

## STAFF REPORT

**DATE:** December 4, 2018

**TO:** City Council

**FROM:** Robert A. Clarke, Director of Public Works  
Stan Gryczko, Assistant Public Works Director  
Richard Tsai, Environmental Resources Manager  
Jennifer Gilbert, Conservation Coordinator

**SUBJECT:** Solid Waste Program Yard Material Pile Collection Service Options

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### **Recommendation**

Provide direction to staff on what options for Yard Material Pile Collection Services to present at a future community meeting and to Commissions for feedback. Staff recommends Option #1 (Current schedule with bi-weekly fall pickup).

### **Fiscal Impact**

The outreach, community meeting, and advertising that will be part of a new yard material pile collection schedule can be accommodated within the Public Works Environmental Resources Division budget. The city's yard material pile collection service, sometimes referred to as "The Claw" costs about \$610,000 per year and constitutes 5.7% of the contracted cost with Recology Davis.

### **Council Goals**

The development of recommendations for the yard material pile collection program does not address a specific City Council goal.

### **Background and Analysis**

Yard material pile collection service was provided weekly until mid-2016, with the introduction of the organics cart program, when collection service was reduced to once-per-month most of the year and weekly from mid-October to mid-December. These collection service adjustments have been the source of significant feedback from the community. In December 2017, after receiving a full year's worth of data on the new collection system, city staff and the Utility Rate Advisory Commission (URAC) began reviewing the collection service and possible alternatives. In April 2018, the city conducted a customer survey on the service, which received slightly over 1,000 responses, with over 60% of the responses in favor of keeping the current service with some program modifications. With this customer feedback, however, there has not been a community-wide consensus on what constitutes the best pile collection service.

At the October 30 City Council meeting, staff had originally presented an outreach plan involving community workshops and Commission meetings to continue the discussion of collection service level, and potentially select a yard material pile collection schedule for the community. During discussion on this item, Council directed staff to reach out to Recology with the yard material pile collection service options suggested by Councilmembers, and present the options to Council at a meeting in early December. At this meeting, Council would select one or more options for consideration. After this determination, staff would present the decision via a

community meeting in which the public and various City commission members would be invited to attend. Following this meeting, each commission in attendance would be invited to provide comments and feedback, in the form of a recommendation. Council would then receive all the comments and feedback at their February 5, 2019 meeting, and finalize the service level decision and schedule of the city’s yard material pile collection service.

The following yard material pile collection information and options are discussed:

1. A summary of enforcement actions since January 2017
2. A review of including an additional week of collection service in the springtime.
3. Bi-weekly collection service in the fall, rather than weekly, which would extend the bi-weekly collection into mid-January
4. A schedule that would stagger the service days for once-a-month collection out over the course of the month (instead of all in one week as is currently done), and may accommodate special pick-up requests throughout the month.
5. Capital replacement costs for equipment associated with collection

**Enforcement**

Council briefly discussed enforcement concerns around yard material pile violations. The table below shows the number of enforcement actions for these violations (piles placed out on the wrong day, piles that were too large, piles placed in the right-of-way, etc.)

**Yard Material Pile Enforcement Actions**

	<b>Reminder Door Tag</b>	<b>Formal Reminder Letter</b>	<b>Notice of Violation</b>	<b>Fine</b>	<b>Total Enforcement Actions</b>
<b>January 2017</b>	62	0	0	0	62
<b>February 2017</b>	0	0	0	0	0
<b>March 2017</b>	0	0	0	0	0
<b>April 2017</b>	228	0	0	0	228
<b>May 2017</b>	273	35	0	0	308
<b>June 2017</b>	132	2	0	0	134
<b>July 2017</b>	272	34	2	0	308
<b>August 2017</b>	60	7	2	0	69
<b>September 2017</b>	131	15	3	1	150
<b>October 2017 – December 2017</b>	No violations issued				
<b>January 2018</b>	106	0	0	0	106
<b>February 2018</b>	106	0	0	0	106
<b>March 2018</b>	39	0	0	0	39
<b>April 2018</b>	103	0	3	0	106
<b>May 2018</b>	99	0	0	0	99
<b>June 2018</b>	22	0	1	0	23
<b>July 2018</b>	105	0	6	1	112
<b>August 2018</b>	95	0	2	0	97
<b>September 2018</b>	106	0	15	2	123
<b>October 2018</b>	No violations issued				

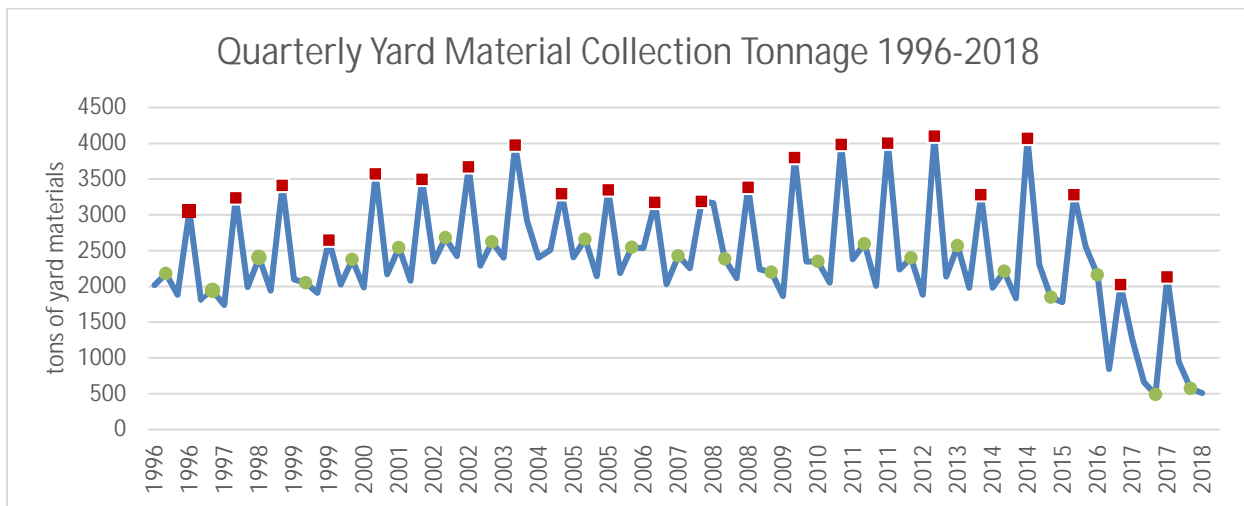
In 2017, the enforcement process consisted of sending two reminders before a formal Notice of Violation. If the violation occurred for a fourth time, then the situation was sent to Code

Enforcement to issue a fine. This enforcement plan was truncated in 2018 to consist of only one reminder notice before a formal Notice of Violation.

