

MEMORANDUM

TO: City Council

FROM: David J. Deutsch  
City Manager

SUBJECT: Solid Waste Collection

DATE: July 29, 2010

Mr. Henrikson will present the attached report at Monday's Council Meeting.

DJD/asf

Attachment

## MEMORANDUM

To: David J. Deutsch, City Manager

From: R. James Henrikson, Public Works Director

Subject: Analysis of Once-per-Week Solid Waste Collection

Date: July 20, 2010

Some local jurisdictions have recently switched to once-per-week solid waste collection, including Rockville and Hyattsville. Howard County made the switch about 20 years ago. Council requested that Public Works investigate and provide an analysis of the costs and benefits of reducing trash collection to once-per-week. Following is that analysis.

### **Personnel, Equipment and Fuel**

We have 12 trash routes. Last year, the crews on these routes picked up over 22,000 tons of trash from about 20,700 homes. So, on average, each route picks up about 1725 homes per week. That means that each crew, on average, picks up about 860 homes on Mondays and Thursdays and another 860 homes on Tuesdays and Fridays.

If we went with once-per-week pickup, each crew would pick up, on average, 430 homes on Mondays, 430 homes on Tuesdays, 430 homes on Thursdays and 430 homes on Fridays.

Note that we couldn't expect the annual tonnage that the crews would have to pick up to change. People would still generate the same amount of trash. So the trucks would fill up with refuse just as many times per week and would need to be driven to either the Brown Station landfill or the Annapolis Junction Transfer Station the same number of times that they currently go there. In other words, highway driving miles wouldn't be expected to change.

The only thing that would change is the distance driven on local streets along the route. Currently, on average, each crew covers 15 miles of City streets, which is our total 184 miles of streets divided by the 12 routes. On average, they pick up refuse from 7 1/2 miles of local streets on Mondays and Thursdays and the other 7 1/2 miles on Tuesdays and Fridays.

If we went to once-per-week pickup with 430 homes per route, each crew would drive half as much in the City. So, on average, each route would cover 3.75 miles on Mondays, 3.75 miles on Tuesdays, 3.75 miles on Thursdays and 3.75 miles on Fridays. Basically, the distance driven each day would be cut in half, saving 3.75 miles per day or 15 miles of driving per route per week. According to our shop, the average refuse truck gets between 3.5 to 4 miles per gallon. So the once-per-week pickup could be figured to save 4 gallons of diesel fuel per route per week (15 miles / 3.75 mpg). This could be figured to net us a savings of about \$10 per route per week or \$120 per week total (4 gallons X \$2.35/gallon X 12 routes). Over 52 weeks, this would add up to a savings of a little over \$6,000 per year in reduced diesel fuel expense.

However, from a practical perspective, we have to remember that people will have just as much trash to get rid of. So although each crew will be driving half as much distance over their average 3.75 mile route, every house is likely to have refuse set out and the amount of trash per house will be considerably more, since the homeowners would have been saving all their refuse for a week. So the crews will be spending considerably more time over their average 3.75 mile routes picking up trash at a higher rate and weight and the trucks will be idling in place for considerably more time, which would significantly reduce their miles per gallon performance. Note that the 3.5 to 4 miles per gallon for refuse trucks is an average. At highway speed, the miles per gallon would be much better than we achieve with regular stop-and-go driving on a refuse route. And the miles per gallon is zero while a truck is idling in front of a house while the crew is picking up and loading trash into the hopper. So from a practical perspective, we would likely save less than \$6,000 per year per year in diesel fuel.

One common assumption is that, if cutting trash collection in half with once-per-week trash pickup inconveniences residents enough, they might increase the amount they set out for recycling. The assumption is that people will set out more recyclables just to reduce the amount of material that they have to store at their homes. This seems logical and there is some data to show this will happen to some extent.

However, it's also common for people to assume that reducing trash pickup and increasing recycling pickup will save manpower, equipment and fuel costs. That doesn't appear to be a correct assumption, however, at least in our case where the landfills and the recycling center are the same distance away from Bowie.

As previously stated, we have 12 refuse routes as well as 3 recycling routes. Each route is picked up using a 25 cubic yard rear-loading truck. If the inconvenience of once-per-week trash pickup causes people to start putting more material in their recycling bin and less in their trash can, they'd still be setting out the same weight of material each week. So we might go to 11 trash routes and 4 recycling routes. Or we might even get to 10 trash routes and 5 recycling routes if we could get close to a 50% recycling rate. Regardless, we'd still have 15 routes with the same number of personnel and trucks using the same amount of fuel.

