FROM				
	NAME & TITLE	Todd Carter Chief Information Officer	CITY of	
	AGENCY NAME & ADDRESS	Baltimore City Office of Information and Technology (BCIT) 401 E Fayette Street, 3rd floor	BALTIMORE	
	SUBJECT	**City Council Bill 21-0010R - Getting on the Same Page: Clarifying 311 Services' Approach to Resolving Requests**	M E M O	

TO: The City of Baltimore Health, Environment, and Technology Committee
Room 400 City Hall
c/o Natawna Austin, Executive Secretary

March 19, 2021

Todd A. Carter

On March 3, 2021, the City of Baltimore Health, Environment, and Technology Committee held an Informational Hearing on City Council Bill 21-0010R - Getting on the Same Page: Clarifying 311 Services' Approach to Resolving Requests. During the hearing, the committee requested that BCIT provide the data regarding the number of service requests that were referred to incorrect agencies.

The Interagency Workflow Improvement Team (IWIT) analyzed the data and was able to determine the scope of the problem caused by transfers between agencies. Please refer to the enclosure for that analysis.

If you have any questions, please contact Leyla Layman, Chief of Staff, at (443) 202-4511.

Enclosure

cc: Ms. Natasha Mehu, Mayor's Office of Government Relations
Ms. Nina Themelis, Mayor's Office of Government Relations
Mr. Daniel Ramos, Mayor's Office
Ms. Alice Kennedy, Department of Housing and Community Development
Mr. Steve Sharkey, Department of Transportation
Mr. Matthew Garbark, Department of Public Works

Analysis of Incorrect Agency Assignments of 311 Service Request

A service request, depending on the type of issue, may not have a linear lifecycle. The systems and many of the workflows are too complicated to be captured linearly and not all service requests are simple open/close situations. This makes it impossible to track every service request in order to definitively provide the committee with a total number incorrectly transferred.

In the current system architecture, we do not have a direct mechanism to provide metrics that we can use to precisely report the number of service requests incorrectly referred to agencies. In turn, we used heuristic analysis of the global data to arrive at some conceptual measures that we can use to look past noise in the data to target areas of concern. A large part of the algorithms we used lean on the service requests that have been escalated. Our collective assumption, for the purposes of this query, is that the escalation of service requests occurs when we have miscommunicated a closed message, and residents, through repeated reports, indicate that service request is still unresolved. Further, we assume a high probability that the service request was improperly transferred, resulting in the matter remaining unresolved.

To respond to the Committee's query, we targeted service requests that were transferred to other agencies in search of those that may have been misrouted. From that subset of data, we examined the service requests that were escalated based on the assumption that the escalations infer miscommunication with residents. In the analysis, we found that escalations accounted for less than 1% of all the service requests that were handled across various agency subsets of the data. That 1% includes a margin of error and an allocation for service requests that were not escalated but still did not provide the accurate information to residents.

In an environment with simpler workflows, a service request would have a field or data element that tracked its status through its lifecycle through all involved systems. The heterogeneous nature of the systems we use, coupled with the current technology involved in the integration between the systems do not lend themselves to a singular status field. As such, we had to review the closing comments manually to determine the final status of each service request. The statuses were grouped by type and then tracked for escalations. In some instances, the commentary leads to an "unclear" determination of the final result. This could indicate an issue, but we excluded any that were not escalated to maintain the consistency of the approach.

2020 Service Request Data

We used escalation data from DOT, DPW and HCD to run the query. The table below shows DOT received 58,458 service requests in 2020 of which 216 were escalations. This yields 0.37% of all the work completed lead to escalations. This is less than 1%. While not conclusive it provides the Committee with a sense of the scope of the problem caused when service requests are transferred incorrectly.