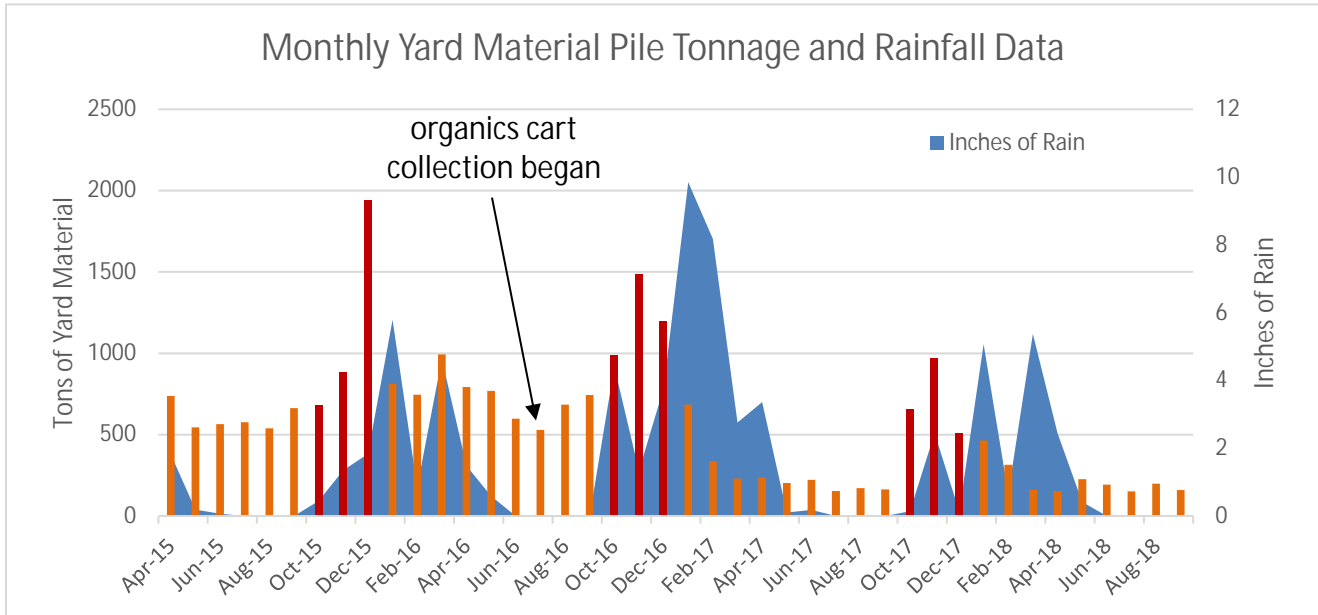
The Environmental Program Specialist currently works closely with Recology on enforcement. Recology will notify City staff if there are problems with yard material pile placement that affect collection service. However, Recology drivers cannot take additional time out of their collection routes to leave violation notices for City code violations. In addition, having more than one crew doing active enforcement can lead to customers’ receiving multiple violation notices for a single issue, as occurred in 2016, when the City enlisted Police Department volunteers to assist Public Works staff with enforcement of piles.

**Springtime Service Consideration**

In order to determine the necessity of an additional week of collection in the springtime, staff has reviewed contractor’s quarterly hauling data going back 22 years to see possible springtime collection trends in the tonnage of on-street yard material collection (month by month data was not available until April 2015, with the signing of the updated waste hauling agreement). The chart below shows the quarterly tonnage of yard material collected via on-street piles, with the clear “peaks” of collection, the 4<sup>th</sup> quarter, highlighted by the red dots. The hauling data shows that the largest tonnage of yard materials is collected during this quarter (the months of October, November and December), supporting the current schedule for more frequent pick-ups from mid-October to mid-December. The 2<sup>nd</sup> quarter tonnage (the months of April, May and June), highlighted with green dots, does show a slightly higher tonnage than the summer months. However, the overall springtime tonnage remains low relative to the winter months. The collection data shows that the only time of the year with a significant increase in tonnage occurs in the 4<sup>th</sup> quarter.



The chart below offers a monthly look at the yard material pile tonnage and rainfall data (4<sup>th</sup> quarter tonnage is highlighted by red columns). This allows a clearer look at monthly patterns of yard material tonnage. Rainfall data is included to compare the effect of rain on the weight of the yard materials (piles sitting out in the rain are heavier, increasing the tonnage for that particular month).



As the chart shows, the months with the most yard material tonnage do not necessarily equate to the months with the highest rainfall. This data also clearly shows the decline in the use of the on-street piles with the introduction of the organics carts. Again, there is no significant increase in tonnage of yard materials during the spring. On-street yard material pile collection service is intended for collecting excess materials that would not otherwise fit into the organics carts. With that goal in mind, any collection in addition to the once-a-month collection should occur when the most weight is set out. As such, the collection data does not support adding additional collection in the spring.

**Customer Participation in the On-Street Yard Material Pile Collection**

Since January 2017, Davis Waste Removal (and now Recology Davis) has kept track of the number of parcels (of all customers) setting out yard material piles during collection week. This data is presented in the chart below. The fall weekly collection data is highlighted in green. One week of pile collection in January 2018 was not counted.

