The Impact of Philadelphia's Tiered Assistance Program (TAP) for Water/Wastewater Bills on Low-Income Payment Patterns

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In the Fall of 2015, the City of Philadelphia became the first major urban center to adopt a water affordability program structured on percentage of income principles. Adopted unanimously by the Philadelphia City Council on November 19, 2015, the Philadelphia initiative was titled the Income-based Water Rate Affordability Program ("IWRAP").[1] IWRAP opened for business on July 1, 2017. As implemented, the program was referred to as the Philadelphia Water Department's ("PWD") "Tiered Assistance Program" ("TAP"). Throughout this discussion, references to "TAP" will be to the program as implemented. References to "IWRAP" will be to the program as set forth in the local legislation.

Philadelphia's IWRAP legislation provides that: "monthly IWRAP bills shall be affordable for low-income households, based on a percentage of the household's income. . ."[2] Each low-income customer's bill, the legislation directed, shall be "based upon each Customer's actual income" and "shall be charged in lieu of the Department's service, usage, and stormwater charges."[3] The following major policy decisions are incorporated into this language:

- Bills "shall be affordable." The purpose of the Philadelphia legislation, in other words, was not merely to provide "some" level of discount to low-income customers. There is, instead, a legislatively-mandated outcome. The level of discount must result in an ***affordable*** bill for low-income customers. This policy works two ways. First, if a customer has a lower income (or a higher bill), the amount of assistance should be increased to reflect the increased dollars needed to make a bill affordable. Second, if a

[1] Bill No. 140607-AA, amending Philadelphia Code, §19-1605, adopted by the City Council on November 19, 2015. Signed by the Mayor on December 1, 2015.
[2] Amended Philadelphia City Code, Section 19-1605(3)(a) (2017).
[3] Amended Philadelphia City Code, Section 19-1605(3)(a) (2017).

customer has an affordable bill without assistance, the customer does not receive a discount merely because he or she is "poor." The bill assistance, in other words, should be an amount that is sufficient, but only that amount which is sufficient, to make a bill affordable.

- Affordability is to be "based on a percentage of the household's income." Affordability, in other words, was not some ambiguous concept included in the legislation. Instead, Philadelphia specifically mandated that affordability was to be determined as a function of a "percentage of income."

- Affordability is to be "based upon each Customer's actual income." According to the Philadelphia City Council, in other words, affordability was not to be determined "on average" or on a City-wide basis. Affordability could not be set, for example, based on median income. Affordability was not to be based on some estimated or imputed income. Rather, pursuant to the legislation, affordable IWRAP bills in Philadelphia are to be determined based upon "each Customer's actual income."

- The Philadelphia IWRAP legislation makes clear that the difference between bills that would have been charged at standard residential rates and bills actually charged pursuant to the IWRAP legislation was not to be accumulated for subsequent collection from the IWRAP participants. Instead, IWRAP bills were "in lieu of" the water, wastewater and stormwater charges otherwise charged to residential customers. "Timely payment of his or her monthly IWRAP bill," the legislation provides, "shall satisfy all of a customer's current water liabilities, so that there is no addition to his or her arrears."[4]

- Finally, the IWRAP legislation is intended to be comprehensive. It is designed to cover all aspects of "water" bills charged to residential customers, including water, wastewater and stormwater charges.

The Philadelphia legislation directly addresses the treatment of arrearages that had been incurred by low-income customers before those customers entered IWRAP.[5] The legislation recognizes that collection efforts by the Philadelphia Water Department are based on total bills, not on whether a customer's arrears were incurred before or after the effective date of the water affordability program. Moreover, the City Council recognized, it was not only *possible*, but indeed it was *likely* that low-income customers would have incurred arrears during that time period prior to the point where the City Council moved to incorporate affordability into the City's rate structure. Accordingly, the Philadelphia legislation mandates that "low-income customers who are enrolled in IWRAP shall be required to make no additional payment in

[4] Amended Philadelphia City Code, Section 19-1605(3)(d) (2017).

[5] Determining the net costs of an arrearage credit component to IWRAP is beyond the scope of this discussion.

respect to any pre-IWRAP arrears to maintain service."[6] In fact, the legislation explicitly provides that "earned forgiveness of arrearages shall be available under such terms and conditions as are adopted by regulation."[7]

Finally, while the legislation does not specify the exact nature of water conservation investments to be directed toward low-income customers, the IWRAP legislation *does* specifically contemplate water conservation as an important component of the affordability effort. "Each participating IWRAP customer," the legislation provides, "shall agree to accept and reasonably maintain any free conservation measures offered to the customer by the Water Department."[8]

In short, the Philadelphia IWRAP legislation includes virtually every component that has historically been argued to be essential for a water affordability initiative. It provides for a percentage of income-based bill affordability approach relating to bills for current service. It provides for an opportunity for low-income customers to earn forgiveness of pre-program arrears incurred under the rates that have been found to have been unaffordable. The legislation provides for water conservation investments.

In the discussion below, this analysis will review the first 2+ years of TAP operation to determine what insights, if any, can be gleaned from the implementation of the Philadelphia water affordability program.

THE IMPACT OF PWD'S LOW-INCOME TAP ON LOW-INCOME PAYMENT PATTERNS.

One expected impact of PWD's low-income TAP was to help the Philadelphia water utility improve the collectability of its billed revenue. Historically, while PWD tracked the collectability of its billed revenues for customers as a whole, it did not track the collectability of residential bills in general, let alone of low-income residential bills in particular. Comparisons can be made, however, between program payment patterns and pre-program arrears.

Pre-Existing Arrears for TAP Enrollees

With the arrearage forgiveness program mandated by the City Council legislation, PWD has had occasion through TAP to track the amount of arrears that the utility's low-income customers were carrying before entering the program. Given that a TAP participant's "pre-program arrears" are frozen at the time the customer entered the program, PWD identified the unpaid balance on a program participant's bill at the time of program enrollment.

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[6] Amended Philadelphia City Code, Section 19-1605(3)(h) (2017).
[7] Amended Philadelphia City Code, Section 19-1605(3)(h)(i) (2017).
[8] Amended Philadelphia City Code, Section 19-1605(3)(q) (2017).

Setting aside July 2017 (the first month of enrollment), with only three enrollees, Chart 1 below presents the number of TAP enrollees who have entered TAP with pre-program arrears, along with the percentage which those numbers represent of all TAP enrollees. As can be seen, not only "most," but nearly all new TAP enrollees entered the Philadelphia water affordability program with pre-program arrears. Even during the months of April through December 2020, when the COVID-19 pandemic impeded substantial new enrollment, well over 90% of those low-income customers who were enrolling in TAP brought pre-program arrears into the program with them.

