


Memo

To: City Council
From: Amy E. Gilson, P.E., Director of Public Works
Date: September 7, 2017
Re: Combination Sewer Cleaner Truck Purchase



Currently the DPW uses the VacAll machine as a street sweeper and catch basin cleaning machine. The VacAll was originally slated for replacement in FY 22-23, but due to the condition and frequent unscheduled, expensive maintenance of it, we moved it up in the replacement schedule to FY 19-20. We hope that if we continue to use the VacAll for street sweeping only it will last until the 19-20 budget year.

Currently sewer jetting is done on all mains in the City on a 3 year cycle with several mains on a quarterly schedule to prevent sewer backups. Typically this is done using the trailer mounted jetter, the VacAll and the water truck, and it is a 3-man operation.

It is the intent of DPW to trade in the trailer mounted jetter toward the purchase of the combination sewer cleaner truck (a.k.a. vacator truck). The VacAll will be used as a sweeper only. This will make the department more efficient by reducing the number of people required to jet sewers and allowing them to perform other tasks. Additionally, by separating the VacAll from the jetting task, it allows the DPW to perform both street sweeping and sewer jetting at the same time, essentially doubling staff output. These tasks are not only quality of life issues but liability issues for the City. DPW currently struggles to perform as much of these individual tasks as necessary.

The FY 17-18 budget provides \$400,000 in the Motor Vehicle Pool Fund for the purchase of a combination sewer cleaner truck (CSCT). This

truck will perform several functions beyond sewer jetting. They include, but are not limited to, keeping the hole dry on watermain breaks, assist in the resetting of water shutoffs that have moved off the valve, cleaning out sanitary lift stations, jetting larger sanitary mains that we currently are unable to do, utility location and hydroexcavation. The staff at the wastewater plant has also identified several areas where they will be able to use this machine including, but not limited to supernatant tank cleaning, EQ tank maintenance, trickling filter maintenance, and drain pit maintenance. It will also allow staff to perform some routine tasks year round instead of just seasonally due to concerns of water freezing.

The most important function of this is hydroexcavation. The new MISS DIG law (PA 174) requires that after utility lines have been marked, excavators must always expose utilities by hand four feet either side of the marking to verify their location before using power equipment near them. As you can imagine, this has become very time consuming. The use of hydroexcavation is an acceptable alternative to hand digging and it is much quicker and a lot less labor intensive.

Most important to administration is the safety of our crews. The hydroexcavation function has the ability to save lives. (Un)fortunately that was proven earlier this year when the DPW had a water leak at the intersection of N. Washington and McClure street. All utilities were marked and the repair was scheduled. One of the vendors wanted to provide a live demonstration, so the foreman asked him to do it on this project. It turns out that the 4" medium pressure gas main was marked on the wrong side of the watermain and out of the 4 foot Caution Zone. That gas main was right where we would have put the backhoe bucket which could have been catastrophic. It is becoming routine that gas mains are being mis-marked putting our staff and residents in harm's way- about six times this calendar year in the City alone. Using a hydroexcavator to expose the utilities can prevent damaging other utilities and costing the City money, property or lives.

Because this is a major purchase with a 15-20 year replacement cycle, the DPW staff has been demoing the four major brands of combination sewer cleaners and evaluating them for power, ease of use, design, long term maintenance and other various features. Quotes were received for the top two machines, either of which would serve the Department well. Considering the combination of the truck cost and

credit given for the trailer mounted sewer jetter trade-in, the lower cost machine is the Vactor Model 2100 PLUS from Jack Doheny Companies. It is also the opinion of the DPW staff that the Vactor model will have lower maintenance costs over the life of the machine based on their individual designs.

The truck's Michigan dealer, Jack Doheny Companies has offered to extend the group purchasing price that they have negotiated through the National Joint Powers Alliance (NJPA) thereby allowing us to purchase the preferred truck for \$393,946.62. They are also offering \$32,000.00 for trade-in on our current trailer mounted jetter which we feel is in line with what we've seen for this model and \$7,000 more than the other vendor. We intend to trade it in to make the net price \$361,946.62.

In accordance with Section 2-186 of the City Ordinances, I am hereby requesting that City Council approve the waiver of the sealed bid process for purchases over the amount of \$5,000 and the required three quotes for purchases over \$2,500 due to the purchase being through another governmental agency. There are no Charlotte dealers that carry this equipment.