**Number of Parcels with Piles Set Out on Collection Dates**

	Monday	Tuesday	Wednesday	Thursday	TOTAL	Overall Participation
<b>Week of Jan 2, 2017</b>	478	641	769	756	2644	19%
<b>Week of Jan 30, 2017</b>	496	613	677	696	2482	18%
<b>Week of Feb 6, 2017</b>	201	188	202	195	786	6%
<b>Week of March 6, 2017</b>	395	546	364	319	1624	12%
<b>Week of April 3, 2017</b>	408	613	448	480	1949	14%
<b>Week of May 1, 2017</b>	351	493	457	458	1759	13%
<b>Week of June 5, 2017</b>	320	476	485	521	1802	13%
<b>Week of July 3, 2017</b>	305	442	397	464	1608	11%
<b>Week of Aug 7, 2017</b>	335	457	445	439	1676	12%
<b>Week of Sept 4, 2017</b>	289	415	404	412	1520	11%

Week of Oct 2, 2017	488	498	578	497	2061	15%
Week of Oct 16, 2017	404	494	539	452	1889	13%
Week of Oct 23, 2017	416	395	412	330	1553	11%
Week of Oct 30, 2017	448	444	445	524	1861	13%
Week of Nov 6, 2017	442	482	443	329	1696	12%
Week of Nov 16, 2017	437	409	399	357	1602	11%
Week of Nov 20, 2017	442	413	453	323	1631	12%
Week of Nov 27, 2017	505	594	639	574	2312	17%
Week of Dec 4, 2017	632	708	845	575	2760	20%
Week of Dec 11, 2017	807	520	506	398	2231	16%
Week of Jan 8, 2018	No Data	No Data	No Data	No Data	No Data	No Data
Week of Feb 5, 2018	475	578	450	368	1871	13%
Week of March 5, 2018	326	277	262	284	1149	8%
Week of April 2, 2018	365	382	358	246	1351	10%
Week of May 7, 2018	345	545	551	556	1997	14%
Week of June 4, 2018	413	524	469	469	1875	13%
Week of July 2, 2018	526	492	345	403	1766	13%
Week of Aug 6, 2018	382	441	466	424	1713	12%
Week of Sept 3, 2018	374	518	383	414	1689	12%
Week of Oct 1, 2018	447	408	396	411	1662	12%
Week of Oct 15, 2018	355	396	400	484	1635	12%
Week of Oct 22, 2018	456	396	400	395	1647	12%
Week of Oct 29, 2018	527	522	507	465	2021	14%
					<b>Average</b>	<b>13%</b>
					<b>Minimum</b>	<b>6%</b>
					<b>Maximum</b>	<b>20%</b>

Please note that this data only addresses the number of *parcels* that use the service, not the extent to which the service is utilized. There is no differentiation between small piles of leaves that could fit into the organics cart as well as large piles from tree pruning.

The overall participation in the yard material pile collection program shown in this data never exceeds 20%. The City has 15,817 accounts (14,812 residential accounts and 1,005 commercial accounts). To take a conservative look at participation, the chart above compares the number of parcels using the service each week to a total of 14,000 of accounts to see the participation percentage.

**Alternative Collection Schedules - Bi-weekly Collection, Staggered Collection**

Staff has prepared some alternative yard material pile collection schedules that include a bi-weekly fall collection that extends into January, and a staggered collection schedule.

### ***Bi-weekly Collection***

The current schedule offers 10 yard material pile collection dates from the beginning of October until the end of January: a monthly collection date for October and January, plus 8 weeks of weekly collection from the 3<sup>rd</sup> Monday in October to mid-December. The proposed bi-weekly collection schedule removes the monthly October and January collection dates, but starts bi-weekly collection during the second week of October and continues it through the third week of January, for a total of 8 collection dates between October and January. A bi-weekly collection during the fall would allow the City to extend the collection service into January to allow for the easier collection of holiday trees and late falling leaves. In addition, the reduction of pick-up dates could result in cost savings estimated at \$50,000 to \$70,000 per year.

The bi-weekly service scenario during the fall is preferred by Recology over the current weekly level of service during leaf drop season or any of the staggered scenarios (discussed in the next section) primarily for scheduling of resources and maintenance of the equipment.

Currently, piles are allowed to be set out at any time during the weekly pick-up, meaning that piles can be out in the street 7 days before they are picked up. If the collection moves bi-weekly, the City will need to decide how long piles will be allowed to remain in the street before pick-up. Potentially, this would require an ordinance update. Allowing piles to remain on the street for 14 days before pick-up may cause negative impacts on bicycle safety and may not incentivize customers to utilize their organics carts for their leaves rather than the yard material piles. Staff recommends keeping the 7 days max set out before pick-up.

### ***Staggered Collection***

Based on discussions with Recology, staggering the current level of service over a month instead of providing the service all in one week per month will not lead to overall cost savings. Splitting up a single week of pile collection to multiple weeks will increase customer service calls, increase scheduling time for management, and possibly require additional staffing. Currently, pile collection puts an acute demand of 4 additional drivers concentrated for a single week. Recology absorbs this demand and interrupts regular routes by increasing overtime to cover the additional workload of the pile collection crew that would normally be on regular routes. If that demand is spread out over the entire month, additional drivers will be needed so regular service is not interrupted over the entire month. There would also be increased costs for “call-backs” where customers set out a pile for collection during a wrong day, city staff would respond to investigate and potentially issue a notice, and Recology would be called back to provide a pick up, depending on the situation.

One of the conceptual benefits of staggering is to allow for streets to be swept the day after collection. However, given the staff scheduling that Recology performs, modifying the street sweeping schedule to occur the day after pick-up, regardless of if the schedule is staggered, would require additional staff at an additional cost. Recology estimates that sweeping the day after pile collection with the current schedule (all pick-ups occurring in the same week) would require 2-3 additional drivers in order to cover sweeping while pile collection was still occurring in other areas of town. A staggered schedule could also lead to more wear and tear on the collection vehicles, if there is an expectation that the vehicles will travel across town to provide on-call pick-up service, thus leading to more vehicle miles traveled, shortening their replacement time.

Yard material pile pick-up and street sweeping activities need to occur on days where there are no other carts set out on a particular street that is serviced. Recology explained the method of pick-up as a linear fashion (trucks drive down one side of the street in a straight line without cart obstruction) versus cart service where the arm of the truck can extend out and retrieve the cart for dumping. Staggering could result in impeding the service because of carts and piles being out on the same side of the street at the same time.