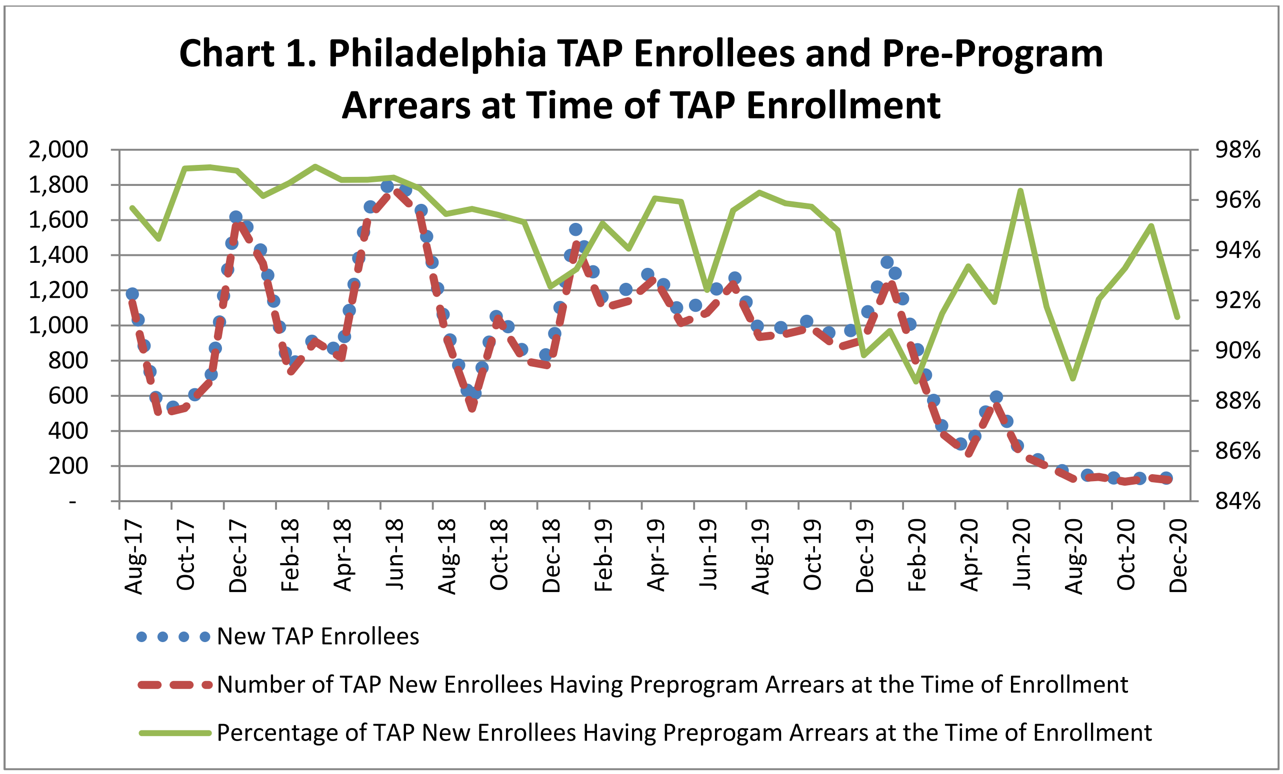


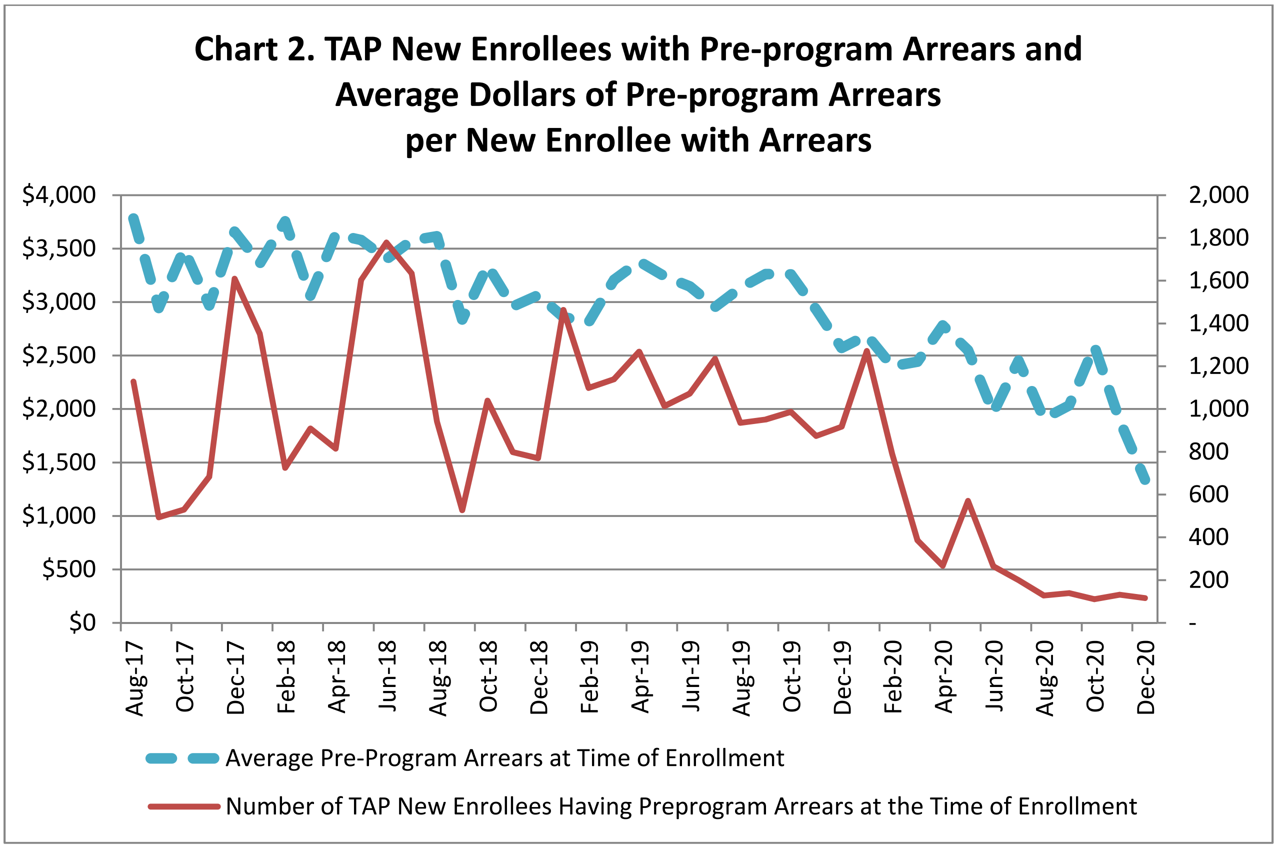
Chart 2 then assesses the <u>*extent*</u> of the pre-program arrears new TAP enrollees were bringing into the affordability program. As Chart 2 shows, prior to COVID-19, at the same time that 94% or more of low-income customers were bringing pre-program arrearages into TAP with them, those new TAP enrollees were bringing thousands of dollars of arrears each. During the first 16 months of TAP enrollment (July 2017 through October 2018), those arrears averaged between $3,000 and over $3,500. From October 2018 to October 2019, the average pre-program arrears with new enrollees averaged roughly $3,000, while from October 2019 to March 2020, they averaged closer to $2,500 per new TAP enrollee with arrears. During the COVID-19 pandemic months (to date) (starting April 2020), not only did TAP new enrollment drop precipitously, but so, too, did the pre-program arrearages (still averaging, however, between $2,000 and $2,500 per new enrollee). Overall, from July 2017 through December 2020:

- 36,574 low-income PWD customers newly enrolled in TAP;

- Of those, 34,666 low-income customers newly enrolled in TAP (95%) enrolled in the program bringing pre-program arrears with them;

- Those new enrollees with pre-program arrears brought an aggregate dollar amount of $109,603,111 in pre-program arrears, an average of $3,162 per new enrollee with arrears.

