

Memorandum



Date: April 6, 2016

Agenda Item No. 2(B)2

To: Honorable Chairman Jean Monestime
and Members, Board of County Commissioners

May 3, 2016

From: Carlos A. Gimenez
Mayor

A handwritten signature in black ink, appearing to read "Carlos A. Gimenez", written over the printed name of the Mayor.

Subject: Report on the Costs and Benefits of Bringing Major Overhaul Service of Miami-Dade Department of Transportation and Public Works' Buses Back In-house Instead of Contracting Such Services to Third Parties- Directive #151822

This report has been prepared by the Miami-Dade County Department of Transportation and Public Works (DTPW) in response to Board of County Commission (Board) Resolution R-891-15 sponsored by Commissioners Barbara J. Jordan and Daniella Levine Cava directing the Mayor or Mayor's designee to report the costs and benefits of bringing major overhaul service of DTPW buses back in-house instead of contracting such services to third parties to the Board.

The DTPW Bus Maintenance Division currently maintains a fleet of 846 buses stationed at three (3) bus divisions- Northeast, Coral Way, and Central Division- each with a mechanical shop. A fourth major Overhaul/Support Services shop is located within the Central Division, where heavy duty body and engine work is performed. The fleet is currently maintained by 263 bus technicians. Between 2005 and 2014, the technician level dropped by 18 percent, while continuing to service the same number of vehicles which continually increased in fleet age. In order to enhance the level of repairs, a total of 40 maintenance technicians were hired since late 2014.

The active fleet includes buses that were purchased and placed into service as early as 1999. By the end of this year, 70 percent of the fleet will have met the Federal Transit Administration's (FTA) criteria for retirement by having reached more than 12 years of age or having accumulated more than 500,000 miles, as a number of buses having rendered more than 800,000 miles of service. Keeping the older buses running safely and reliably requires more maintenance, including additional engine replacements. However, for a great part of the fleet, specific engine models are no longer produced. Therefore, DTPW must decide whether to purchase remanufactured engines or rebuild them. Currently, the bus fleet requires approximately 120 engine changes per year, which has increased from just a few years ago due to the age of the fleet.

To provide for this recurring need for engine changes, DTPW contracts with major original equipment manufacturers (OEM) to purchase remanufactured engines. There is a distinct difference between a remanufactured and a rebuilt engine. As part of the remanufacturing process, the engine is restored as close as possible to as-new standards with parts meeting dimensional tolerances. Parts are made in the same production processes as original equipment and testing is performed to manufacturer's specifications and original production standards. These engines meet the standard for OEM tolerances, durability, and quality. To rebuild an engine is to recondition a part by cleaning, inspecting, and replacing only worn or broken parts. Serviceable parts are reused if they fit within the manufacturer's acceptable wear limits. The quality of rebuilt components varies from one rebuild to another. At rebuild, all of the components within the unit are equally worn. After rebuilding, some of the components could be new, while some could be the original part that could be functioning properly at the time and does not need replacing (yielding savings) but is still worn to some degree and could be prone to future failure.

The decision to buy a remanufactured engine from vendors, rather than rebuild in-house, is made in the interest of improving bus reliability, cost effectiveness, and the benefits of warranty reclamation. Additionally, DTPW currently assigns two (2) Bus Maintenance Technicians to perform in-house engine rebuilds on an as-needed basis to address any delays in the County's receipt of remanufactured engines from vendors.

The Transport Workers Union Local 291 (Union) has proposed to DTPW that significant cost savings would be achieved by rebuilding engines in-house rather than purchasing remanufactured engines. The Union proposes that the savings will be achieved by re-using key costly components of the engine during the rebuild process through a certification process.

In analyzing the Union's concept, DTPW researched historical data for the life-span of remanufactured and rebuilt engines, and a clear distinction between the two (2) was found. The analysis showed that the average miles to failure for each engine rebuild methodology are markedly different, with remanufactured engines achieving more than 61,000 miles of service before failure than rebuilt engines with new components. The chart below shows the engine miles to failure comparison:

Engine Type	Number of Miles to Failure
Remanufactured Engine	167,910
Rebuilt Engine*	106,187

**Utilizing new parts in the rebuilding process*

Establishing a production schedule for in-house rebuilding of engines would require a large capital investment for equipment and tooling. DTPW's Bus Maintenance Management estimates this start-up cost to be approximately \$1,066,500. It would also require a reoccurring yearly manpower commitment of approximately \$944,000.00.

DTPW is committed to providing clean, safe, and reliable transit services. In order for our bus service to be reliable and on-time, maintenance of the equipment to prevent in-service failures is paramount. DTPW's Maintenance Management believes that reusing components with over 100,000 miles of use during a rebuilding process will increase the likelihood of an in-service failure and will likely reduce the utility of the engine based on its historically low life span, as compared to its remanufactured counterpart.

Within the next 12 to 15 months, DTPW expects to replace approximately 120 engines. Most will go on buses that will be replaced in three (3) years. That, coupled with the fact that most of these engines are obsolete, would make a capital expenditure of over \$1 million impractical.

A heavily weighted advantage of continuing the program of purchasing remanufactured engines is the added benefit of receiving a manufacturer's warranty, which assumes the risk of failures during the warranty period. With an engine rebuilt in-house, DTPW must assume any risks associated with a premature failure.

DTPW considers its current practice of outsourcing for remanufactured engines to be its most effective and efficient manner of maintaining its bus fleet in a state of good repair.

Honorable Chairman Jean Monestime
and Members, Board of County Commissioners
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Pursuant to Ordinance 14-65, this memorandum will be placed on the next available Board meeting. If additional information is required, please contact Alice N. Bravo, P.E., Director of the DTPW, at (786) 469-5406.

c: Alina T. Hudak, Deputy Mayor, Office of the Mayor
Alice N. Bravo, P.E., Director, Department of Transportation and Public Works
Eugene Love, Agenda Coordinator