Council also requested that staff look into the possibility of staggering the monthly yard material collection to allow for the possibility of inexpensive access to an on-call yard material pick-up service. Based on conversations with Recology, this would not be the case. Regardless of whether or not the yard material pile collection teams are actively servicing the community, the cost remains the same to the hauler and therefore to the city or customer. Sending the equipment and staff (the rear loader and Claw vehicles, operated by two staff people) to a location outside of the established service area requires that staff be pulled from their regular tasks in order to perform the special pick-up. Subsequently, there is no difference in the operational cost of sending the team to the west side of town while they are active in South Davis, than there is activating the team to service East Davis when there was no planned operation for that day. Recology staff indicated that it is far less expensive for customers to order a drop-box for their yard materials than to order a special pick-up. For further resources on collection options outside of Recology special collection, Attachment 2 provides details on relative costs of currently available options for customers to manage excess yard trimmings.

#### **Capital replacement cost of vehicles**

Recology's two tractors, referred to as "Claws" and the two collection rear loading dump trucks are aging and due for replacement. With the current collection schedule, the estimated replacement would occur in 3 to 5 years—this assumes that current California Air Resources Board regulations will remain as they are. Should the regulations change and the vehicles become non-compliant prior to the 3 to 5 year period, they will need to be replaced sooner. Replacement cost for the yard material pile collection fleet at current prices would be two rear-loaders at approximately \$350,000 each and two tractors with claw attachments at approximately \$115,000 each (total of \$930,000). Recology has also indicated that clustering the pick-ups into a single week is ideal in order to allow optimal maintenance and repair opportunities for the collection vehicles, particularly the Claw. The Claw requires specialized parts to be ordered, so having a 4-week delay between operating the equipment allows Recology time to order, receive and install replacement parts before the claw is required for active service the next month. Going to every other week schedule would further enhance the maintenance and repair opportunities since there will be a week available for those activities before the equipment is mobilized again.

#### **Yard Material Collection Pile Options 1-4**

Four alternative collection schedules are shown below that achieve the Council direction of bi-weekly fall pick-up. Option 1 shows a second pick-up in April, but as discussed, the data does not support this additional pick-up, and it is therefore not recommended by staff.

All alternative schedules below show a reduction of total number of yearly pick-ups. In addition, these schedules show no change in the current collection system until April 2019, as that is the anticipated earliest possible date at which the City would be able to change the collection service.

A comparison of the four alternative yard material pile collection schedules is shown in the chart on the next page, along with criterion on the impacts of each option.

There are additional elements to consider besides cost. Some of the main elements are included in the table below, and others are summarized in more detail in Attachment 1:

1. Customer expectations, experience and feedback
2. Environmental concerns
3. Community health and safety

**Comparison Chart of Four Alternative Yard Material Pile Collection Schedules**

<b>Criteria of Measurement</b>	<b>Option 1:</b> Current Schedule w/ bi-weekly fall pick-up	<b>Option 2:</b> Bi-weekly fall pick-up w/monthly stagger on the same weekday	<b>Option 3:</b> Bi-weekly fall pick-up w/ 4 week stagger	<b>Option 4:</b> Bi-weekly fall pick-up w/ 2 week stagger
Outreach Required	Low	Medium	Highest	High
Enforcement Effort Required	Low	Medium	Highest	High
Outreach & Enforcement Cost	Low	High	Highest	Medium
Operational Cost/Limitations	Low	High	Highest	High
Number of Days per Year with Piles on the Street	Low	High	Highest	Medium
Conflict with Curbside Service (Operationally Impossible)	No	Yes	No	No
Unequal Collection Timing Between Service Areas	No	Yes	Yes	No

Options 1-4 listed above are further detailed with full calendars and descriptions on the following pages.



**Option 1: Current Schedule with Bi-Weekly Fall Pick-up**

Of the four alternatives, this is the schedule recommended by staff and supported by Recology Davis. It is very similar to the current collection schedule, with the exception that the fall pick-up has been changed from weekly to bi-weekly, and an additional week is added in January to capture holiday tree removal. This schedule offers the most consistency with the service that customers are accustomed to, allows for easier messaging to the public on the change, the least impact on enforcement and is the easiest operationally to perform.

Cost savings resulting from the reduction in pick-ups could be used to offset other operational costs.

Due to the age of the collection vehicles, this schedule allows Recology time to perform needed repairs each month in order to have the fleet ready for the week of service.

The map to the right shows the service areas of town that are referenced in the calendar above and on the other service option calendars. A larger version of this map is included in attachment 3.

**2019**

April							July							October						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5			
7	8	9	10	11	12	13	7	8	9	10	11	12	13	6	7	8	9	10	11	12
14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19
21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26
28	29	30					28	29	30	31				27	28	29	30	31		

May							August							November						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3	4					1	2	3						1	2
5	6	7	8	9	10	11	4	5	6	7	8	9	10	3	4	5	6	7	8	9
12	13	14	15	16	17	18	11	12	13	14	15	16	17	10	11	12	13	14	15	16
19	20	21	22	23	24	25	18	19	20	21	22	23	24	17	18	19	20	21	22	23
26	27	28	29	30	31		25	26	27	28	29	30	31	24	25	26	27	28	29	30

June							September							December						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2	3	4	5	6	7	8	8	9	10	11	12	13	14	8	9	10	11	12	13	14
9	10	11	12	13	14	15	15	16	17	18	19	20	21	15	16	17	18	19	20	21
16	17	18	19	20	21	22	22	23	24	25	26	27	28	22	23	24	25	26	27	28
23	24	25	26	27	28	29	29	30						29	30	31				
30																				

**2020**

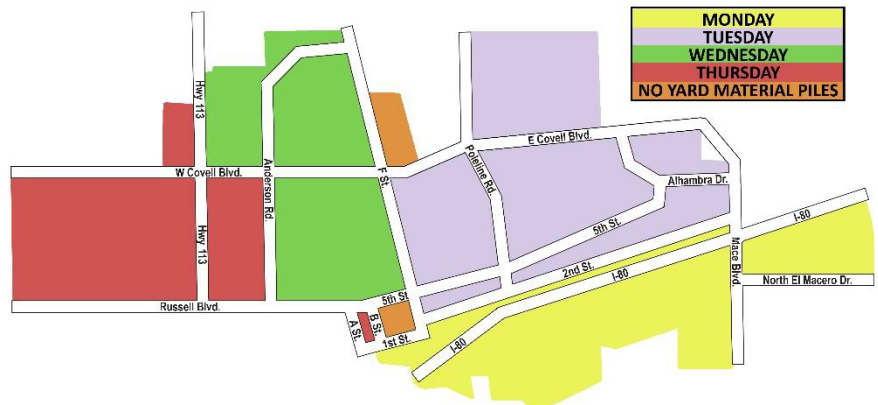
January							April							July							October							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
				1	2	3	4				1	2	3	4				1	2	3	4					1	2	3
5	6	7	8	9	10	11	5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10	
12	13	14	15	16	17	18	12	13	14	15	16	17	18	12	13	14	15	16	17	18	11	12	13	14	15	16	17	
19	20	21	22	23	24	25	19	20	21	22	23	24	25	19	20	21	22	23	24	25	18	19	20	21	22	23	24	
26	27	28	29	30	31		26	27	28	29	30			26	27	28	29	30	31	25	26	27	28	29	30	31		