If one were to exclude the aberrational COVID-19 months, from July 2017 through February 2020, 34,435 low-income customers enrolled in TAP, 32,352 of whom (94%) of whom had a pre-program arrears. Those pre-program arrearages totaled an aggregate of $104,233,683 in arrears, an average of $3,222 per new enrollee with arrears.



It is within this context of nonpayment that the impacts of TAP on low-income payment patterns is reviewed.

Net Collections of Bills for Current Service After TAP Discount

One of the first questions posed by the PWD low-income TAP program is the extent to which PWD would increase or decrease its net collection of dollars. Pursuit of this analysis takes the dramatic step of assuming away all pre-existing (i.e., pre-program) arrears. This first discussion, in other words, wipes the slate clean of the more than $109 million in pre-existing debt (an average of $3,162) that new TAP enrollees brought into the program. Assuming a $0 arrearage balance for TAP enrollees, this discussion examines the net collections from TAP enrollees of bills for current service under the TAP program.

Collectability from TAP Participants

We know from PWD reporting that the amount of the TAP discount for FY18, FY19, and FY20 ranged from roughly $3.1 million in the first year of TAP (FY18) to nearly $9.9 million in the third year of the program (FY20). The amount of discount substantially increased in FY19 and FY20 due to an increase in TAP enrollment.

PWD TAP Discounts by Fiscal Year

	Total Bills	Total Undiscounted Bills	Amount of Discount
FY20	$5,977,181.32	$15,850,317.25	$9,873,135.93
FY19	$5,668,382.88	$15,440,890.43	$9,772,507.55
FY18	$1,673,117.68	$4,818,597.63	$3,145,479.95

Assessing PWD's net collections involves comparing what PWD actually collected to what it would have collected without the discount. PWD reports the collection rate both for TAP participants and for TAP-eligible non-participants. This discussion examines collectability at the 24-month mark (2-years). Two years of collectability data (for both FY18 and FY19) are available.[9] Two different collection rates for the TAP-eligible non-participants are considered below: (1) the collectability for the same year as the year in which the revenue is first billed; and (2) the three year average collectability for the three years immediately preceding the commencement of TAP (FY15, FY16, FY17).

<u>Collectablity for the same year</u>: This metric examines the collectability of revenue to TAP-eligible non-participants for the same Fiscal Year in which the revenue is first billed.[10] If

[9] For FY20, there is only one year of collections. For FY2017 and before, there was no TAP program.
[10] PWD operates on a July through June Fiscal Year. Fiscal Year 2018, therefore, is July 2017 through June 2018.

revenue is billed in FY18, for example, the collectability of that revenue is tracked for the 24 months subsequent to the month of FY18 in which the revenue was billed.

Collectability with and without TAP at 24-Month Mark (RFC-6)

	With TAP			Without TAP			
	Total Bill	Collection Rate	Dollars Collected	Total Bill	Collection Rate (same FY)	Dollars Collected	Reduced Collections
FY19	$5,668,382.88	87.89%	$4,981,941.71	$15,440,890.43	52.59%	$8,120,364.28	$3,138,422.56
FY18	$1,673,117.68	95.70%	$1,601,173.62	$4,818,597.33	39.77%	$1,916,356.16	$315,182.54

In FY2018, TAP participants received a discounted bill of $1,673,117.68. PWD collected 95.70% of those billed dollars ($1.60 million). For dollars billed to low-income TAP non-participants in FY18, however, PWD had a collection rate of only 39.77%. Had TAP participants been billed at standard residential rates ($4,818,597.33), and collected at the same rate as low-income TAP non-participants, PWD would have collected only $1,916,356.16 in cash. In FY18, in other words, while PWD provided a discount of $3,145,499.95, it collected only $315,182.54 fewer dollars in cash.

The same result can be seen in Fiscal Year 2019.[11] PWD provided a discounted bill of $5,668,382.88 to TAP participants. It had a collectability rate of 87.89% at the two year (24-month) mark, meaning that it had collected $4,981,941.71 in actual revenue. In contrast, if PWD would have billed at standard residential rates ($15,440,890.43) and collected at the same rate as low-income TAP non-participants, it would have collected $8,120,364.28 in cash. In FY19, therefore, while PWD provided a discount of $9,772,507.55, it collected only $3,138,422.56 fewer dollars.

Collectability at average rate of most three Fiscal Years: The second metric used to examine the net collections by PWD under TAP involves employing the average non-TAP collectability rate for the three most recent Fiscal Years. The average non-TAP collectability rate at the 24-month mark was 46.69% for the three most recent Fiscal Years (2017 – 2019). Using the three-year average accomplishes two functions. On the one hand, the averaging smooths the year-to-year fluctuations in non-TAP collectability. In addition, the use of a three-year average helps to separate the collectability factor from any particular set of customers. It is not only possible, but nearly certain, that the group of households comprising the PWD low-income non-participant population over three years would be a different mix of customers in any given year. The data is set forth in the table below.

[11] Fiscal Year 2020 cannot be used since two years of collections have not yet elapsed since bills were first issued.

Collectability with and without TAP at 2-Month Mark (Average of Most Recent 3 Year Collectability Rate)								
	With TAP			Without TAP (2017 – 2019)			Reduced collections
	Total Bill	Collection Rate	Dollars Collected	Total Bill	Collection Rate (3 Yrs Prior to TAP)	Dollars Collected	
FY19	$5,668,382.88	87.89%	$4,981,941.71	$15,440,890.43	46.69%	$7,209,239.99	$2,227,298.28
FY18	$1,673,117.68	95.70%	$1,601,173.62	$4,818,597.33	46.69%	$2,249,768.22	$648,594.60

As before, in FY18, PWD billed TAP participants $1,673,117.68 and collected $1,601,173.62 (95.70%). Had PWD billed at standard residential rates, and collected at the same rate as its low-income non-participants, it would have billed $4,818,597.33 and collected $2,249,768.22 (46.69%). In FY19, while PWD billed TAP customers $5,668,382.88 and collected $4,981,941.71 (87.89%), if it had billed at standard residential rates, it would have billed $15,440,890.43 and collected $7,209,239.99 (46.69%). Hence, in FY2019, while PWD provided a discount of nearly $9.8 million ($9,772,507.55), it collected only $2,227,298 less in actual revenue.

Again, of course, it is important, also, to remember that new TAP enrollees brought over $109 million of pre-existing arrears into the TAP program, an average of nearly $3,200 for each new enrollee with arrears. To move those customers from paying less than half their bill each year to paying 88% (87.89%) of their bill is a financial success for PWD.

