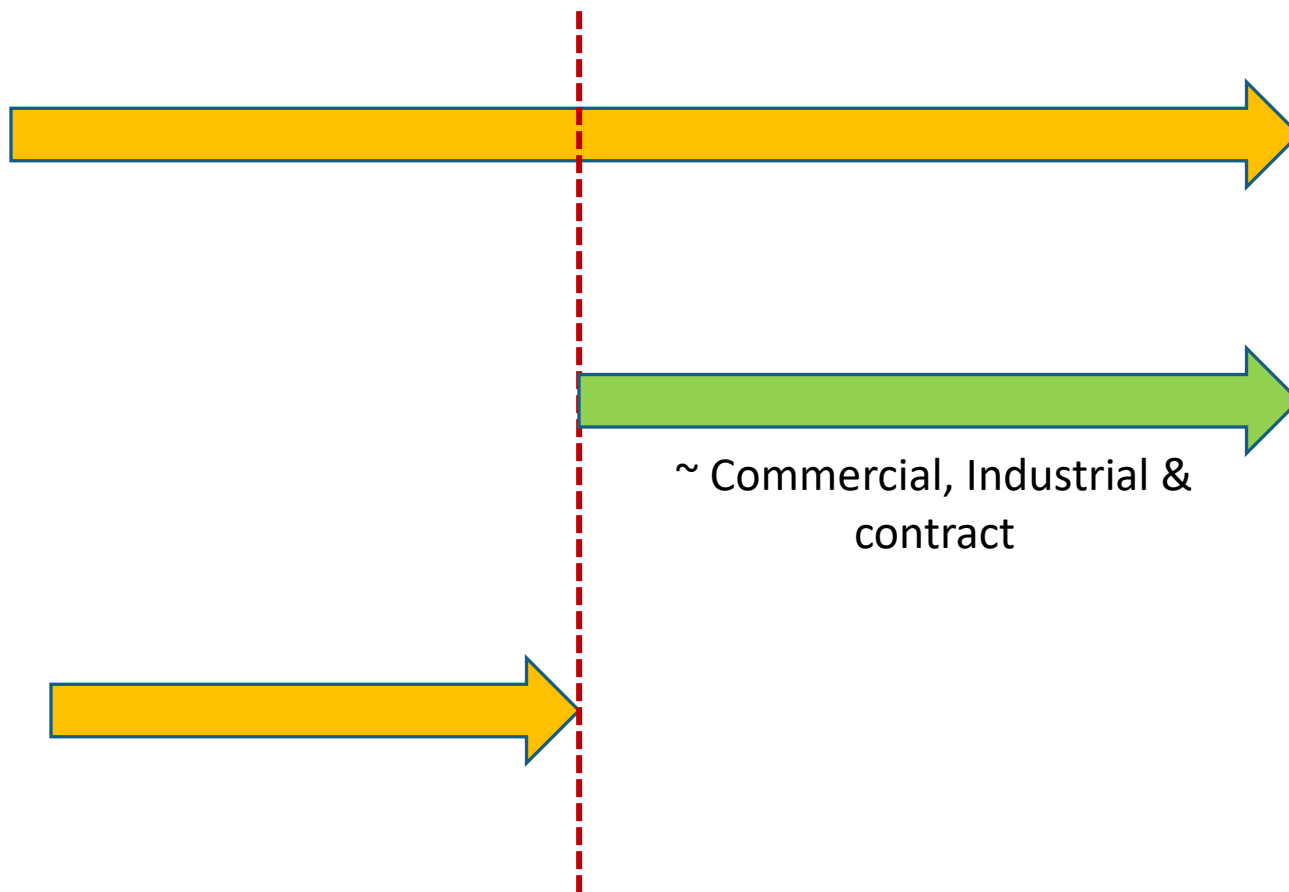
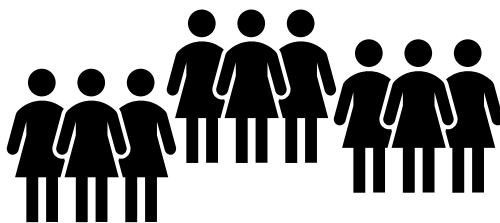
SCALE
STRONG
MID-RANGE
WEAK

<u>SSAname</u>	<u>Property Tax Rate as % of Full Market Property Value</u>	<u>Rating</u>
CCMUA	Insufficient Data	Strong (presumed)
City of Trenton	Insufficient Data	Strong (presumed)
DELCORA	0.502729	Strong
GCUA	Insufficient Data	Strong (presumed)
Hamilton Twp WPCF	3.049009	Mid-range
LBCJMA	Insufficient Data	Strong (presumed)
Morrisville	Insufficient Data	Strong (presumed)
PWD	0.411235	Strong
Willingboro WPCF	Insufficient Data	Strong (presumed)
Wilmington	1.960943	Strong

