



Metro

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29

**OPERATIONS COMMITTEE
MARCH 15, 2007**

SUBJECT: FY08 BUS MIDLIFE PROGRAM

ACTION: ESTABLISH LIFE-OF-PROJECT BUDGET

RECOMMENDATION

Authorize the Chief Executive Officer to:

- A. Establish a life-of-project budget for the FY08 Bus Midlife Overhaul Program capital project #203005 in the amount of \$29,500,000 and include the project in the FY08 capital program budget.
- B. Approve the addition of 20 full-time equivalents (FTEs) to the FY08 budget to cost centers 3441, 3442, and 3443 (Central Maintenance) and one FTE in cost center 6350 (Logistics) for support of the Bus Midlife Program.

RATIONALE

The Bus Midlife Program was initiated in FY04 to provide preventive, mid-life maintenance service in an effort to improve the performance and reliability of Metro buses. The Bus Midlife Program targets a series of buses each year. The maintenance services provided include engine package replacements, fuel cylinder replacements, suspension work, body repair, painting, and interior refurbishment (including graffiti abatement) and wheelchair lift maintenance. The scope of work is detailed in Attachment B. One bus midlife overhaul takes approximately 514 hours to complete.

The Bus Midlife Program improves the safety, performance, and reliability of Metro buses. The overall improvements and condition of the program's vehicles contribute to reduced maintenance costs at Metro's bus operating divisions. The program promotes efficient utilization of Central Maintenance's resources by responding proactively with scheduled midlife production rather than reacting inefficiently to unplanned bus performance problems. The program also enables Central Maintenance to cost effectively manage demand for heavy bus repairs.

In January 2005, the Board adopted the FY06 Financial Standards, which require that all capital projects with expenditures greater than \$5 million be approved by the Board separate from Metro's annual budget approval process. The Bus Midlife program is a recurring

project within Metro’s annual budget. For FY07, \$17,058,404 was provided for this program allowing for 200 bus overhauls and 125 engine replacements.

Capital and Operating budget reductions in the last three fiscal years have made it unfeasible for Central Maintenance to increase the number of engine replacements needed to abate an upcoming spike in the number of buses with estimated engine failures. There are 420 engine replacements scheduled for FY08. The Bus Midlife Program includes 250 engine replacements. The remaining 170 engine replacements will be performed under the FY08 RRC Engine Replacement Program. The Bus Midlife Program is critical to prevent significant negative impacts to bus service as can be seen in the table below.

	FY08	FY09	FY10
Estimated Failures	249	640	429
Current Budget Level for Engine Replacements	170	170	170
Buses Out of Service	79	470	259
% of fleet	3.1%	18.6%	10.3%
Proposed Plan	420	429	435

Requested FY08 funding for the Bus Midlife Program is based on the amount of labor hours and parts required to overhaul 250 buses and completion of 250 engine package replacements. Central Maintenance utilizes a scope of work which details each task involved in the Bus Midlife Program to ensure that unless there is significant fluctuation in the cost of parts, the proposed budget will be expended in full in FY08.

In Central Maintenance, an additional 20 FTEs will be required to complete this project including mechanics, painters, body repairers and an equipment maintenance supervisor.

Logistics also requires an additional stock clerk position to manage the increased workload of the program. This will operate and provide storeroom counter services for materials, parts and supplies needed to support the Bus Midlife Program.

FINANCIAL IMPACT

Funding for CP#203005 will be included in the FY08 proposed budget in cost center 3500. This capital project was approved by the Capital Executive Investment Committee and is proposed to be funded in the FY08 capital program with local funds.

In FY08, \$19.2 million will be allocated for parts/materials and contingency; \$10.3 million will be allocated for labor. A detailed financial plan is included in Attachment A.