Collectability of the Dollars of Discount

The net collections impact of the TAP discount does not end with an examination of the collectability from TAP participants themselves. The dollars of TAP discount do not "disappear" when they are not billed to TAP participants. Instead, those dollars are billed to PWD customers as a whole.

The collectability data above demonstrates another way in which Philadelphia Water financially benefits from TAP. Through TAP, PWD is taking billings that it would be collecting at a rate of 35% to 55% from TAP-eligible non-participants and instead billing those dollars through the TAP Rider. In so doing, it will be collecting those dollars at the collectability rate of customers as a whole, rather than at the collectability rate of TAP-eligible non-participants. As a result, it is generating substantially more dollars that are actually collected. The Table below sets forth the impact.

PWD TAP Net Gain in Collections (FY19)							
	TAP Participants			Non-TAP Customers			Total Dollars Collected
	Discounted Bill	Collectability Rate	Amount Collected	Amount of TAP Discount[12]	Collectability Rate	Amount Collected	
FY19[13]	$5,668,383	87.89%	$4,981,942	---	---	---	
Non-TAP customers				$9,772,508	96.34%	$9,414,834	
Total Collected	---	---	---	---	---	---	$14,396,775
Actual Collections Exceeding Discount	---	---	---	---	---	---	$4,624,268

As can be seen, to the extent that PWD includes the entire amount of the TAP discount in rates to other customers, PWD will over-collect its revenue. By including the full amount of the discount ($9,772,507.55) in rates to other customers for FY19, for example, PWD will collect $9.4 million in revenue. By providing the TAP discount of $9.773 million, PWD will collect $14.397 million. Unless either directed to return the excess collection to ratepayers, or directed to calculate the amount of discount to be included in the TAP Rider by referencing the difference between the TAP discount and actual collections rather than the difference between the TAP discount and standard residential rates, PWD collects $4.6 million more in actual cash than it provides in discounts.

IMPACT ON COMPLETENESS OF TAP PAYMENTS

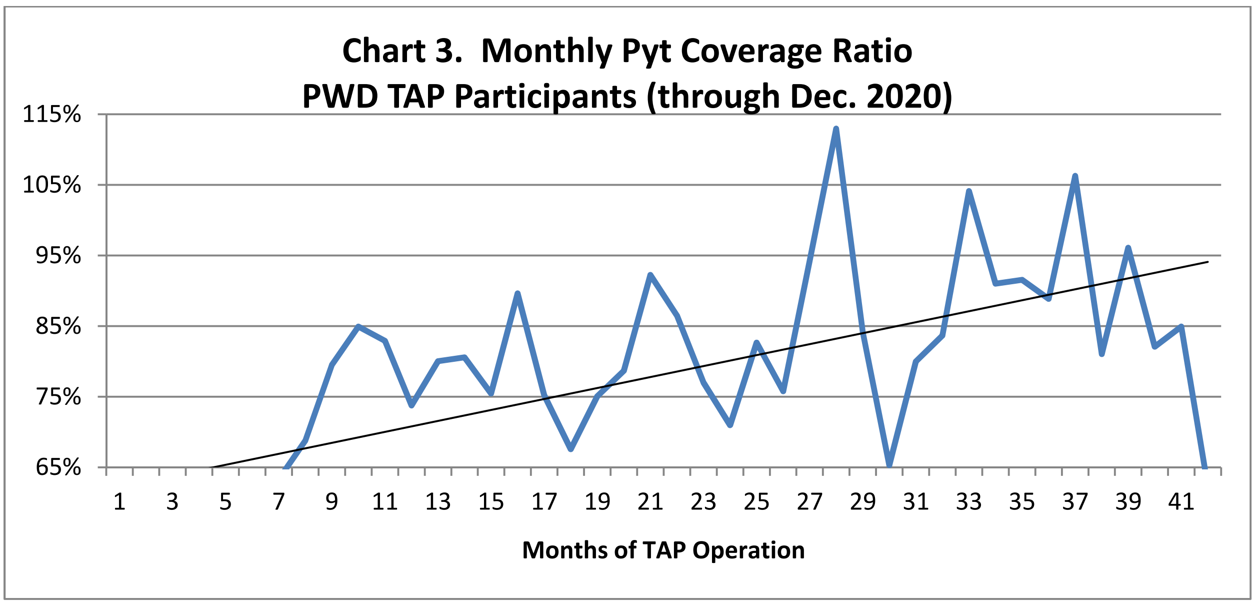
The offer of TAP discounts substantially improves the completeness of payment by TAP participants. The beginning point, again, is the pre-program performance of new TAP enrollees. As documented above, from July 2017 through February 2020 (i.e., pre-COVID-19):

- 34,435 low-income PWD customers newly enrolled in TAP;
- Of those, 32,352 low-income customers newly enrolled in TAP (95%) enrolled in the program bringing pre-program arrears with them;
- Those new enrollees with pre-program arrears brought an aggregate dollar amount of $104,233,683 in pre-program arrears, an average of $3,222 per new enrollee with arrears.

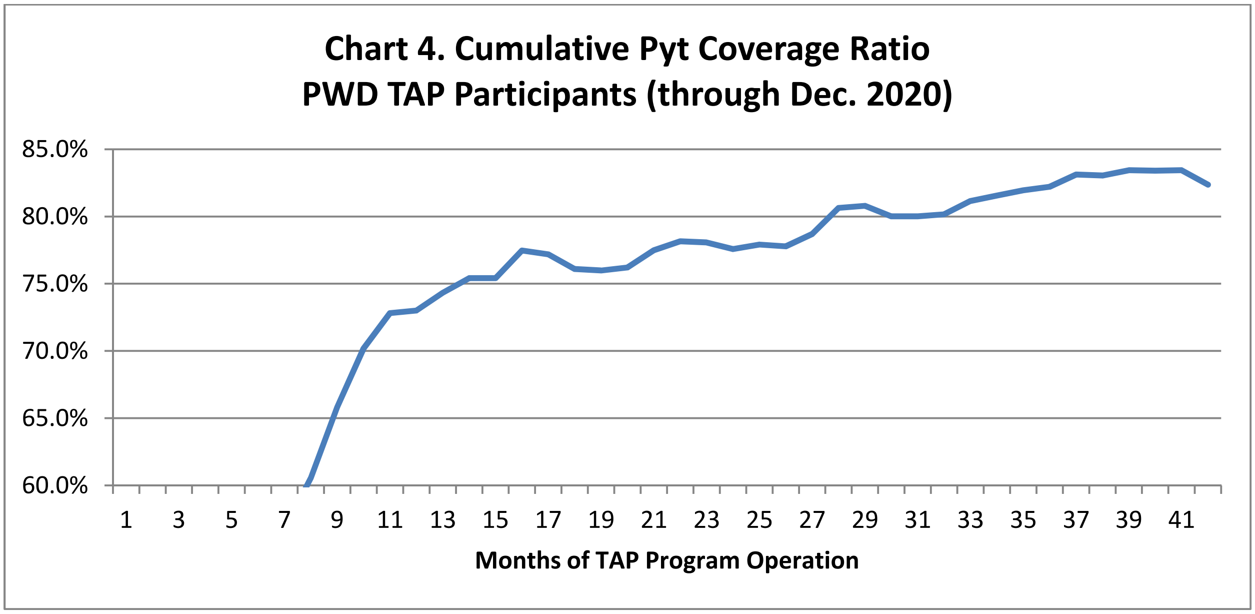
[12] If 100% included in TAP Rider.
[13] Through 24 months. Data beyond 24 months is not yet available for this Fiscal Year.