Of course there are obviously additional benefits to increasing recycling. They include reducing the use of future landfill space and reducing the use of raw materials and fossil fuels needed to create and fabricate new plastics, cans and paper.

### **Other Jurisdictions**

Other local jurisdictions have switched to once-per-week pickup, including Hyattsville and Rockville. Neither jurisdiction has, as yet, reduced personnel related directly to the once-per-week pickup.

However, even if there were clear cost savings that we could hope to achieve by mimicking the programs in Hyattsville and Rockville, their programs differ significantly from ours in other ways that would make a similar move more dramatic.

### **Rockville**

Rockville completed a transition to once-per-week pickup last December. Rockville doesn't allow bulk pickup to be set out along with regular trash. All trash must be included in recycling carts which Rockville provides free of charge. Rockville provides as many carts of 95, 64, 48 or 32 gallon size that a resident requests. Some residents request several carts of varying sizes. Note that, should Bowie elect to only provide one 65 gallon cart for trash, that would amount to around a \$900,000 expenditure. Obviously, each additional similar sized cart provided per household would increase the cost to the City by \$900,000. Although Rockville uses a boom-mounted automatic cart tipper, they must still use two driver/collectors on each truck. They indicated that the two-person crew takes turns with one person operating the truck using the joystick to maneuver the boom to the carts. The other driver/collector must follow along on foot, pulling and turning carts to the proper angle for the boom to attach to the cart. Each driver/collector needs to equally share responsibilities since each prefers to operate the joystick in the climate-controlled cab rather than be out on the street walking beside the truck. Note that residents are not allowed to set out anything that can't fit into their carts. No separate set out of bagged trash is allowed.

Rockville does provide residents with a separate bulk trash pickup but residents must call it in and it is restricted to 6 special pickups per year per household. Although our crews pick up bulk trash with regular canned and bagged trash, Rockville sends out a separate crew to pick up bulk pickup with the use of a specialized truck with an extended metal arm. This extra effort results in additional personnel and fuel being used as the truck picks up various addresses all day throughout the City as opposed to picking up bulk items while the crew is already at each house picking up trash.

Rockville uses a similar approach to recycling pickup by providing residents with as many different size carts as they request. Like regular trash pickup, all material must be inside the carts with no bagged items allowed outside.

Rockville staff indicated that they originally decided to do once-per-week trash pickup because residents had been expressing concerns that the annual fee they were charging per home for refuse and recycling collection had gotten too high. Admittedly, now that

they have implemented the program, they have not reduced the fee. However, they tell residents now that, if they hadn't implemented once per week trash pickup, the fee would have likely increased.

Note that, if the residents of Bowie were charged the same annual fee of \$386.47 per home that Rockville residents pay, we would be charging residents approximately eight (8) million dollars overall for trash and recycling service. In contrast, our FY2011 budget for Solid Waste is about five-and-one-half (5 ½) million dollars. The annual set aside for refuse and recycling vehicles amounts to between \$250,000 and \$300,000 per year. So the total Bowie budget for Solid Waste would be less than six (6) million dollars per year compared to eight (8) million dollars per year if Bowie residents were charged the same amount per home as Rockville residents. And we are providing twice per week trash pickup in Bowie, which also appears to contradict the assumption that going to once-per-week trash pickup saves significant money.

### **Hyattsville**

Hyattsville currently has four trucks, each with a three person crew, that pick up 413 homes, on average, per day. They did an analysis which indicated that their productivity was "well below the productivity levels... in other well-managed municipalities." Their research showed that other communities normally collect between 700 and 1,000 households per day. By comparison, each of our refuse routes average about 860 homes per day and some of those routes normally go out with two driver/collectors rather than a driver and two collectors. In speaking with Hyattsville staff, they realize that their productivity hasn't been what it could be so they plan to reduce to three trucks with three crewmembers per truck, regardless of once-per-week pickup. The Hyattsville analysis projected their personnel and equipment savings for once-per-week pickup based on the reduction in routes from four to three. But since they planned to do that anyway because of the low productivity, the savings due to once-per-week pickup doesn't appear clear.

And they projected a \$6,250 annual savings in fuel with once-per-week pickup. But that was simply based on a 25% projected savings from going from 4 trucks to 3 trucks. Per the earlier calculations in this memo, it is unlikely that there would be noticeable fuel savings if trucks do have to make the same number of trips to the landfill whether they picked up trash once or twice a week.