February							May							August							November						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1						1	2							1							1
2	3	4	5	6	7	8	3	4	5	6	7	8	9	2	3	4	5	6	7	8	8	9	10	11	12	13	14
9	10	11	12	13	14	15	10	11	12	13	14	15	16	9	10	11	12	13	14	15	15	16	17	18	19	20	21
16	17	18	19	20	21	22	17	18	19	20	21	22	23	16	17	18	19	20	21	22	22	23	24	25	26	27	28
23	24	25	26	27	28	29	24	25	26	27	28	29	30	23	24	25	26	27	28	29	29	30					
							31							30	31												

March							June							September							December						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7		1	2	3	4	5	6							1							1
8	9	10	11	12	13	14	7	8	9	10	11	12	13	6	7	8	9	10	11	12	6	7	8	9	10	11	12
15	16	17	18	19	20	21	14	15	16	17	18	19	20	13	14	15	16	17	18	19	13	14	15	16	17	18	19
22	23	24	25	26	27	28	21	22	23	24	25	26	27	20	21	22	23	24	25	26	20	21	22	23	24	25	26
29	30	31					28	29	30					27	28	29	30				27	28	29	30	31		



## Option 2: Bi-weekly Fall Pick-up with Monthly Stagger on the Same Weekday

This system of staggering has the benefit of being fairly simple—monthly collection is always on a Monday. It also has the benefit of supporting weekend yard work and removing all clippings from the street immediately, rather than have materials remain for several days after the weekend.

This collection schedule has three main drawbacks—conflicts with curbside pick-up, inequitable spacing of collection dates between service areas, and challenging enforcement.

Yard material pile collection occurs on four days – Monday through Thursday. Those collection schedules are specifically chosen to avoid any conflict with curbside residential service (cart collection of garbage, recycling and organics), which occur 5 days a week (Monday through Friday). It is not operationally possible to have yard material pile collection and curbside service occur on the same day for an area. While Recology can service carts with yard material piles on the street, they cannot service yard material piles when there are carts on the street. There are several ways to stagger collection dates on a single weekday, but due to the conflicts with curbside service, none of these options are recommended.

This specific schedule also provides inequitable service. Staggering collection on the same weekday means that some areas of town will have had to wait 7 weeks between their last monthly collection and their first fall collection day, while other areas have to wait only 3 weeks. This inequality is not ideal and any schedule that presents this disparity is not recommended.

Other ways of staggering on the same weekdays days without unequal spacing between service dates are possible (i.e. all collections on Monday with bi-weekly collection on Monday and Thursday) but they all have the same conflict with curbside service, therefore none of these schedules are recommended. Although mathematically the same number of services, it will not work operationally to have yard material pile collection and street sweeping every week without increasing staffing for Recology.

### 2019

April							July							October						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
		1	2	3	4	5			1	2	3	4			1	2	3	4	5	
7	8	9	10	11	12	13	7	8	9	10	11	12	13	6	7	8	9	10	11	12
14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19
21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26
28	29	30					28	29	30	31				27	28	29	30	31		

May							August							November						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3					1	2	3						1	2
5	6	7	8	9	10	11	4	5	6	7	8	9	10	3	4	5	6	7	8	9
12	13	14	15	16	17	18	11	12	13	14	15	16	17	10	11	12	13	14	15	16
19	20	21	22	23	24	25	18	19	20	21	22	23	24	17	18	19	20	21	22	23
26	27	28	29	30	31		25	26	27	28	29	30	31	24	25	26	27	28	29	30

June							September							December						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2	3	4	5	6	7	8	8	9	10	11	12	13	14	8	9	10	11	12	13	14
9	10	11	12	13	14	15	15	16	17	18	19	20	21	15	16	17	18	19	20	21
16	17	18	19	20	21	22	22	23	24	25	26	27	28	22	23	24	25	26	27	28
23	24	25	26	27	28	29	29	30						29	30	31				
30																				

### 2020

January							April							July							October						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3				1	2	3	4				1	2	3	4					1	2	3
5	6	7	8	9	10	11	5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10
12	13	14	15	16	17	18	12	13	14	15	16	17	18	12	13	14	15	16	17	18	11	12	13	14	15	16	17
19	20	21	22	23	24	25	19	20	21	22	23	24	25	19	20	21	22	23	24	25	18	19	20	21	22	23	24
26	27	28	29	30	31		26	27	28	29	30			26	27	28	29	30	31	25	26	27	28	29	30	31	

February							May							August							November						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1					1	2					1						1	2			
2	3	4	5	6	7	8	3	4	5	6	7	8	9	2	3	4	5	6	7	8	8	9	10	11	12	13	14
9	10	11	12	13	14	15	10	11	12	13	14	15	16	9	10	11	12	13	14	15	15	16	17	18	19	20	21
16	17	18	19	20	21	22	17	18	19	20	21	22	23	16	17	18	19	20	21	22	22	23	24	25	26	27	28
23	24	25	26	27	28	29	24	25	26	27	28	29	30	23	24	25	26	27	28	29	29	30					
							31							30	31												

March							June							September							December									
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S			
1	2	3	4	5	6	7			1	2	3	4	5	6			1	2	3	4	5					1	2	3	4	5
8	9	10	11	12	13	14	7	8	9	10	11	12	13	6	7	8	9	10	11	12	6	7	8	9	10	11	12			
15	16	17	18	19	20	21	14	15	16	17	18	19	20	13	14	15	16	17	18	19	13	14	15	16	17	18	19			
22	23	24	25	26	27	28	21	22	23	24	25	26	27	20	21	22	23	24	25	26	20	21	22	23	24	25	26			
29	30	31					28	29	30					27	28	29	30				27	28	29	30	31					



### Option 3: Bi-weekly Fall Pick-up with 4 Week Stagger

This schedule spreads each scheduled week of collection out over 4 weeks so customers maintain their same service day year round, and there are no conflicts with curbside service. By staggering the bi-weekly fall collection, there is no inequality in intervals between service areas.