TAP payment performance can and should be compared to this pre-program performance. As PWD enrolled more and more customers into TAP in the first year, payment performance noticeably improved as measured by the "payment coverage ratio." The Payment Coverage Ratio is a reasonably simple ratio. The dollars of billings are placed in the denominator each month. The dollars of payment are placed in the numerator. The resulting ratio is the percentage of the billings that are paid by PWD's TAP participants. If PWD bills $100 in Month 16, for example, and PWD TAP participants pay $92, the Payment Coverage Ratio is 92%.

Beginning in Month 7 of TAP program operation, the monthly "payment coverage ratio" reached 65%. During the first two years of TAP operation, from months 8 through 25, the monthly Payment Coverage Ratio ranged in a reasonably narrow band between 75% and 85%. In the third year of TAP operation, the Payment Coverage Ratio noticeably improved, with TAP customers consistently paying between 85% and 95% of their TAP bills.



The improved TAP participant payment patterns is evident not only in the trend line of the monthly Payment Coverage Ratios presented in Chart 3 above, but in the Cumulative Payment Coverage Ratio set forth in Chart 4 below. The Cumulative Payment Coverage Ratio is calculated in the same fashion as the monthly ratio. In the Cumulative Ratio, an aggregate of billings and payments are tracked, with each month's data being added to the sum total of all preceding months. Chart 4 presents the same basic results as Chart 3 above does. After the initial first months of sputtering operation, TAP participants began to pay an increasingly higher proportion of their bills. The accumulated dollars of payments as a percentage of accumulated dollars of billings showed increasing improvement over time. Even including the lower Payment Coverage Ratios in the early months, by the last half of 2020 (months 35 through 41), TAP participants, 94% or more of whom entered the program with arrearages of $3,200 or more, had paid nearly 85% of their PWD bills over the first 42 months of the TAP program's operation.



IMPACT ON TIMELINESS OF BILL PAYMENTS

In addition to receiving full payments from its customers, PWD would seek to receive timely payments as well. If a bill due date is April 1st, for example, PWD wants its customers to make their payments on or before April 1st. A complete payment that is made 60 days late is considered to be a lesser performance than a complete payment that is made on-time.

In looking at the question of bill payment timeliness for TAP participants, the first metric used involves an examination of the percentage of bills paid at different measurement points in time. Since TAP data is available for two Fiscal Years (2018, 2019), the two measurement points are: (1) 12-months; and (2) 24-months. The data is set forth in the Table below. The comparisons examined involve TAP participants (who, by definition, are low-income) and low-income TAP non-participants.

The Table shows a substantial improvement in the timeliness of payments by TAP participants (in comparison to low-income TAP non-participants). In the Table below, data for low-income TAP non-participants is included for FY12 through FY17 even though no TAP program existed in those years. This data is presented simply for informational purposes.

The three years of most important comparison in the Table below are FY18 (the first year of TAP operation), FY19, and FY20. FY20 is included even though, because of its recent nature, it has collections data only for twelve months.

A consistency in the improved timeliness of payments by TAP participants is seen at both the 12-month and 24-month mark in the Table below. For all three years, at the 12-month mark, TAP participants out-performed the non-TAP low-income (non-TAP LI) customers by 35% to nearly 50%. The proportion of bill paid by TAP participants at the 12-month mark in FY18, for example, was more than 47% higher than the proportion of bill paid by low-income TAP non-participants (74.51% vs. 27.22% at the same mark). The proportion of bill paid by TAP participants at the 12-month mark in FY20 (72.82%) was 35% higher than the proportion of bill paid by low-income TAP non-participants (72.82% vs. 38.14%) at 12-months.

Timeliness of Bill Payment (TAP and Non-TAP Low-Income [LI])

	Percent Paid in 0 – 12 Months		Percent Paid in 0 – 24 Months	
	TAP	Non-TAP LI	TAP	Non-TAP LI
FY20	72.82%	38.14%	N/A[14]	N/A
FY19	72.17%	33.38%	87.90%	52.59%
FY18	74.51%	27.22%	95.73%	34.30%
FY17	No TAP[15]	36.11%	No TAP	47.80%
FY16	No TAP	39.80%	No TAP	53.33%
FY15	No TAP	39.37%	No TAP	53.32%
FY14	No TAP	40.49%	No TAP	55.04%
FY13	No TAP	42.45%	No TAP	57.06%
FY12	No TAP	39.18%	No TAP	53.26%

The improved timeliness of payments expanded through the second year of collections. In FY19, for example, while 87.90% of TAP participant bills had been paid by the 24-month mark, only 52.59% of low-income TAP non-participant bills had been (an improved performance by TAP participants of 49.1% over low-income TAP non-participants). An even greater performance difference can be seen in FY18, with the TAP participant payment of 95.73% by

[14] 24 months have not elapsed since FY 2020.
[15] TAP began in July 1, 2017 (Fiscal Year 2018).

Month-24 being more than 61% higher than the low-income TAP non-participant performance (34.30%).

A different way to look at the timeliness of TAP bill payments is to begin with the TAP collectability at a point in time and to review the pre-TAP collectability to see how long that it took TAP-eligible low-income customers to achieve that same collectability outcome. The TAP collectability outcomes that will be considered are set forth in the Table below.

TAP Collectability at Identified Points in Time (RFC-6)				
TAP FY 18: 1-Year	TAP FY19: 1-Year	TAP FY20: 1-Year	TAP FY-18: 2-Year	TAP FY19: 2-Year
74.49%	72.68%	72.82%	95.73%	87.90%[16]

This one-year and two-year collectability for TAP participants can then be compared to TAP-eligible (low-income) customers in years *before* TAP was implemented. The cumulative collectability at annual measuring points is presented below. What can be seen is that:

- The two-year TAP collectability of 87.90% (FY19) was never reached in pre-TAP years. The closest was Fiscal Year 2013, in which pre-TAP low-income customers had paid 76.30% of their bills by the end of Month 84 (i.e., after 7 years).

- Similarly, the two-year TAP collectability of 95.73% (FY18) was never reached in pre-TAP years. Again, the closest year was Fiscal Year 2013, in which pre-TAP low-income customers had paid 76.30% of their bills by the end of Month 84 (i.e., after 7 years).

- The one-year TAP collectability for FY18 of 74.49% was only reached by income-eligible customers in Fiscal Year 2013. In FY13, however, it took TAP-eligible (low-income) customers 72 months (i.e., 6 years) to pay the same percentage of their bill that TAP participants had paid in their first year of TAP participation.