Hyattsville does have an advantage though, because residents are charged a separate annual fee of \$58.14 by the County for picking up their recycling. If implementing once-per-week trash collection inconveniences residents to the point that they start to recycle more, it won't simply result in transferring personnel and equipment from trash to recycling like it would in Bowie. The County would have to pick up the added recyclables. I don't know if the County would factor that into future billing to Hyattsville, though.

By the way, Howard County went to once-per-week trash collection close to 20 years ago. But their residents are used to the associated restrictions. They can only set out four items per week of trash ( but unlimited recycling). Each of the four items must be canned,

bagged or bundled and must weigh less than 40 pounds each. If using a typical 36 gallon or larger trash can, each bag set inside the can is considered a separate item. Bundled trash must not be more than 18 inch diameter and 4 foot long.

### **Other Considerations**

Last calendar year, we recycled about 9,000 tons of material. That total includes many types of recycled materials. The highest individual totals of recyclables that we pick up are single stream recycling at 3,392 tons, yardwaste at 3,186 tons and curbside leaf collection at 1,962 tons. There are much lesser amounts of metal, used oil and antifreeze and estimated recycling related to the mulch mower rebate. But the recycling category that would be expected to increase if trash collection is made less convenient would be the 3,392 tons of single stream recycling. This is the material that people are currently putting out in their blue bins.

We can't be sure how much recycling in Bowie would actually increase as people became inconvenienced with once-per-week trash pickup. But, for the purpose of providing an economic benchmark, we can calculate the savings in tipping fees if once-per-week pickup doubled the annual single stream recycling tonnage from 3,392 tons to 6,784 tons. We currently pay an average cost of \$57.56 per ton to dispose of trash. And though we currently receive a minimum revenue of \$5.00 per ton for single stream recycled material, we expect that we will actually have to start paying between \$25 and \$30 per ton next spring when our three year contract runs out. That is the rate that area jurisdiction currently pay. So if we figure the average cost of processing recycled material is \$27.50 per ton and the average cost of trash disposal is \$57.56 per ton, then the additional savings of doubling recycling (a 100% increase in recycling) would be about \$100,000. ( $\$57.56 - \$27.50 = 30.06 \times 3,392 = \$101,963$ ).

Another potential benefit of once-per-week pickup is that it would be likely to even out the daily tonnage set out for the crews to pick up. Right now, Mondays and Tuesdays are the heaviest days for the crews because residents generate much of their trash on weekends while working/cleaning around the house during their days off. With once per week pickup, the tonnage on Thursdays and Fridays could be expected to about equal the tonnage on Mondays and Tuesdays. That would be because the residents who would have their once-per-week trash pickup on Thursdays and Fridays would include the trash that they had collected from the previous weekend.

The above benefit also points out a weakness. Refuse collection service (including bulk pickup) is one of the most appreciated services that the City provides to the residents for their tax dollars. We have all heard comments from residents about how much they really appreciate this service. So the potential loss of good will from the residents is great. Consider what the reaction will be from the residents, especially those who would have a Thursday or Friday pickup when they have to keep weekend refuse stored at their house during the week. If they are out of town or miss a pickup for whatever reason, they'll have the trash at their house for two weeks. This could be a cause for neighbor complaints due to the amount of trash or the odor, especially in the heat of the summer. And consider that on double days for holidays, 25 percent of our residents would need to

store their trash at their house for two weeks. This would likely be of real concern for those residents who had their once-per-week pickup on Mondays, on which most holidays fall. So to accommodate this situation with a once-per-week program, we may have to add refuse pickup on some holidays, which would negate some of the potential savings we might possibly get from reducing overtime, and potentially increase the need for supplemental temporary laborers.

Note some of the general comments and concerns that residents in other communities have made related to once-per-week trash pickup:

There will be an increase in illegal dumping.

There will be a proliferation of pests and vermin as refuse is stored citywide for a minimum of one week and longer on holiday weeks, especially during warm weather. Concern will be raised for the elderly and people with disabilities, who will be required to move greater weight of trash to the curbside on a single weekday.

### **Carrots and Sticks**

Recycling can be increased with “carrot” incentives to recycle and with “stick” disincentives to reduce the amount of trash that is set out. The above programs in Rockville, Hyattsville and Howard County could be considered examples of jurisdictions using sticks to push their residents to recycle by making it very inconvenient for them to set out trash.