Estimating Residential & Non-Residential Sewage Flow



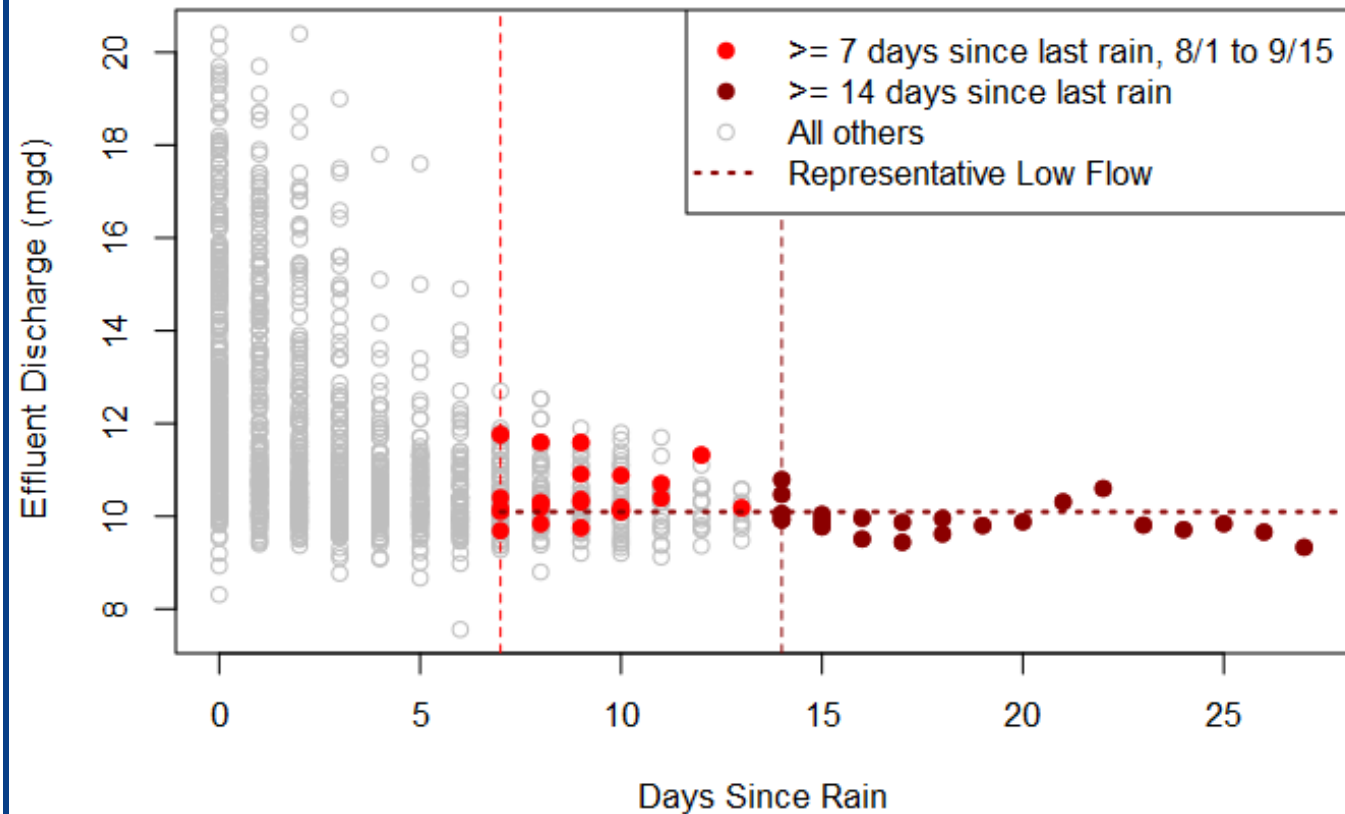
Population based
sewage volume



Cross-Check

Residential vs. Non-Residential Flow

City of Trenton



- Representative low flow by facility
- Adapted EPA [Guide for Estimating Infiltration and Inflow](#)
- Rainfall > 0.1 -inch
- Median effluent discharge for low flow days for each wastewater treatment facility
- Estimated daily volume of wastewater produced by residential using population served X 50 gallons per person per day

Note

- EPA worksheet 1 guides computation of cost per household using *forecasted O&M and debt service*
 - This yielded cost per household values that were wildly different from utility to utility and in some cases, not plausible
 - Total cost of water approach yielded results that were more comparable utility to utility and far more plausible
 - Total cost of water is a more direct assessment of impact to residential rate payers

Utility Coordination

- Wilmington meeting, April 21, 2022
 - DELCORA meeting, April 29, 2022
 - Trenton meeting, May 12, 2022
-
- Philadelphia meeting, May 19, 2022
 - Possible all utilities meeting - TBD

