### Witness: Krista E. Citron

1. Refer to Case No. 2018-00358,<sup>2</sup> the Direct Testimony of Brent O'Neill (O'Neil Testimony), Exhibit 2, Replacement Program Report 2018 at 4, Table 2, Distribution System Material Types. Provide an update of the information contained in Table 2 in the format provided below.

	Origina	al Table	QIP 1 F	roposed	QIP 1	Actual	QIP 2	Actual	Non	-QIP	Тс	otal
	Miles of	Percentage										
	Material	of System										
By Material												

### **Response:**

The updated table is contained in KAW\_R\_PSCDR1\_NUM001\_110722\_Attachment A. Note that the miles of material/percentage of system numbers shown for columns D through O are additions only and do not reflect removals or retirements.

For example, QIP 2 Actual – Miles of Material shows 14.4 miles of ductile iron and 0.04 miles of PVC mains **installed** in the distribution system as part of the QIP 2 cycle.

	А	, , ,	N	
	QIP 2 Actual			
	Motorial Turne	Miles of	Percentage	
1	Material Type	Material	of System <sup>2</sup>	
	Ductile Iron	14.4	0.62%	
ł	PVC/Plastic	0.04	0.00%	
i	Asbestos Cement			
5	Cast Iron Unlined			

<sup>&</sup>lt;sup>2</sup> Case No. 2018-00358, *Electronic Application of Kentucky-American Water Company for an Adjustment of Rates* (Ky. PSC June 27, 2019).

## Witness: Krista E. Citron

2. Refer to Case No. 2018-00358, O'Neil Testimony, Exhibit 2, Replacement Program Report 2018 at 4, Table 3, Miles of Existing Material Types Installed by Decade. Provide an update of the information contained in Table 3 in the format provided below.

	Original Table	QIP 1 Changes	QIP 2 Changes	Non-QIP Changes	Total
	Miles of Main by Material				
By Decade					

#### **Response:**

Note that since 2018, Kentucky-American has acquired the North Middletown and Eastern Rockcastle water systems which are accounted for in this updated table.

	Miles of Existing Material Types - Through October 2022						
	Material Type						
Decade	Cast Iron	Asbestos Cement	PVC/Plastic	Ductile Iron	Galvanized	Concrete/ Cement	<b>Other</b> <sup>1</sup>
1881-1890	4.4						
1891-1900	1.6						
1901-1910	13.0						
1911-1920	10.6						
1921-1930	14.7						
1931-1940	13.0	0.1					
1941-1950	6.5	13.2					
1951-1960	76.8	70.8	4.6	0.5	1.2	9.7	12.8
1961-1970	122.2	96.3	62.3	51.1	1.7	7.2	10.1
1971-1980	50.2	118.4	138.0	16.0	0.1		30.9
1981-1990	2.4	16.3	50.6	168.1			3.8
1991-2000	0.5	0.4	37.4	286.1	0.1		3.0
2001-2010	2.7	0.6	158.8	269.6			2.4
2011-2019	0.2		17.8	122.1			1.3
2020-Present			0.9	30.6			0.5
Unknown Date	42.0	10.8	94.5	14.2	0.1	0.1	0.4
Total Miles	360.9	326.9	564.8	958.3	3.3	17.1	65.3

1 - Other represents Brass, Copper, HDPE, and Unknown.

Unknown Type - Unknown Date - 54.9 miles

## Witness: Krista E. Citron

3. Regarding the Wickliffe/Corral Project, explain why this project required full curb-to-curb width paving rather than the 4' paving as originally budgeted. Provide a comparison of the original forecasted paving to the actual paving cost incurred.

### **Response:**

Please note that the Wickliffe/Corral project did not entail full curb-to-curb paving; the Range/Writt/Fordson project did entail full curb-to-curb paving as required by LFUCG's inspector at the conclusion of the project. Additionally, LFUCG's determination included a full repavement of the entire cul-de-sac areas. The image below indicates the estimated paving extents (white hatching) compared to the final paving extents (blue hatching).