ALTERNATIVES CONSIDERED

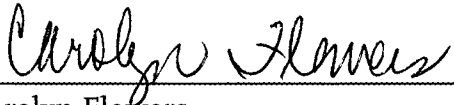
As shown in the above table, failing to proceed with the current proposal will negatively impact the safety, performance, and reliability of Metro buses. The improved overall

condition of the program's vehicles will also help to maintain the life of transit service assets and reduce major maintenance activities at Metro's Bus Operating Divisions.

ATTACHMENTS

- A. Capital Project Funding Plan
- B. Scope of Work for Bus Midlife Overhaul

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Interim Chief Operations Officer



Roger Snoble
Chief Executive Officer

ATTACHMENT A

FY08 BUS MIDLIFE PROGRAM (CP 203005)

Sources of funds (\$millions)	FY07	FY08	FY09	FY10	FY11	FY12	Total
FY08 CP Local Funds		29.500					29.500
							0.000
							0.000
							0.000
							0.000
							0.000
Total	0	29.500	0	0	0	0	29.500

Uses of funds (\$millions)	FY07	FY08	FY09	FY10	FY11	FY12	Total
Acquisition							0.000
Pro Services							0.000
Labor		10.280					10.280
Parts/Material		18.869					18.869
Contingency		0.351					0.351
Total	0	29.500	0.000	0.000	0.000	0.000	29.500

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**REGIONAL REBUILD CENTER
WORKSCOPE OVERVIEW**

Subject: Central Maintenance Midlife Overhaul

Page 1 of 9

Scope:

Defined as repaired, upgrade, or replacement of major mechanical, exterior/interior panels and paint which will enhance the overall performance, increase MDBF and improved appearance. This scope of work is designed to enhance fleet reliability, reduce road calls and lower maintenance costs in the following areas:

- 1) Driver Area
- 2) Front Suspension
- 3) Rear Suspension
- 4) Wheelchair Lift
- 5) Interior Body
- 6) Exterior Body
- 7) Engine Power Plant Assy
- 8) Engine Cooling System
- 9) Fire Suppression
- 10) CNG Fuel Tanks
- 11) Aluminum Rims
- 12) Interior Cleaning
- 13) Final Inspection



**REGIONAL REBUILD CENTER
WORKSCOPE OVERVIEW**

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1. Drivers Area

The driver's area shall be thoroughly inspected, cleaned, repaired, and the decals on the dash instrument and side panels will be replaced.

The following components shall be replaced or rebuild:

- A. Replace front instrument panel decal
- B. Replace side instrument panel decal
- C. Replace defective switches and valves as needed
- D. Replace defroster air ducts
- E. Replace drivers heater ducts
- F. Repair windshield washer tank/lines
- G. Replace wiper motor as needed

20 hours

2. Front Suspension

The front suspension and A-arms shall be thoroughly cleaned, inspected, rebuild, adjusted and tested. The front suspension components shall be brought to O.E.M. standards in the following recommended manner.

The front brake system shall be disassembled, inspected and rebuild if it warrants in accordance with the standards set by Metro.

The following components shall be replaced or rebuild:

- A. Replace upper and lower A-arms
- B. Replace spindles and king pins
- C. Replace tie rods
- D. Replace shocks
- E. Replace air bags
- F. Replace leveling valves
- G. Replace brake chambers
- H. Front end alignment
- I. Replace steering box as needed
- J. Replace steering drive line as needed
- K. Reline as needed

60 hours



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WORKSCOPE OVERVIEW**

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3. Rear Suspension

The rear suspension shall be thoroughly cleaned, inspected, rebuild, and tested. The rear suspension will be brought to O.E.M. standards in the following areas and manner.

The rear brake system shall be inspected and rebuild if it warrants in accordance with the standards set by Metro.