Please let me know if you have any questions.

DESCRIPTION	Frederickson Supply	Jack Doheny
Combination Sewer Truck	\$389,614.08	\$393,946.62
Trade in on jetter	\$25,000.00	\$32,000.00
Combination Sewer Truck w/ trade in	\$364,614.08	\$361,946.62

Vac Truck vs. Jetter

Pros

1. Can use to jet with less guys (1 less)
2. Can use in place of backhoe
3. Save lots of hrs. on backhoe
4. Can suck out water shutoff's that have moved and you can't get on the shut off
5. Safety (a lot safer)
6. Use it on water main breaks
7. Use it on Sucking out lift stations
8. Can use it to expose utility's lines (gas,telephone,fiber,water,sewer.etc.)
9. Putting less hrs. on sweeper truck because it's not out jetting
10. Would allow us to jet larger mains (10in.-24in.)
11. One less guy is jetting so there's one more guy for other things
12. Not blocking the road for sucking out catch basins
13. Less fuel to jet
 - a. Our way= 1 jetter, 1 tanker truck, 1 pickup
 - b. New way= 1 vacor truck, 1 pickup
14. Can sweep streets while still jetting sewers or sucking catch basins, etc.

Cons

1. A little slower to dig with than the backhoe

The Way we jet now

New Vector Truck

Based on jetting 20 days out of the year

Tanker + jetter + sweeper

Vector truck + pickup

\$210.07 per hr. total

Savings per hr=\$61.29

\$148.78 per hr. total

Tanker + jetter + sweeper

Vector truck + + pickup

\$210.07 hr. x one 8 hr. day=\$1,680.56

\$148.78 hr. x one 8 hr. day=\$1190.92

\$1,680.56 per day x 20 days per yr.=\$33,611.20

\$1,190.92 a day x 20 days yr.=\$23,818.40

\$33,611.20 per yr. x 15 yrs.=\$504,168.00

\$23,818.40 per yr. x 15 yrs=\$357,276

Truck savings per yr=\$9,792.80

Truck savings in 15 yrs=\$146,892.00

3 DPW employees at \$17.35 hr

2 DPW employees at \$17.35/(1 less guy)

\$17.35 hr. x one 8 hr. day=\$416.40

\$17.35 hr. x one 8 hr. day=\$277.60

\$416.40 per day x 20 days per year=\$8,328.00

\$277.60 per day x 20 days a year=\$5,552.00

\$8,328.00 per yr. x 15 yrs=\$124,920.00

\$5,552.00 per yr. x 15 yrs=\$83,280.00

Labor savings with 1 less guy per yr=\$2,776.00

Labor savings with 1 less guy in 15 yrs=\$41,640.00

Equipment + 3 labor's x 15 yrs=\$629,088.00

Equipment + 2 Labor's x 15 yrs=\$440,556.00

Equipment savings + labor savings with 1 less guy in 15 yrs=\$188,532.00

Based on just jetting 20 days a yr.

City Of Charlotte

Annual Vactor Truck Usage for Wastewater

1. Lift Station Cleaning- 2 days twice a year (16 hours/cleaning) **Total=32 hours**
2. Supernatant Tank Cleaning- 1 day per year/ **Total=8 hours**
3. EQ Tank Maintenance/ 1 day per year **Total=8 hours**
4. Trickling Filter Pump Station/ 1 day per year **Total=8 hours**
5. Drain Pit Maintenance/ 1 day per year **Total=8 hours**
6. Total hours at Wastewater Plant/Lift Stations **Approx.=64 hours annually**

Outside Contractor Cost

Equipment Rental=\$170.00/hr=\$10,880.00

Labor=\$50.00/hr x64=\$3,200.00

Total Annual Cost= \$14,080.00

City with new Vactor Truck

Equipment Rental=\$139.49/hr=\$8,927.36

Labor=\$17.35/hr x64=\$1,110.40

Total Cost= \$10,037.76

Total Savings

\$4,042.24

Cost of new equipment

Sweeper -\$210,000

Jetter -\$70,000.00

Tanker -\$130,000

Total for all three

\$410,400

New Vac Truck

\$400,000.00

PUBLIC ACT 174.... EXCAVATION