The estimated amount of paving required for the Range/Writt/Fordson project was initially 5,600 square feet compared to the final amount of 15,085 square feet. The estimated cost was initially \$46,603.20 compared to the final cost of \$147,051.84.

KAW has worked diligently on its own and with LFUCG to control repaying costs as much as possible. KAW witnesses Shelley Porter and Krista Citron explained these efforts in full in their Direct Testimony in Case No. 2022-00032.<sup>1</sup>

<sup>&</sup>lt;sup>1</sup> Application of Kentucky-American Water Company to Amend Tariff to Revise Qualified Infrastructure Program Charge, Case No. 2022-00032, March 1, 2022, Porter/Citron Direct Testimony, pp. 11-16.

# Witness: Krista E. Citron

- 4. Regarding the Crosskeys Court Project:
  - a. Given that this project required full curb-to-curb width paving rather than the 4' paving as originally budgeted, explain why there is a negative variance of (\$10.149).
  - b. Provide a comparison of the original forecasted paving to the actual paving cost incurred.

#### **Response:**

- a. The actual linear footage of main replacement for this project was 230 feet which was less than the estimated 340 feet. The original variance explanation citing curb-to-curb paving on this project was incorrect, as the water main was mostly installed in the utility strip outside the roadway. Only a portion of the cul-de-sac was required to be repaved. Because of the reduction in linear footage and the ability to lay the main in the utility strip, the actual total project cost was less than estimated.
- b. Due to the linear footage reduction and water main location cited above, the estimated amount of paving required for this project was initially 920 square feet compared to the final amount of 717 square feet. The estimated cost was initially \$25,226.00 compared to the final cost of \$16,182.00.

## Witness: Krista E. Citron

5. Regarding the Croyden Court Project, explain why this project required full curb-to-curb width paving rather than the 4' paving as originally budgeted. Provide a comparison of the original forecasted paving to the actual paving cost incurred.

### **Response:**

The project required full curb-to-curb width paving based on the determination by LFUCG's inspector. Additionally, LFUCG's determination included a full repavement of the entire cul-de-sac area. The image below indicates the estimated paving extents (white hatching) compared to the final paving extents (blue hatching).



The original forecasted amount to pave 1,928 square feet was \$52,865.76 and the final amount to pave 4,922 square feet was \$108,291.76.

### Witness: Krista E. Citron

- 6. Regarding the Fairway Phase 1 Project:
  - a. Explain why this project required additional cold patch temporary asphalt.
  - b. Explain why the additional feet of main installation was necessary.

## **Response:**

a. During the course of this project, the use of gravel in trenches as a means of temporary restoration was no longer allowed by LFUCG due to concerns about loose gravel in roadway areas. The contractor was required to utilize steel plates or temporary asphalt (cold patch), resulting in a cost change compared to their bid. Temporary restoration is required during the periods where the water main has been installed but the service lines are still to be reconnected; or once the service lines have been reconnected and the project is awaiting final paving.

In the typical course of a water main replacement, there are points in time where temporary restoration is needed in the open trenches. Normally, this occurs after the water main has been installed but before the service lines are reconnected; and after the service lines are reconnected but before final paving has occurred. There are several ways that construction contractors can cover trenches, including the use of steel plates, gravel, concrete, or temporary pavement. One practice that was routinely utilized by contractors was to fill the open trench to the surface of the existing roadway with gravel. That way, safe vehicle access can be maintained on the roadway until the next phase of construction begins.

b. No additional feet of main were installed on this project.

## Witness: Krista E. Citron

7. Regarding the Bluegrass/Highlawn Project, provide an estimate of the impact the paving cost sharing with Lexington-Fayette Urban County Government (LFUCG) had on the completed project cost.