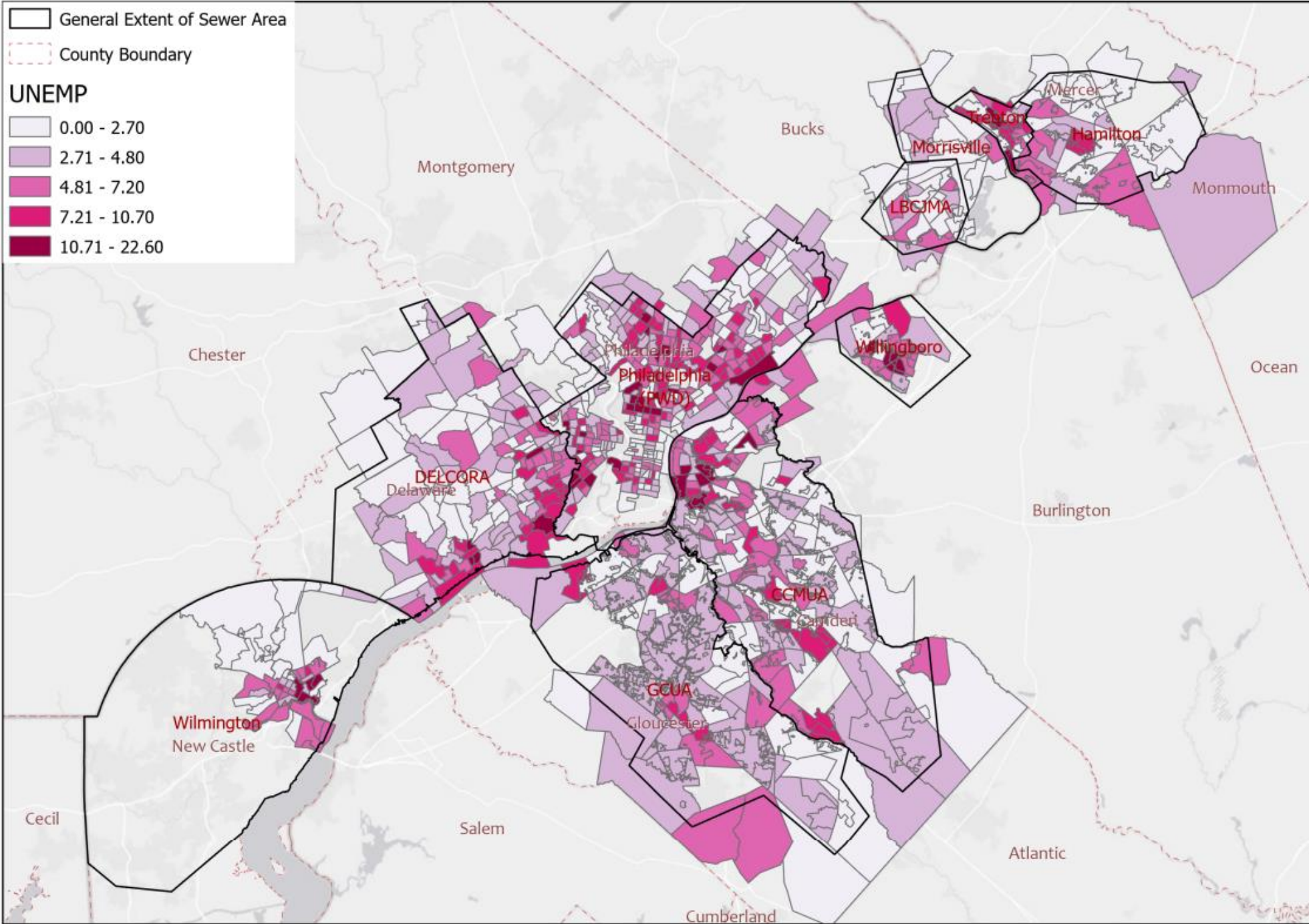
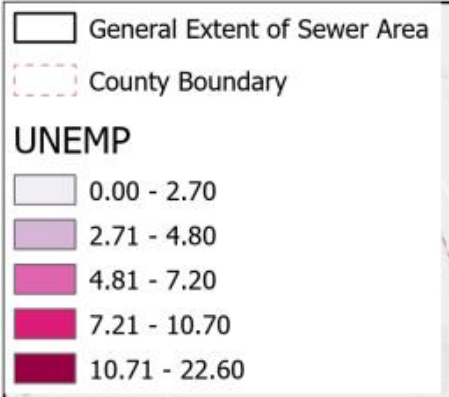
Next Steps

Technical

- Known revisions / service area adjustments
- Continued effort to fill in data gaps
- Additional EPA metric and Summary metric
- Evaluate combinations of PWD plant
- Tract-level mapping of selected indicators

Reporting

- Draft report – within next few weeks
- Comment period
- Finalize report
- Component of Analysis of Attainability



Other Mapping Unemployment

Questions & Discussion

DRBC Project Team

John Yagecic

Sara Sayed

Karen Reavy

Bailey Adams



Delaware River Basin Commission

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