- The one-year TAP collectability for FY19 of 72.68% was achieved (or virtually achieved) in two pre-TAP years (FY2013, FY2012). However, for pre-Tap dollars billed in FY13, it took TAP-eligible customers 60 months (5 years) to pay the same proportion of their bill that TAP customers paid in their first year. For pre-TAP dollars billed in FY12, it took TAP-eligible customers 84 months (7 years) to pay the same proportion of their bill that TAP participants paid in their first year. In the other four years, TAP-eligible (low-income) customers never achieved the same collectability performance as was achieved by TAP participants in one-year (FY19).

[16] Two years of collection have not elapsed since FY20 bills, and, accordingly, FY20 is not included for the 2-year mark.

Cumulative Collectability for TAP-Eligible Customers in Pre-TAP Years[17]									
	0 – 12 Mos	13 – 24 Mos	25 – 36 Mos	37 – 48 Mos	49 – 60 Mos	61 – 72 Mos	73 - 84 Mos	85 - 96 Mos	>96 Mos
FY17	36.41%	47.80%	51.11%						
FY16	39.80%	53.35%	58.72%	61.08%					
FY15	39.37%	53.32%	60.18%	64.39%	66.28%				
FY14	40.49%	55.04%	62.04%	67.30%	70.60%	72.01%			
FY13	42.45%	57.06%	63.41%	68.66%	72.77%	75.18%	76.30%		
FY12	39.18%	53.26%	58.96%	63.74%	67.80%	70.96%	72.90%	73.79%	

The Table immediately above indicates why a utility considers it important to improve the timeliness of collections. As arrears age, it becomes less and less likely that a utility such as PWD will ever collect those dollars. In the Table above, for example:

- While PWD increased the collection of its FY17 billings by 11.39% in Months 13-24 (as compared to Months 0-12) (47.80% minus 36.41%), it increased its collections by only an additional 3.31% in Months 25-36 (compared to Months 13-24) (51.11% minus 47.80%).

- While PWD increased the collection of FY15 billings by 13.55% in Months 13-24 (as compared to Months 0-12) (53.35% minus 39.80%), it increased its collections by only an additional 6.86% in Months 25-36 (compared to Months 13-24) (60.18% minus 53.32%).

- While PWD increased its collections of FY12 billings by 14.08% in Months 13-24 (compared to Months 0 – 12) (53.26% minus 39.18%), it increased its collections by only an additional 5.70% in Months 25-36 (compared to Months 13-24) (58.96% minus 53.26%).

In each of the pre-TAP years presented above for income-eligible customers, as can be seen from the Table above, incremental collections from low-income customers decreased by two-thirds after Month 24, and virtually disappeared after Month 60. As arrearages age, it becomes increasinglt less likely that they will ever be collected.

[17] Shaded cells represent aging buckets for which no data is reported since insufficient time has elapsed since billing to reach that aging bucket. For dollars billed in FY17, by FY19, which is the last year for which data is reported, there have only been 36 months to collect. The 37 – 48 month bucket, in other words, has not yet been reached.

The improved timeliness of payments for PWD customers provides an important benefit to the Philadelphia water utility.

Reduced Age of Arrearages

Finally, it is possible to assess the impact of TAP by looking at the dollar levels of arrears by aging bracket. Three levels of longer-term arrears are presented in the Charts below: (1) 121-365 day arrears; (2) 91-120 day arrears; and (3) 61-90 day arrears. As discussed above, the starting point of this review is to remember that of the 36,574 low-income PWD customers newly enrolled in TAP from July 2017 through December 2020, 34,666 low-income customers (95.1%) enrolled in the program bringing pre-program arrears with them. Those new enrollees with pre-program arrears brought an aggregate dollar amount of $109,603,111 in pre-program arrears, an average of $3,162 per new enrollee with arrears.

Each Chart below includes not only the dollars of arrearages in different aging buckets, but also the number of TAP participants. Including the number of TAP participants demonstrates that changes in the aggregate dollar level of arrears is not driven by the number of participants.

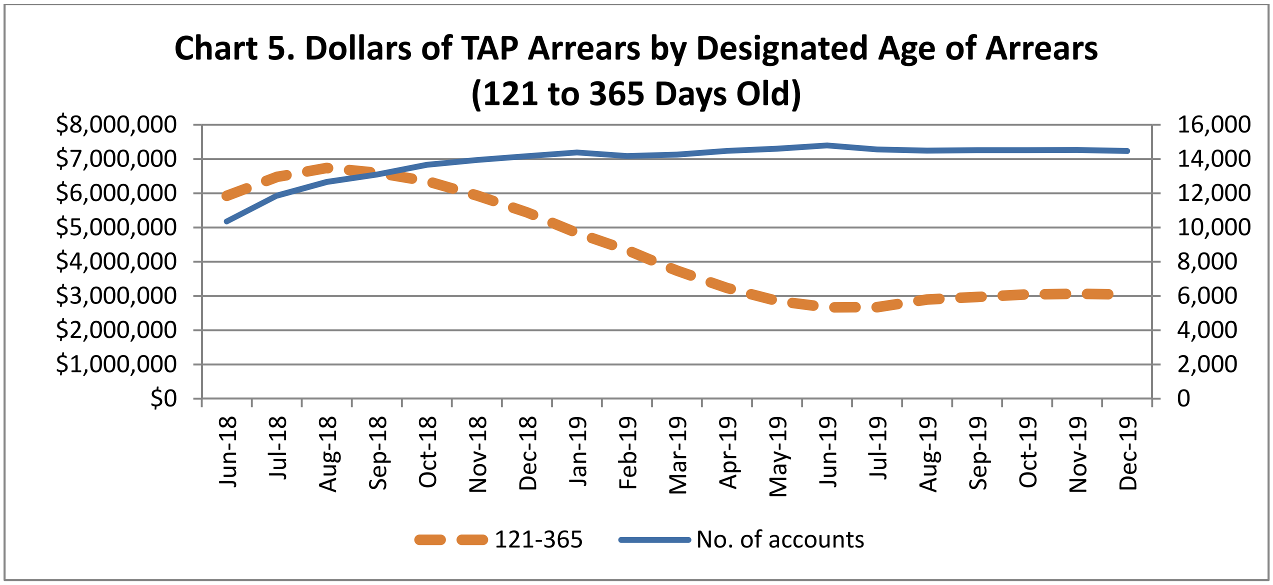
Chart 5 below presents long-term arrears for TAP participants. The Chart demonstrates that as TAP participants increased their period of participation, the amount of long-term arrears (121 – 365 days old) significantly decreased.

- After one year of TAP operation (June 2018), 11,855 TAP participants carried $5,924,729 of arrears that were from 121 to 365 days old.

- Six months later, while the number of TAP participants had increased to 14,166, the dollar level of arrears in the 121 – 365 day aging bucket had decreased to $5,444,031.