# **Response:**

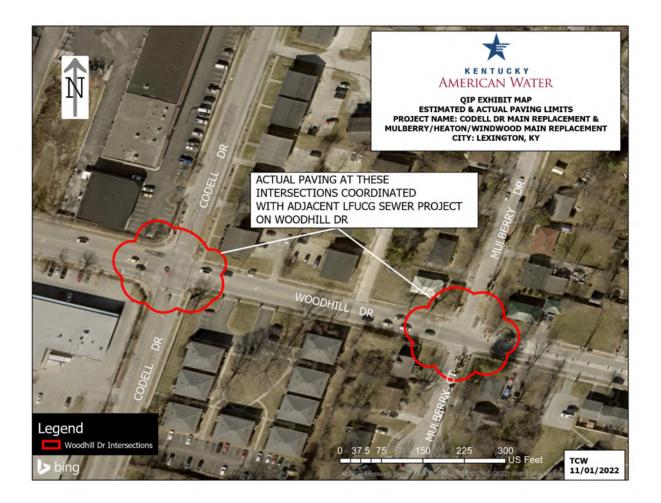
As of the date of this response, the project has not been completed/paved by LFUCG's contractor. Upon completion, LFUCG will provide KAW with KAW's portion of the shared expense of paving based on the percentage of the roadway that was disturbed by KAW's construction.

## Witness: Krista E. Citron

8. Regarding the Codell Drive Project, explain why additional feet of main installation was necessary.

### **Response:**

During the design phase of this project, LFUCG indicated that it would be constructing a new storm sewer line along Woodhill Drive including the intersections of Codell Drive and Mulberry Drive. In order to ensure that KAW's planned project areas would not be in conflict with the storm sewer project, sections of the water main were deepened, and some intersection tie-in points were shifted, creating additional linear footage. One benefit to this coordination was that KAW and LFUCG were able to cost-share the restoration in the intersections, reducing the scope of final pavement required by KAW.



## Witness: Krista E. Citron

- 9. Regarding the N Ashland/Aurora Project:
  - a. Given that Kentucky-American filed its application for its QIP 2 balancing adjustment on September 28, 2022, explain why the post-in-service work is not included in the total project cost.
  - b. Provide the estimated date the post-in-service work will be completed and the date Kentucky-American will be able to quantify the completed project cost.
  - c. Explain how Kentucky-American intends to recover the completed cost of the work on this project that are not included in its QIP 2 balancing adjustment.
  - d. Explain why the additional feet of main installation was necessary.

## **Response:**

- a. As of September 28, 2022, KAW did not know the total amount of post-in-service cost incurred. KAW will know that cost prior to the end of 2022, and, as noted in KAW's external counsel's September 28, 2022 cover letter enclosing the Balancing Adjustment in this case, KAW plans to include it for the Commission's consideration in its 2023 filing for approval of QIP Year 4.
- b. Paving began the week of October 17, 2022. Paving was completed the week of October 24, 2022 with final invoice to be delivered within 30 days of completion.
- c. Refer to response 9a above.
- d. During the construction of the project, it was noted that there was a section of Richmond Avenue adjacent to Aurora Avenue that was also 6-inch cast iron main. The remainder of Richmond Avenue had previously been replaced with ductile iron. Kentucky American Water increased the scope of this project to include the replacement of this segment of cast iron main while our contractor was already in the area.

### Witness: Krista E. Citron

- 10. Regarding the Whitney/Ash Project:
  - a. Explain why this project required additional cold patch temporary asphalt.
  - b. Explain why the additional feet of main installation was necessary.

#### **Response:**

a. During the course of this project, the use of gravel in trenches as a means of temporary restoration was no longer allowed by LFUCG due to concerns about loose gravel in roadway areas. The contractor was required to utilize steel plates or temporary asphalt (cold patch), resulting in a cost change compared to their bid. Temporary restoration is required during the periods where the water main has been installed but the service lines are still to be reconnected; or once the service lines have been reconnected and the project is awaiting final paving.