DOT SRs by Queue - Year 2020

SRs by queue	Status			
	Closed		Closed (Transferred)	Grand Total
Closing comment type	No Esc	Has Esc	No Esc	
Traffic	5,792	19	133	5,944
Towing	1,183	4	3	1,190
Safety	32,899	103	385	33,387
Maintenance	15,812	77	588	16,477
Engineering	371	11	102	484
ECC	3	0	0	3
DOT Misc	922	1	14	937
Conduits	35	1	0	36
Grand Total	57,017	216	1,225	58,458

DOT SRs - Year 2020

SRs by queue	Status			
	Closed		Closed (Transferred)	Total
Closing comment type	No Esc	has ESC		
Duplicate Request	621	5	0	626
Linked to another SR	349	2	0	351
No Work Needed	1,600	14	0	1,614
Out of Scope	254	0	0	254
referred for further work	39	0	0	39
Transferred*	1,107	9	0	1,116
Unclear**	17,268	55	1,225	18,548
Work Completed	35,466	130	0	35,596
Work could not be completed	16	0	0	16
Work not completed	292	1	0	293
Wrong Location	5	0	0	5
Total	57,017	216	1,225	58,458

The table shows DPW received 121,847 service requests in 2020 of which 690 were escalated. That is a yield of 0.6 ~~06~~%.

SW SRs - Year 2020

Count of CaseNumber	Status			
	Closed		Closed (Transferred)	Total
Closing comment type	No Esc	Esc	No Esc	
SW_PROPERTY MANAGEMENT	40,869	22	4	40,895
SW_ROUTINE SERVICES	50,542	512	422	51,476
SW_SPECIAL SERVICES	28,950	156	370	29,476
Total	120,361	690	796	121,847

	Closed		Closed (Transferred)	Total
Closing comment type	No Esc	Esc	No Esc	
Duplicate Request	303	0	0	303
Linked to another SR	1	0	0	1
No Work Needed	5,280	23	0	5,303
Out of Scope	44	0	0	44
Transferred	46	0	0	46
Unclear	24,999	139	796	25,934
WO Cancelled	6,821	3	0	6,824
Work Completed	82,842	525	0	83,367
Work could not be completed	22	0	0	22
Wrong Location	3	0	0	3
Total	120,361	690	796	121,847

Our intention was to use HCD data in the same manner, however the nature of the work would incorrectly skew the results. We found that HCD handled 39,720 service requests of which 811 were escalations. At a glance, that is a higher number than the aforementioned agencies but those escalations occur because the majority of the service requests are transferred out to Solid Waste and has a pending status that cannot be closed immediately due to the nature of the work involved. Nevertheless, 811 is 2% of the 39,720 total HCD service requests. We can still round up the numbers quite a bit and arrive at a failure rate of below 5%.

ClosedHRsFast	All									
	SR Types									
	SW-HGW		SW-Cleaning		HCD-Sanitation Property		ECC-Escalation		Total # of SRs	Total %
Resolution Comment Type	# of SRs	%	# of SRs	%	# of SRs	%	# of SRs	%		
Closed	6585	99.1%	2236	97.3%	29876	99.7%	707	87.2%	39404	99.2%
Closed (Transferred)	0	0.0%	0	0.0%	90	0.3%	29	3.6%	119	0.3%
New	0	0.0%	0	0.0%	0	0.0%	73	9.0%	73	0.2%
Open	61	0.9%	61	2.7%	0	0.0%	1	0.1%	123	0.3%
Pending	0	0.0%	0	0.0%	0	0.0%	1	0.1%	1	0.0%
Grand Total	6646	100.0%	2297	100.0%	29966	100.0%	811	100.0%	39720	100.0%

Solution

The solution to the service request status issue is to rearchitect the integrations between Salesforce and City Works. ~~We are not suggesting a complete overhaul of these systems. However, we~~We have learned that there are instances where City Works and Salesforce are not able to communicate with each other properly. As such, service request attributes are unaligned, creating anomalies in their routing and tracking, which hinders effective communication to customers. BCIT will closely examine the two major systems at the root of the problem, Salesforce and City Works. Based on our findings, BCIT will redevelop the architecture for the integration between the two systems so they can communicate properly to one another and, as a result, reduce the anomalies. The new architecture will translate service codes in City Works to status codes in Salesforce so that we can draw a line of sight to the full lifecycle of a service request. Additionally, the new architecture will improve customer communication by streamlining service request comments on order status and order progress to customers. BCIT will build a project plan for the rearchitecture and improved customer comments. The project plan will be submitted to the Committee with the comprehensive report due on April 30, 2021.