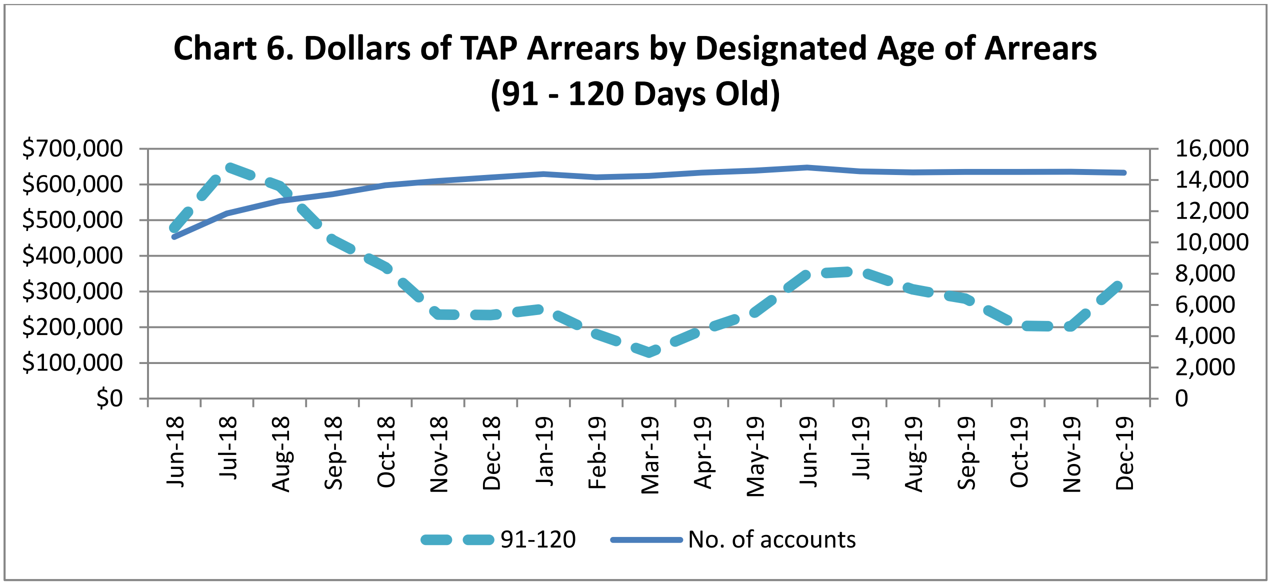
- One year later, in June 2019, TAP participation had increased further to 14,796 low-income customers, and long-term arrears had decreased to $2,668,826.

In the twelve months July 2018 through June 2019, in other words, while TAP participation *increased* by 25% (from 11,855 to 14,796), the amount of long-term arrears had *decreased* by 56% (from $5,924,729 to $2,668,826).

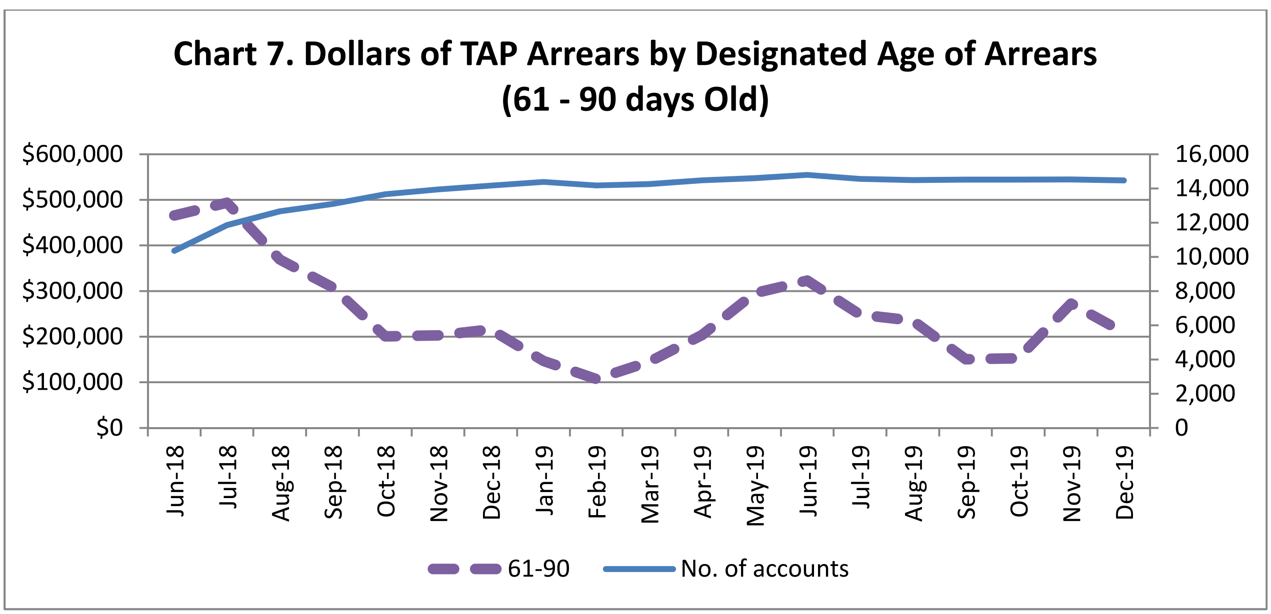


Similar results are seen for more moderate term arrearages. Because the size of the aging bucket is smaller (30 days long, 91 – 120 day arrears, rather than more than 240 days, 121 – 365 day arrears), the dollar amounts are much smaller. In July 2018, TAP participants hit the peak of the aggregate 91 – 120 day arrears. In July, 2018, 11,855 TAP participants carried $650,291 in arrearages of this age. Six months later, while TAP enrollment had increased to 14,166 participants, arrears falling in the 91 – 120 day aging bucket had fallen 64%, to an aggregate of $234,222.

Being a more moderate-term arrears, the 91 – 120 day arrears of TAP participants show a more seasonal pattern than the aggregate of the long-term arrears discussed above. Arrearages increased in April through June 2019, but decreased in subsequent months. Even in July 2019 (the seasonal high of that year), however, the $357,871 in 91 – 120 day arrears was 45% lower than the arrears of the same age twelve months earlier.



Finally, the arrearages falling into the aging bucket of 61 - 90 days (i.e., balances unpaid for 61 to 90 days after due date) show a consistent pattern for TAP participants. Despite TAP enrollment substantially increasing from June 2018 through December 2018 (from 10,351 to 14,166 TAP participants), the aggregate dollars of arrearages falling in the 61 – 90 day aging bucket dropped by 54% (from $465,704 in June 2018 to $215,724 in December 2018).



As with the other 30-day bucket discussed above (91 – 120 day arrears), the dollar level of arrearages falling into the 61 - 90 day aging bucket show a seasonal variation. As the Table below shows, however, on both an aggregate and an average basis, the dollar level of 61 – 90 day arrears was lower in 2019 than it was in 2018 (with the exception of November). Even in

November, it is evident that both the aggregate and average dollar level of 61 – 90 arrears had substantially decreased relative to the balances being carried in June 2018. While the average 61 – 90 day arrears in the three months of June through August 2018 was $38.60, the average 61 – 90 arrears in the three months of October through December 2019 was $14.59, a decrease of 62%.