In the typical course of a water main replacement, there are points in time where temporary restoration is needed in the open trenches. Normally, this occurs after the water main has been installed but before the service lines are reconnected; and after the service lines are reconnected but before final paving has occurred. There are several ways that construction contractors can cover trenches, including the use of steel plates, gravel, concrete, or temporary pavement. One practice that was routinely utilized by contractors was to fill the open trench to the surface of the existing roadway with gravel. That way, safe vehicle access can be maintained on the roadway until the next phase of construction begins.

b. There were two locations in this project where an unmarked underground utility was in conflict with the planned water main alignment, and the water main needed to be routed around the conflicting utility. This led to approximately 120 additional linear feet of water main being installed.

### Witness: Krista E. Citron

- 11. Regarding the Clays Mill Road Phase II Project:
  - a. Explain why the additional costs incurred to uncover the valve boxes were not recovered from either LFUCG or its roadway contractor.
  - b. Identify the costs incurred by Kentucky-American to uncover the valve boxes.
  - c. Provide an estimate of the impact the paving cost sharing with LFUCG had on the completed project cost.

#### **Response:**

- a. KAW intends to request recovery of these costs at the completion of the project.
- b. KAW's contractor for this project initially uncovered the boxes as they noticed them being covered or paved over without charging the cost to KAW. Once it became apparent that the quantity of boxes that had been covered or otherwise damaged was more than just a few, KAW's contractor notified KAW and a separate work order (non-QIP) was created to track the effort to uncover the boxes. KAW's contractor utilizes a line item rate of \$450 per valve box adjustment, but the actual costs incurred to perform this work were not charged to the QIP project as KAW's September 28, 2022 variance explanation initially indicated.
- c. As of the date of this response, all sections of the project have not been completed/paved by LFUCG's contractor. Upon completion, LFUCG will provide KAW with its portion of the total shared paving cost based on the percentage of the roadway that was disturbed by KAW's construction.

## Witness: Krista E. Citron

12. Regarding the Montclair Drive Project, provide an estimate of the impact the paving cost sharing with LFUCG had on the completed project cost.

#### **Response:**

ATS, LFUCG's paving contractor, is scheduled to begin the work on this street the week of October 31, 2022 and estimated to be complete in mid-November 2022. Upon completion, LFUCG will provide KAW with its portion of the total shared paving cost based on the percentage of the roadway that was disturbed by KAW's construction.

# Witness: Krista E. Citron

- 13. Regarding the Valley Farm Project:
  - a. Explain why the paving for this project required a full lane width (~8').
  - b. Provide a comparison of the original forecasted paving to the actual paving cost incurred.

### **Response:**

a. The project required 8' width paving based on the determination of paving extents by LFUCG's inspector at the conclusion of the project. Additionally, LFUCG's determination included a full repavement of the entire cul-de-sac areas. The image below indicates the estimated paving extents (white hatching) compared to the final paving extents (blue hatching).



b. The original forecasted paving cost was \$73,727.50 based on 26,810 square feet. The actual paving cost was \$187,060.00 based on 61,775 square feet.

## Witness: Krista E. Citron

- 14. Regarding the Colchester/Barksdale Project:
  - a. Explain why the paving for this project required a full lane width (~8').
  - b. Provide a comparison of the original forecasted paving to the actual paving cost incurred.

#### **Response:**

a. The project required 8' width paving based on the determination of paving extents by LFUCG's inspector at the conclusion of the project. Additionally, LFUCG's determination included a full repavement of the entire cul-de-sac areas. The image below indicates the estimated paving extents (white hatching) compared to the final paving extents (blue hatching).



b. The original forecasted paving cost was \$131,363.50 based on 17,995 square feet. The actual paving cost was \$441,504 based on 60,480 square feet.