By comparison, consider the Bowie program, where we provide unlimited pickup of trash twice-per-week, including bulk pickup. Some would say that we “spoil” Bowie residents relative to what some other jurisdictions provide. However, I believe we run a very efficient program. People in these other jurisdictions buy just as many new couches, TVs and dining room sets as Bowie residents. However, Bowie residents don’t have to store their old couches, TVs and dining room sets for extended periods of times, sometimes weeks, before they can get rid of them using a special bulk pickup procedure similar to the one Bowie had up until 1991. I believe our program, which allows residents to throw away bulk pickup items along with their regular twice-per-week trash pickup, is the most efficient way to provide the service. It is also easier on the truck bodies, as loose bulk pickup items tend to damage the interior of trash truck bodies without the benefit of residential trash to cushion the compaction process. And we have some indication of how efficient our program is set up, in that our cost to provide refuse and recycling service is approximately 25% less per home than Rockville.

Please note that, if we just decided to jump in and try once-per-week refuse collection on the chance that it would save money, we would risk considerable resident discontent, as I referenced early in this memo. And as I indicated before, I doubt if going to once per week pickup will reduce the overall total number of trash and recycling routes as the overall tonnage will stay the same. Only the relative percentage of trash versus recycling would change. So with the same overall number of routes, it isn’t likely that once-per-week trash pickup would reduce the number of personnel, trucks or fuel.

However, for the sake of argument, let's say that we could reduce the number of personnel by as much as six employees. That could save close to \$250,000 per year, when employee benefits are included. Although that is a lot of money, it represents less than five (5) percent of the almost six (6) million dollar cost of our Solid Waste program.

I often look at issues from a "customer service" perspective. In other words, I consider Bowie residents to be our "customers" for the services we provide and I ask my staff to look at their jobs from a similar perspective. I believe this helps us to do a better job of meeting the needs of residents. In this particular case, we would be telling the residents of Bowie that we planned to cut their trash collection service in half in order to possibly save 5% of the cost. And based on many years of feedback, trash collection is one of the most valuable services they feel they receive for their Bowie tax dollars. It is definitely one of the most visible services we provide.

I suspect most residents don't notice the hard work and commendable results provided daily by other City Divisions. They would notice the good job that we do plowing their streets, but unless they had a sewer backup or a child in sports or were a victim of a crime, they may not appreciate the good work done every day by City employees in the Utilities or Parks Divisions or the Bowie Police Department. And if they basically work somewhere outside Bowie all day and come back to Bowie after work each night, they may not really be aware of the quality of services we provide residents at the Ice Arena, Senior Center or Gymnasium unless they have a specific need for those services.

But the services of our Solid Waste employees are something they can see and relate to regularly. These employees go in front of residents' homes twice a week for trash, once per week for mixed recycling, once for yard waste and for metal recycling. And we have all heard the accolades that residents have forwarded us in appreciation of these services. I believe the City government receives a significant amount of good will from residents because of the comprehensive extent and quality of our Solid Waste service. By the same token, if we cut this service significantly, it could have the opposite effect. I am very hesitant to propose we begin a program that will (again in the likely perception of the residents) appear to have us cutting their service in half with unnoticeable benefits.

And we should consider the impact on the City employees who pick up that trash and recycling if we decide to simply cut six employees on the unproven assumption that there will be significant savings in time. Even if we cut employees through attrition, the remaining employees who pick up that trash and recycling will be impacted significantly. Remember that, although the relative percentage of trash tonnage to recycling tonnage may change over time, the total tonnage set out in front of each home on a week-to-week and annual basis can be expected to stay the same. In general numbers, we'd be telling our hard-working Solid Waste employees that we expect them to continue to pick up over 30,000 tons of trash and recycling each year with a reduction of six employees. Again, the example of a reduction of six employees was only used to demonstrate how relatively small the cost/benefit ratio could be.

After attending the last two Environmental Advisory Committee meetings, I believe they are considering once-per-week trash pickup as a disincentive, or “stick”, to push people to recycle. They also assumed, like most people (and some jurisdictions), that, if you simply cut trash service in half then you cut your costs in half. This approach is understandable. At the meetings, I did go over some of the math on the lack of savings in personnel, trucks and fuel involved in once-per-week trash pickup as well as changing the percentage of trash tonnage hauled to recycled tonnage hauled.

The Environmental Advisory Committee will be relaying their ideas to Council in the near future. But I do believe their main focus in proposing once-per-week trash pickup is to increase recycling. That, of course, is one of our goals at Public Works, also. So, getting back to “carrots and stick” incentives; there are other options.

Carts of trash could be weighed and residents billed accordingly, which would be an example of a “stick” to push residents to recycle more. Or carts of recyclables could be weighed and awards or monetary incentives could be provided for those who recycle the most, which would be a “carrot”.