However, with this schedule, there is a 4 week difference in the start of the bi-weekly fall season. Customers with Monday service have bi-weekly fall service mid-October through mid-January, while customers with Thursday service have fall service from November through February.

Piles will be out on the street almost every day year round, a negative impact from a stormwater quality and bicycle safety perspective.

This collection schedule is complicated and could lead to confusion and frustration among customers and landscapers. It also offers challenges for enforcement. Piles will be set out on the

wrong day more regularly, because of confusion in seeing piles out in a nearby service area. In order to maintain enforcement to address this complicated schedule, additional enforcement staff will be required.

Recology has indicated that this schedule would place higher demand on management time to schedule drivers for yard material pile collection and street sweeping. They also anticipate increased workload on drivers, management and office staff for calls and service requests from customers who put piles out on the incorrect days. This collection schedule will make it difficult for Recology to offer any on-call service since almost every week has a yard material pile collection day scheduled and Recology would have to travel into areas that are not scheduled for pick-up. This may cause confusion for residents who see a pile being serviced on a day that is not on the calendar.

### 2019

April							July							October								
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S		
		1	2	3	4	5	6			1	2	3	4	5	6			1	2	3	4	5
7	8	9	10	11	12	13	7	8	9	10	11	12	13	6	7	8	9	10	11	12		
14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19		
21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26		
28	29	30					28	29	30	31				27	28	29	30	31				

May							August							November							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
				1	2	3	4					1	2	3						1	2
5	6	7	8	9	10	11	4	5	6	7	8	9	10	3	4	5	6	7	8	9	
12	13	14	15	16	17	18	11	12	13	14	15	16	17	10	11	12	13	14	15	16	
19	20	21	22	23	24	25	18	19	20	21	22	23	24	17	18	19	20	21	22	23	
26	27	28	29	30	31		25	26	27	28	29	30	31	24	25	26	27	28	29	30	

June							September							December						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2	3	4	5	6	7	8	8	9	10	11	12	13	14	8	9	10	11	12	13	14
9	10	11	12	13	14	15	15	16	17	18	19	20	21	15	16	17	18	19	20	21
16	17	18	19	20	21	22	22	23	24	25	26	27	28	22	23	24	25	26	27	28
23	24	25	26	27	28	29	29	30						29	30	31				
30																				

### 2020

January							April							July							October							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
				1	2	3	4				1	2	3	4				1	2	3	4					1	2	3
5	6	7	8	9	10	11	5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10	
12	13	14	15	16	17	18	12	13	14	15	16	17	18	12	13	14	15	16	17	18	11	12	13	14	15	16	17	
19	20	21	22	23	24	25	19	20	21	22	23	24	25	19	20	21	22	23	24	25	18	19	20	21	22	23	24	
26	27	28	29	30	31		26	27	28	29	30	31	26	27	28	29	30	31	25	26	27	28	29	30	31			

February							May							August							November						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1						1	2							1							1
2	3	4	5	6	7	8	3	4	5	6	7	8	9	2	3	4	5	6	7	8	1	2	3	4	5	6	7
9	10	11	12	13	14	15	10	11	12	13	14	15	16	9	10	11	12	13	14	15	8	9	10	11	12	13	14
16	17	18	19	20	21	22	17	18	19	20	21	22	23	16	17	18	19	20	21	22	15	16	17	18	19	20	21
23	24	25	26	27	28	29	24	25	26	27	28	29	30	23	24	25	26	27	28	29	22	23	24	25	26	27	28
							31							30	31						29	30					

March							June							September							December								
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S		
1	2	3	4	5	6	7			1	2	3	4	5	6			1	2	3	4	5				1	2	3	4	5
8	9	10	11	12	13	14	7	8	9	10	11	12	13	6	7	8	9	10	11	12	6	7	8	9	10	11	12		
15	16	17	18	19	20	21	14	15	16	17	18	19	20	13	14	15	16	17	18	19	13	14	15	16	17	18	19		
22	23	24	25	26	27	28	21	22	23	24	25	26	27	20	21	22	23	24	25	26	20	21	22	23	24	25	26		
29	30	31					28	29	30					27	28	29	30				27	28	29	30	31				

### Option 4: Bi-weekly Fall Pick-up with 2 Week Stagger

This schedule spreads each scheduled week of collection out over 2 weeks so that customers maintain their same service day year round and there are no conflicts with curbside service. By staggering the bi-weekly fall collection, there is no inequality in intervals between service areas.

This is a simpler solution than Option 3 to the spacing out of collection service; however, this will still lead to confusion. It is still more complicated than Option 1 and will lead to customer confusion and enforcement challenges. Piles will be set out on the wrong day more regularly, because of confusion in seeing piles out in a nearby service area. In order to maintain enforcement to address this complicated schedule, additional enforcement staff will be required.

There are other collection schedules of staggering can be created, but they are not shown because of the inequality that they represent between service areas or the conflict they create with curbside service.

Recology has indicated that this schedule would place higher demand on management time to schedule drivers for yard material pile collection and street sweeping. They also anticipate increased workload on drivers, management and office staff for calls and service requests from customers who put piles out on the incorrect days.