- 15. Regarding the QIP 2 projects listed below. Given that Kentucky-American filed its application for it QIP 2 balancing adjustment on September 28, 2022, explain why the post-June 30 paving costs for each listed project is not reflected in the total project cost included in the balancing adjustment.
  - a. Bluegrass/Highlawn Project.
  - b. National Avenue Project.
  - c. Montclair Drive Project.
  - d. Summit Drive Project.
  - e. Colchester/Barksdale Project.
  - f. Westgate/Hamilton Park.
  - g. Lancelot Project.
  - h. Kilrush/Caywood Project.
  - i. Merrimac/Fogo/Crewe Project.
  - j. Tisdale/Fraserdale Project.
  - k. Montavesta Road Project.

## **Response:**

As of September 28, 2022, KAW did not know the total amount of post-in-service cost incurred for the projects in parts a-k of this question. With the possible exception of the Bluegrass/Highlawn, Montclair, and Summit projects, KAW expects to know that cost prior to the end of 2022. As noted in KAW's external counsel's September 28, 2022 cover letter enclosing the Balancing Adjustment in this case, KAW plans to include it for the Commission's consideration in its 2023 filing for approval of QIP Year 4. For those three projects, it may be 2023 before KAW knows those costs for certain, but KAW will include them in its QIP Year 4 filing if known.

16. Regarding the QIP 2 projects listed in Item 15 above. Provide the estimated date the paving for each listed project will be completed and the date Kentucky-American will be able to quantify the completed project cost.

# **Response:**

- a. Bluegrass/Highlawn This project is being paved by LFUCG's contractor, ATS, as part of a cost-sharing opportunity. Schedule is per LFUCG/ATS and KAW's portion of the final shared cost will be assessed once paving is complete. KAW does not have a date certain for that completion or for the final cost.
- b. National Avenue Paving began the week of October 12, 2022. It is anticipated that paving will be complete on or around November 11, 2022 with final invoice to be delivered within 30 days of paving completion.
- c. Montclair Drive This project is being paved by LFUCG's contractor, ATS, as part of a cost-sharing opportunity. Schedule is per LFUCG/ATS and KAW's portion of the final shared cost will be assessed once paving is complete. KAW does not have a date certain for that completion or for the final cost.
- d. Summit Drive This project is being paved by LFUCG's contractor, ATS, as part of a cost-sharing opportunity. Schedule is per LFUCG/ATS and KAW's portion of the final shared cost will be assessed once paving is complete. KAW does not have a date certain for that completion or for the final cost.
- e. Colchester/Barksdale Paving was completed the week of July 19, 2022. The actual paving cost was \$441,504 based on 60,480 square feet.
- f. Westgate/Hamilton Park
  - i. Westgate Paving was completed the week of August 22, 2022. The actual paving cost was \$376,405.56 based on 32,876 square feet.
  - ii. Hamilton Park Paving was completed the week of August 30, 2022. The actual paving cost was \$436,883.26 based on 43,260 square feet.
  - iii. Leisure Ln Paving was completed the week of September 14, 2022. The actual paving cost was \$130,259.69 based on 9,867 square feet.
- g. Lancelot