But both options would require that people put all their trash and/or recycling in carts matched to trucks with the technology to weigh the carts. This technology is not necessarily that dependable in the few cities where it has been tried. I have been told of residents wetting down their newspapers to get more credit. And unless a cart is very heavy, I have been informed that crews will dump the cart directly into the hopper rather than wait for the automatic tipper to weigh the cart. When they do this, it corrupts the results and leaves residents, whose recycling weight wasn't counted, very unhappy.

Another example of a stick disincentive to setting out trash in order to increase recycling is the “Pay As You Throw” (PAYT) system where the more bags or cans someone sets out, the more they get charged. All trash would be required to be “bagged or tagged”. The City would sell special bags and/or adhesive tags that residents could stick on their trash cans. So the more trash someone puts out, the more bags or tags they would have to buy. Based on what we hear from other cities' experiences, this could increase recycling significantly. However, this would result in a very drastic reduction in service to Bowie residents. They could no longer set out miscellaneous items of trash that couldn't fit into a plastic bag or their tagged trash can. And, as stated before, we would still end up with about 15 trucks and associated crews picking up more than 30,000 tons of trash and recycling per year. Only the percentage of recycling to trash would change. Though increasing this recycling percentage is a goal we all are working toward, we can't assume that PAYT will result in noticeable personnel, equipment or fuel savings.

Another example of a “carrot” incentive would be to provide large recycling carts to make recycling easier and more convenient for residents. We know that has worked to significantly increase recycling in other communities. In particular, Prince George's County has just finished a “before and after” analysis of their overall annual recycling tonnages, since they provided 65 gallon recycling carts to all County residents served by County refuse contractors. Three years ago, before they started distributing the large

carts, residents of the County were recycling approximately 13,000 tons of material. Now they are recycling 29,000 tons of material a year. That is a 123% increase! And it was accomplished with a “carrot”. According to Carol Bracaglia, who heads the County recycling program, the residents are very happy with their new carts and the ease at which it helps them recycle single stream items.

We are doing a demonstration project for this option this summer using a federal Energy Efficiency Block Grant to provide similar sized large carts to 1,555 residences. We contacted Ms. Bracaglia to get her advice since she had just implemented a much bigger program. She relayed challenges that she and her staff encountered early in the program and gave us valuable advice. We hope and expect our demonstration program to be successful and well-received by the residents.

### **Summary**

At the request of Council, Public Works performed an analysis of the costs and benefits of switching to once-per-week trash pickup. Based on that analysis, the potential cost savings appear relatively small. The potential savings certainly don’t warrant proceeding in this direction at this time.

In lieu of significant cost savings, there is a feeling by many people, including some on the Environmental Advisory Committee, that reducing trash collection to once-per-week will inconvenience the residents enough that they will increase their recycling. The general idea is that people will get tired of storing a lot of trash at their homes and will decide to increase their recycling efforts in order to reduce the amount of this stored trash. To the extent that reducing trash collection to once-per-week resulted in an increase in recycling, then that would be a benefit.

This is one of several “sticks” or disincentives to put to people to discourage them from putting out trash and, therefore, increase their recycling. Other “sticks” are weighing trash cans or counting trash bags and charging residents accordingly. These programs have inherent problems as discussed earlier. Even using a “carrot” of providing a financial incentive or other award for residents who recycle the most can have significant problems in implementation.

At this point, the only incentive to increase recycling that Public Works would endorse would be to provide large recycling carts to residents. But though this program appears to hold much promise, based on the positive results experienced by other jurisdictions, we need to document the results of the demonstration project that we are about to begin.

So at this time, for all the reasons stated above, Public Works recommends that we focus on analyzing the costs and benefits of providing a large recycling cart program city-wide. If this program works in Bowie, like it has in other jurisdictions, then we will have increased recycling significantly, without undue inconvenience to our residents. This approach would be much more preferable to trying to increase recycling by implementing a once-per-week trash pickup program, which would likely disrupt the regular trash collection service of all Bowie residents.

If the demonstration program is as successful as we hope, and Council authorizes us to begin to implement a city-wide program to provide large recycling carts to all City residents, then we may, at some future date, consider reviewing the costs and benefits of once-per-week trash collection . That is because, if we increase recycling significantly by providing residents large recycling carts, then, at the same time, we could expect that residents will be setting out less trash. At some point, by voluntary means, residents will be setting out such a reduced amount of trash, that reducing trash collection to once-per-week pickup will not be as drastic an action to them as we believe it would be today.

JH