### 2019

January							April							July							October							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
			1	2	3	4	5		1	2	3	4	5	6		1	2	3	4	5	6		1	2	3	4	5	
6	7	8	9	10	11	12	7	8	9	10	11	12	13	7	8	9	10	11	12	13	6	7	8	9	10	11	12	
13	14	15	16	17	18	19	14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19	
20	21	22	23	24	25	26	21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26	
27	28	29	30	31			28	29	30					28	29	30	31				27	28	29	30	31			

February							May							August							November						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2				1	2	3	4					1	2	3						1	2
3	4	5	6	7	8	9	5	6	7	8	9	10	11	4	5	6	7	8	9	10	3	4	5	6	7	8	9
10	11	12	13	14	15	16	12	13	14	15	16	17	18	11	12	13	14	15	16	17	10	11	12	13	14	15	16
17	18	19	20	21	22	23	19	20	21	22	23	24	25	18	19	20	21	22	23	24	17	18	19	20	21	22	23
24	25	26	27	28			26	27	28	29	30	31	25	26	27	28	29	30	31	24	25	26	27	28	29	30	

March							June							September							December						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	2						1	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3	4	5	6	7	8	9	2	3	4	5	6	7	8	8	9	10	11	12	13	14	8	9	10	11	12	13	14
10	11	12	13	14	15	16	9	10	11	12	13	14	15	15	16	17	18	19	20	21	15	16	17	18	19	20	21
17	18	19	20	21	22	23	16	17	18	19	20	21	22	22	23	24	25	26	27	28	22	23	24	25	26	27	28
24	25	26	27	28	29	30	23	24	25	26	27	28	29	29	30						29	30	31				
31							30																				

### 2020

January							April							July							October													
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S							
					1	2	3	4						1	2	3	4						1	2	3	4						1	2	3
5	6	7	8	9	10	11	5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10							
12	13	14	15	16	17	18	12	13	14	15	16	17	18	12	13	14	15	16	17	18	11	12	13	14	15	16	17							
19	20	21	22	23	24	25	19	20	21	22	23	24	25	19	20	21	22	23	24	25	18	19	20	21	22	23	24							
26	27	28	29	30	31		26	27	28	29	30			26	27	28	29	30	31	25	26	27	28	29	30	31								

February							May							August							November						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1						1	2						1						1	2	
2	3	4	5	6	7	8	3	4	5	6	7	8	9	2	3	4	5	6	7	8	1	2	3	4	5	6	7
9	10	11	12	13	14	15	10	11	12	13	14	15	16	9	10	11	12	13	14	15	8	9	10	11	12	13	14
16	17	18	19	20	21	22	17	18	19	20	21	22	23	16	17	18	19	20	21	22	15	16	17	18	19	20	21
23	24	25	26	27	28	29	24	25	26	27	28	29	30	23	24	25	26	27	28	29	22	23	24	25	26	27	28
							31							30	31						29	30					

March							June							September							December																						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S																
						1	2	3	4	5	6	7						1	2	3	4	5	6						1	2	3	4	5						1	2	3	4	5
8	9	10	11	12	13	14	7	8	9	10	11	12	13	6	7	8	9	10	11	12	6	7	8	9	10	11	12																
15	16	17	18	19	20	21	14	15	16	17	18	19	20	13	14	15	16	17	18	19	13	14	15	16	17	18	19																
22	23	24	25	26	27	28	21	22	23	24	25	26	27	20	21	22	23	24	25	26	20	21	22	23	24	25	26																
29	30	31					28	29	30					27	28	29	30				27	28	29	30	31																		

### **Summary**

Staff recommends Option 1 as it is the simplest, most cost-effective and provides the most straightforward schedule. This schedule will also reduce the amount of resources needed to operate the Claw and the rear loader vehicle to provide yard material pile collection during the peak leaf drop season. Option 1 can be supported by current city and Recology staffing levels for operations, outreach and enforcement. It also provides the best schedule to extend the use of the aging fleet and allows more time for maintenance and repair of equipment during the fall season.

### **Attachments**

1. Yard Material Collection Considerations
2. Alternative Yard Material Options
3. Current Collection Schedule 2019-2020 Calendar

### **Yard Material Pile Service Considerations**

In addition to the considerations of costs that are addressed in the staff report, there are a number of different elements related to yard material pile collection service. Some of the main elements of each are outlined briefly below.

- Customer expectations, experience, and feedback
- Environmental concerns
- Community health and safety
- Enforcement and outreach requirements
- Operational cost/limitations

### **Customer Expectations, Experience and Feedback**

Since July 2016, when the yard material collection schedule was changed, there has been significant feedback from customers regarding the service and service levels. The feedback received from customers (through emails, phone calls, online posts and comments on the April 2018 survey conducted on the city's yard material collection program and organics cart usage) consistently include the topics listed below:

- **Street sweeping timing and frequency.** With the implementation of the new collection service (Organics), Davis Waste Removal shifted their employee schedules to have the same employees who are collecting the on-street piles to sweep the streets the week following collection. This is done once-a-month year round. Customers have indicated that once-a-month sweeping is not adequate to keep the streets free of debris, and have indicated a preference of having the streets swept the day after yard material pile collection, especially in the fall months.
- **Extended or modify fall pick-up schedule.** Feedback from customers has indicated that a longer weekly pick-up schedule, into January, would be preferred in order to take in to account the variety of leaf drop times in the community, and capture the Christmas trees that are taken down after the first week of January.
- **Pile pick-up frequency.** Customers have expressed that the current on-street yard material pile collection is not sufficient for their needs, specifically in regards to the timing and frequency of collection. Although these comments are frequent, these customers appear to be in the minority, as less than 20% of all city customers use the on-street collection service on any given week.
- **Lack of space for organics carts.** Some customers have expressed concern that they do not have sufficient space on their property or the ability to maneuver a 95-gallon organics cart.

### **Environmental Considerations**

It is also important to consider the impact that potential alternative schedules could have on the environment, and on the current environmental considerations of the existing program.

- **Existing diversion goals.** When reducing yard material pile collection, a successful program needs to ensure that yard materials are not being placed in the trash. The City is required to achieve waste diversion targets set by the State, and removing organics (including yard waste) from the trash is a specific area of focus in that effort, as the

methane gas generated from organic materials decomposing in landfills is a significant source of greenhouse gas emissions.

- **Stormwater quality concerns.** There is some concern that the California Water Quality Control Board may prohibit the practice of placing yard materials in the street at the renewal of the city's National Pollutant Discharge Elimination System (NPDES) permit for stormwater.
- **Collection vehicle impacts.** Yard material pile collection currently requires two vehicles on the street (which comprise approximately 15% of the current collection vehicle traffic), resulting in wear and tear. Complicated collection schedules which could result in missed pick-ups, or return trips to pick up piles that were not accessible, could further exacerbate this issue.