- i. Lancelot Paving was completed the week of July 25, 2022. The actual paving cost was \$308,535.20 based on 34,936.5 square feet.
- ii. King Arthur Paving was completed the week of July 28, 2022. The actual paving cost was \$215,480.28 based on 27,037 square feet.
- h. Kilrush/Caywood
  - i. Kilrush Paving was completed the week of September 26, 2022. The actual paving cost will include intersection paving with Kelsey and Caywood, so final invoicing will occur within 30 days of paving completion on Kelsey. The estimate for paving on Kilrush currently stands at \$255,421,74.
  - ii. Kelsey Paving work began the week of October 4, 2022. Estimated completion is the week of November 7, 2022 with final invoice to be delivered within 30 days of paving completion.
  - iii. Caywood Paving was completed the week of October 3, 2022 with a final invoice amount of \$259,309.56.
- i. Merrimac/Fogo/Crewe
  - i. Merrimac Paving was completed the week of October 31, 2022 with final invoice to be delivered within 30 days of paving completion. The estimate for paving currently stands at \$481,287.22.
  - ii. Fogo Paving was completed the week of October 31, 2022 with final invoice to be delivered within 30 days of paving completion. The estimate for paving currently stands at \$129,944.78.
  - iii. Crewe Paving was completed the week of October 31, 2022 with final invoice to be delivered within 30 days of paving completion. The estimate for paving currently stands at \$114,097.84.
- j. Tisdale/Fraserdale
  - i. Tisdale Dr Paving was completed the week of September 15, 2022. The actual paving cost was \$331,669.68 based on 27,624.50 square feet.
  - ii. Fraserdale Dr Paving was completed the week of July 28, 2022. The actual paving cost was \$160,057.19 based on 7,025 square feet.
- k. Montavesta Road Paving is scheduled to begin mid-November 2022. It is anticipated that paving will be complete within a month of the start date, with final invoice to be delivered within 30 days of paving completion.

17. Regarding the QIP 2 projects listed in Item 15 above. When the final paving and restoration work is completed for each listed project, explain if Kentucky-American expects that the actual completed project cost will be less than it originally projected.

# **Response:**

Three of the identified projects (a, c, and d) are cost-sharing opportunities with LFUCG, and as such, have not yet had final pavement completed. KAW's expectation is that these projects, once completed, will be in line with the original estimates.

Several of the identified projects are awaiting final paving and restoration, or final paving and restoration is currently underway as outlined in the response to Question 16. For all projects listed in Item 15, the updated in-service spend through September 2022 and associated variances are shown below.

	Project Name	WBS Number(s)	Estimated Project Cost	Total Project Cost including July- September 2022	Variance including July- September 2022	
a.	Bluegrass/Highlawn	R12-02B2.20-P-0026	\$625,000	\$356,661	(\$268,339)	
	opportunity. Schedule is	roject is being paved by LF s per LFUCG/ATS and KAW . KAW does not have a da	's portion of the fi	nal shared cost wil	l be assessed	
b.	National Avenue	R12-02B2.20-P-0029	\$875,000	\$914,089	\$39,089	
	<b>Project Status:</b> Paving began the week of October 12, 2022. It is anticipated that paving will be complete on or around November 11, 2022 with final invoice to be delivered within 30 days of paving completion.					
c.	Montclair Drive	R12-02B2.21-P-0002	\$550,000	\$633,913	\$83,913	
	<b>Project Status:</b> This project is being paved by LFUCG's contractor, ATS, as part of a cost-sharing opportunity. Schedule is per LFUCG/ATS and KAW's portion of the final shared cost will be assessed once paving is complete. KAW does not have a date certain for that completion or for the final cost.					