Aggregate and Average TAP Arrearages (61 – 90 day aging bucket)

	June	July	August	September	October	November	December
2018	$465,704.45	$493,564.11	$369,449.03	$308,184.62	$200,757.21	$202,931.77	$215,724.33
2019	$322,908.07	$248,358.59	$234,989.43	$150,596.84	$152,864.36	$272,454.72	$209,112.53
Monthly Average							
2018	$44.99	$41.63	$29.18	$23.55	$14.70	$14.56	$15.23
2019	$21.82	$17.06	$16.23	$10.38	$10.53	$18.77	$14.46

FINDINGS OF FACT REGARDING PWD COLLECTIONS PERFORMANCE UNDER TAP DISCOUNT

Based on the data and discussion presented above, the following findings are made with respect to the PWD low-income percentage-of-income-based Tiered Assistance Program (TAP) for water affordability:

1. From July 2017 through December 2020: 36,574 low-income PWD customers newly enrolled in TAP; of those, 34,666 low-income customers newly enrolled in TAP (95%) enrolled in the program bringing pre-program arrears with them; those new enrollees with pre-program arrears brought an aggregate dollar amount of $109,603,111 in pre-program arrears, an average of $3,162 per new enrollee with arrears.

2. In Fiscal Year 2019, PWD provided a discounted bill of $5,668,382.88 to TAP participants. PWD had a collectability rate of 87.89% at the two year (24-month) mark, meaning that it had collected $4,981,941.71 in actual revenue. In contrast, if PWD would have billed at standard residential rates ($15,440,890.43) and collected at the same rate as it had collected from low-income TAP non-participants for the three most recent Fiscal Years (2017 – 2019) (46.69%), it would have collected $7,209,239.99. Hence, in FY2019, while PWD provided a discount of nearly $9.8 million ($9,772,507.55), it collected only $2,227,298 less in actual revenue assuming the 3-year low-income non-TAP participant collectability rate.

3. To the extent that PWD includes the entire amount of the TAP discount in rates to other customers, PWD will over-collect its revenue. By providing the TAP discount of $9.773 million, PWD will collect $14.397 million in actual receipts.

4. As PWD enrolled more and more customers into TAP in the first year, payment performance noticeably improved as measured by the "payment coverage ratio." From months 8 through 25, the monthly Payment Coverage Ratio ranged in a reasonably narrow band between 75% and 85%. In the third year of TAP operation, the Payment Coverage Ratio noticeably improved, with TAP customers consistently paying between 85% and 95% of their TAP bills.

5. After the initial first months of sputtering operation, TAP participants began to pay an increasingly higher proportion of their bills. The accumulated dollars of payments as a percentage of accumulated dollars of billings showed increasing improvement over time. Even including the lower Payment Coverage Ratios from the early months, by the last half of 2020 (months 35 through 41), TAP participants, 95% or more of whom entered the program with an average arrearage of $3,200 or more, had paid nearly 85% of their PWD bills over the first 42 months of the TAP program's operation.

6. A consistency in the improved timeliness of payments by TAP participants is seen at both the 12-month and 24-month mark. For all three years (FY18, FY19, FY20), at the 12-month mark, TAP participants out-performed the non-TAP low-income customers by 35% to nearly 50%. The proportion of bill paid by TAP participants at the 12-month mark in FY18, for example, was more than 47% higher than the proportion of bill paid by low-income TAP non-participants at the 12-month mark (74.51% vs. 27.22%). The proportion of bill paid by TAP participants at the 12-month mark in FY20 (72.82%) was 35% higher than the proportion of bill paid by low-income TAP non-participants (72.82% vs. 38.14%).

7. The improved timeliness of payments expanded through the second year of collections. In FY19, for example, while 87.90% of TAP participant bills had been paid by the 24-month mark, only 52.59% of low-income TAP non-participant bills had been paid at the 24-month mark (an improved performance by TAP participants of 49.1% over low-income TAP non-participants). An even greater performance difference can be seen in FY18, with the TAP participant payment of 95.73% by Month-24 being more than 61% higher than the low-income TAP non-participant performance at the 24-month mark.

8. A different way to look at the timeliness of TAP bill payments is to begin with the TAP collectability at a point in time and to review the pre-TAP collectability to see how long it

took TAP-eligible low-income customers to achieve that same collectability outcome. The two-year TAP collectability of 87.90% (FY19) was never reached in pre-TAP years. The closest was Fiscal Year 2013, in which pre-TAP low-income customers had paid 76.30% of their bills by the end of Month 84 (i.e., after 7 years). Similarly, the two-year TAP collectability of 95.73% (FY18) was never reached in pre-TAP years. Again, the closest year was Fiscal Year 2013, in which pre-TAP low-income customers had paid 76.30% of their bills by the end of Month 84 (i.e., after 7 years).

9. The one-year TAP collectability for FY18 of 74.49% was only reached by income-eligible customers in Fiscal Year 2013. In FY13, however, it took TAP-eligible (low-income) customers 72 months (i.e., 6 years) to pay the same percentage of their bill that TAP participants had paid in their first year of TAP participation. Similarly, the one-year TAP collectability for FY19 of 72.68% was achieved (or virtually achieved) in two pre-TAP years (FY2013, FY2012). However, for pre-TAP dollars billed in FY13, it took TAP-eligible customers 60 months (5 years) to pay the same proportion of their bill that TAP customers paid in their first year. For pre-TAP dollars billed in FY12, it took TAP-eligible customers 84 months (7 years) to pay the same proportion of their bill that TAP participants paid in their first year.

10. As TAP participants increased their period of participation, the amount of long-term arrears (121 – 365 days old) significantly decreased. After one year of TAP operation (June 2018), 11,855 TAP participants carried $5,924,729 of arrears that were from 121 to 365 days old. One year later, in June 2019, TAP participation had increased further to 14,796 low-income customers, and long-term arrears had decreased to $2,668,826. In the twelve months July 2018 through June 2019, in other words, while TAP participation *increased* by 25% (from 11,855 to 14,796), the amount of long-term arrears had *decreased* by 56% (from $5,924,729 to $2,668,826).

11. Similar results are seen for more moderate term arrearages. In July, 2018, 11,855 TAP participants carried $650,291 in arrearages of 91 – 120 days old. Six months later, while TAP enrollment had increased to 14,166 participants, arrears falling in the 91 – 120 aging bucket had fallen 64%, to an aggregate of $234,222. Arrearages increased in April through June 2019, but decreased in subsequent months. Even in July 2019 (the seasonal high of that year), the $357,871 in 91 – 120 day arrears was 45% lower than the arrears twelve months earlier.

12. On both an aggregate and an average basis, the dollar level of 61 – 90 day arrears was lower in 2019 than it was in 2018 (with the exception of November). Even in November, it is evident that both the aggregate and average dollar level of 61 – 90 day arrears had substantially decreased relative to the balances being carried in June 2018. While the

average 61 – 90 day arrears in the three months of June through August 2018 was $38.60, the average 61 – 90 arrears in the three months of October through December 2019 was $14.59, a decrease of more than 62%.