### **Community Health and Safety**

It is also important to consider the impact that potential alternative schedules could have on the health and safety of the community at large, including the number of days per year when piles are likely to be on the street, causing potential conflicts like the ones described below.

- **Mosquito breeding concerns.** Leaves and grass blown, brushed or drawn into the storm drain can create ponding in the system and conveyance channels, providing habitat for breeding mosquitos and food supply for larvae. While not a significant factor in mosquito propagation, the Sacramento-Yolo Mosquito & Vector Control District has indicated that it can be difficult to treat and eliminate these breeding areas, particularly when the amount of vegetation in the system can act as a barrier to the application of necessary pesticides.
- **Bicycle safety concerns.** Piles can create hazards for cyclists when not placed properly (i.e. when placed in the bike lane), or when not following regulations regarding pile size. Yard material piles can cause cyclists to crash by creating a slipping hazard, or by branches getting caught in wheel spokes. Due to their low profile and non-uniform size, the piles are difficult to see in advance, especially in the dusk or at night in the absence of street lighting. Plans to stagger pile collection could (in the short term) lead to more piles in the roadway for longer periods of time, until education and enforcement of the new schedule are effective.

### **Enforcement and Outreach Requirements**

There are also a number of considerations related to enforcement and education requirements to keep in mind while considering each *alternative* yard material pile collection schedule:

- **Visual cues to action.** Changes in collection resulting in different schedules for different areas of town (as opposed to the current practice of collection taking place on the same week on different days), could have some significant impacts on enforcement staff. Often, when residents place yard piles on the street, other residents will follow suit. For this reason, there is often a slow ramp up to the use of weekly yard material pile collection, as the residents are unsure of the current collection timings and often wait for other neighbors to place their yard material piles in the street before placing their own. This becomes problematic with any kind of collection system in which different areas of town have their own pick-up week, or with on-call pick-ups.

- **Enforcement scope and frequency.** Intermittent or non-linear collection requires more active enforcement patrol than the current monthly/weekly collection schedule. This active enforcement currently includes one vehicle and one staff member. Use of an intermittent pick up schedule would require additional enforcement and administrative personnel as well as another enforcement vehicle in order to ensure compliance across the city throughout the collection period.
- **Simplified outreach messages.** The more complicated the collection schedule becomes, the more challenging it is to communicate to customers. Ideally, the message regarding timing of the pickup is simple, as it is with the current schedule (i.e. “pick-up will be the first full week of the month.”) A more complicated pick-up schedule can often lead to misinterpretation and cause customers to miss their pick-up day, or receive fines for keeping piles out for too long.

### **Operational Cost/Limitations**

In addition to what is outlined in the staff report, there are also considerations and limitations on the side of the service provider (Recology Davis) in approving or implementing changes to the yard material pile collection program.

- **Timing of service for cart and yard material pile collection.** Single-family curbside solid waste service consists of three different service dates: trash, recycling and organics collection; yard material pile collection; and street sweeping. Operationally, these services cannot occur on the same day. In order for Recology trucks to pick-up carts and empty them, there needs to be space between the carts and other objects to avoid property damage. Street sweeping is most effective when the sweeper can access the gutter, which cannot happen on cart collection day (as the carts are in the gutter when placed appropriately). In addition, it is important that the sweeping service should follow yard material collection, to clean up after the claw has removed the piles.
- **Recology staffing.** Yard material pile collection service requires 4 staff members and 4 days to pick up piles citywide every month (4 days a week in the fall). These staff are typically servicing other routes (commercial and residential trash, recycling and/or organics service routes). On pile collection weeks, these drivers are pulled off their regular routes in order to pick up piles—other route drivers share routes in order to ensure that all services are covered. Recology has indicated that scheduling this every month along with managing employee leave is a challenge. Having pile collection on a single week mitigates this issue.



Additional Methods available to customers to remove Yard Materials

Method	Cost to Customers	Placement location	Enforcement needed	Outreach Needed	Challenges
Additional organics carts	Currently \$5.27 per additional cart per month	Carts are kept on private property and set out at the curb on collection day.	None	Minimal – reminding customers that this is an option	<ul style="list-style-type: none"> <li>Some customers have reported a lack of space for additional carts</li> </ul>
Recology Davis Drop-box Customer contacts Recology Davis to order a drop-box for green waste	<p>20 yd<sup>3</sup> = \$178.42 + \$54 per ton</p> <p>30 yd<sup>3</sup> = \$217.45 + \$54 per ton</p> <p>40 yd<sup>3</sup> = \$284.63 + \$54 per ton</p> <p>2 yd<sup>3</sup> or 4 yd<sup>3</sup> bins may also be available upon request</p>	On City street or private property	None	Minimal – reminding customers that this is an option	<ul style="list-style-type: none"> <li>Drop boxes may become contaminated with illegal dumping debris if left out at the curb.</li> <li>Good solution for short-term large clean-up projects, but not for longer-term collection for single-family customers.</li> </ul>
Landscaper haul away Customer contacts a landscape company to haul away landscape debris.	Depending on the company chosen, the price will vary. Estimates received from three different companies to haul away two 5'x5'x5' piles ranged from \$65 to \$400 with average cost of \$186.67	On private property	None	Minimal – advising customers about their option to contact a private landscaper to haul away materials	<ul style="list-style-type: none"> <li>No major challenges anticipated.</li> </ul>
Junk Removal Business	Depending on the company chosen, the price will vary. Estimates received from three different companies to haul away two 5'x5'x5' piles ranged from \$126 to \$350 with average cost of \$275	On private property	None	Minimal – advising customers about their option to contact a private landscaper to haul away materials	<ul style="list-style-type: none"> <li>Junk Removal Company may mix the yard materials collected with other trash already collected, sending the whole load to the landfill.</li> <li>If this is advertised as an option and yard materials are landfilled, diversion rates may drop.</li> </ul>

# Current Yard Material Collection Schedule

## 2019

January						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

April						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

October						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

February						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

May						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

March						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

June						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

September						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
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December						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

## 2020

January						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

April						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

July						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

October						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

February						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

May						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

August						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

November						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

March						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

June						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

September						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

December						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