d.	Summit Drive	R12-02B2.21-P-0003 R12-02B2.21-P-0052 R12-02B2.21-P-0053	\$725,000	\$838,724	\$113,724		
	opportunity. Schedule is	roject is being paved by LF per LFUCG/ATS and KAW KAW does not have a da	's portion of the fi	nal shared cost wil	l be assessed		
e.	Colchester/Barksdale	R12-02B2.21-P-0016 R12-02B2.21-P-0031 R12-02B2.21-P-0032 R12-02B2.21-P-0033	\$925,000	\$1,221,689	\$296,689		
	<b>Project Status:</b> Paving was completed the week of July 19, 2022. The actual paving cost was \$441,504 based on 60,480 square feet.						
f.	Westgate/Hamilton Park	R12-02B2.21-P-0005 R12-02B2.21-P-0054	\$900,000	\$1,870,040	\$970,040		
	Project Status: Paving w	vas completed the week o \$943,548.51 based or	•	•	ving cost was		
g.	Lancelot	R12-02B2.21-P-0007 R12-02B2.21-P-0055	\$617,500	\$1,215,400	\$597,900		
	Project Status: Pavin	ng was completed the wee \$524,015.48 based on	•		cost was		
h.	Kilrush/Caywood	R12-02B2.21-P-0008 R12-02B2.21-P-0056 R12-02B2.21-P-0057 R12-02B2.21-P-0058	\$1,567,500	\$1,554,800	(\$12,700)		
	<b>Project Status:</b> Some paving was completed the week of September 26, 2022. The remainder of the work began the week of October 4, 2022 and estimated completion is the week of November 7, 2022. Final invoicing will occur within 30 days of paving completion. The estimate for paving currently stands at \$1,086,070.95.						
i.	Merrimac/Fogo/Crewe	R12-02B2.21-P-0012 R12-02B2.21-P-0044 R12-02B2.21-P-0045	\$860,000	\$555,868	(\$304,132)		
	Project Status: Paving began the week of October 17, 2022 and final completion was the week of October 31, 2022. Final invoicing will occur within 30 days of paving completion. The estimate for paving currently stands at \$725,329.84.						
j.	Tisdale/Fraserdale	R12-02B2.21-P-0013 R12-02B2.21-P-0059 R12-02B2.21-P-0060	\$1,322,500	\$1,570,840	\$248,340		

Project Status: Paving was completed the week of September 15, 2022. The actual paving cost was
\$491,726.87 based on 34,649.5 square feet.

k.	Montavesta Road	R12-02B2.21-P-0009 R12-02B2.21-P-0046 R12-02B2.21-P-0047 R12-02B2.21-P-0048 R12-02B2.21-P-0049	\$1,087,500	\$447,878	(\$639,622)	
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**Project Status:** Paving is scheduled to begin mid-November 2022. It is anticipated that paving will be complete within a month of the start date, with final invoice to be delivered within 30 days of paving completion.

Total Estimated Project Costs	Total Project Cost including July- September 2022	Variance including July- September 2022
\$10,055,000.00	\$11,179,901.62	\$1,124,901.62

18. Regarding the QIP 2 projects listed in Item 15 above. Explain how Kentucky-American intends to recover the completed restoration costs that are not included in its QIP 2 balancing adjustment.

### **Response:**

As of September 28, 2022, KAW did not know the total amount of post-in-service cost incurred. With the exception of the three projects identified in the response to No. 15 (Bluegrass/Highlawn, Montclair, and Summit), KAW expects to know that cost prior to the end of 2022. As noted in KAW's external counsel's September 28, 2022 cover letter enclosing the Balancing Adjustment in this case, KAW plans to include it for the Commission's consideration in its 2023 filing for approval of QIP Year 4. For the three excepted projects, KAW plans to include them in its QIP Year 4 filing if known at that time.

## Witness: Krista E. Citron

- 19. Regarding the Tisdale/Fraserdale Project:
  - a. Explain why paving and restoration extents were greater than planned.
  - b. Since the Post-June 30 paving restoration work is not reflected in the total project cost, explain how the increased paving (from ~20,000 square feet to ~27,700 square feet) impacted the total completed project cost as of June 30, 2022.

#### **Response:**

a. Paving and restoration extents were greater than planned due to LFUCG's determination at the conclusion of the project to require 8' width paving and full repavement of the entire cul-de-sac areas. Upon review, the total pavement amount at completion was 34,649.5 square feet which is more than the ~27,700 square feet indicated in KAW's September 28, 2022 filing. The image below indicates an example of the estimated paving extents (white hatching) compared to the final paving extents (blue hatching).



b. Paving restoration work began in May 2022, with the bulk of the work continuing in June and July. Some intersections that were shared with the Merrimac/Fogo/Crewe project were not paved until September 2022. The costs incurred through June 30, 2022 reflected a portion of this increased paving scope and were included in this case. In total, the increased paving for this project lead to \$343,312.87 of costs through June 30, 2022.