The following components shall be replace or rebuild:

- a. Replace A-frame trunion bushing
- b. Replace transverse radius rod ends
- c. Replace shocks
- d. Replace air bags
- e. Replace leveling valves
- f. Replace differential oil
- g. Replace differential as needed
- h. Alignment of rear end housing
- i. Replace brake chambers
- j. Rear brake reline as needed
- k. Inspected frame and repair as needed
- l. Steam undercarriage
- m. Change r/l rear ABS sensors (6300-6500) series

36 hours



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4. Wheelchair Lift

The wheelchair lift assembly shall be thoroughly cleaned, inspected, adjusted, lubricated, and tested. Major components to be serviced are as follows:

- a. Replace push off springs
- b. Replace side safety barriers as needed
- c. Replace front barrier as needed
- d. Replace drive chins as needed
- e. Replace switches as needed
- f. Lube drive chains
- g. Lube all hinges assy
- h. Final inspection will consist of ten-cycle function test.
- i. Steam wheelchair unit

22 hours

5. Interior Body

The interior shall be thoroughly cleaned and inspected. All graffiti shall be removed. The front and rear doors shall have rods ends and bearings changed. The following components shall be replaced and/or repaired:

- a. Repair / replace passenger bell cords
- b. Replace front and rear modesty panels
- c. Replace missing safety information decals
- d. Replace dome light lens to new style
- e. Replace ceiling panels as needed
- f. Replace or repair rear safety hatch and trim
- g. Replace rear engine seat bulkhead panels
- h. Replace side bulkhead panels
- i. Replace window glass as needed
- j. Replace window guards as needed
- k. Replace seat inserts as need
- l. Replace / repair window latches and shocks as needed
- m. Replace front and rear door control arms/ or ends
- n. Replace/repair rear door touch bars as needed
- o. Modify Engine seat as per Maintenance Directive B98-019

98 hours



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6. Body Exterior

The exterior shall be cleaned, inspected, and repaired. All exterior panels, and caps will be inspected for cracks, corrosion, and accident damage. The exterior will be upgraded to meet the Metro's standards of appearance.

- a. Exterior of bus to be steamed and also engine compartment
- b. Exterior decals removed
- c. Exterior trim removed
- d. All body damage, corrosion, and cracks repaired or panels replaced as needed
- e. Body to be sanded and primed for paint
- f. Body to be painted using the new Metro color standards
- g. Exterior trim installed
- h. Exterior decals installed

92 hours



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7. Power Package Assy

The following components are changed on each bus. By doing so it will lower the MDBF and enhance fleet reliability, reduce road calls and maintenance costs.

- a. Install engine
- b. Install rebuilt transmission
- c. Replace muffler / CAT unit as needed
- d. Install engine drive line
- e. Engine oil filters
- f. Engine fuel filters
- g. Transmission oil filters
- h. Engine air cleaner
- i. Engine fan belts
- j. All fluids

126 hours



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WORKSCOPE OVERVIEW**

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8. Engine Cooling System

The following components are changed on each Power Package change Out. By doing so it will Lower the MBRC and improve the overhaul Reliability, reduce road calls, and maintenance costs.

- a. New or rebuild radiator and charge air cooler unit
- b. Fan gear box
- c. Fan drive line
- d. Fan clutch unit
- e. Transmission heat exchanger unit
- f. Fan
- g. Fan shroud
- h. Top and bottom radiator hoses
- i. Lower radiator tube as needed
- j. Repair radiator unit mounting cradle as needed

12 hours

9. Fire Suppression System

The Fire Suppression will be inspected, serviced, and adjusted to OEM Standards, at time of final inspection.

2 hours



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10. CNG Fuel Tanks

The fuel tanks and lines will be inspected at time of fueling for leaks. This is performed for safety and to improve fuel mileage. The following will be performed if a leak is found:

- a. Repair or replace leaking fuel line or valves as needed
- b. Replace leaking fuel tank as needed

8 hours per set

11. Aluminum Rims

Replace bus wheels. This will improve the temperature of the brake shoes and should improve the miles we get on a set of the front and rear brake linings. These rims also enhance the appearance of the bus.

The following components will be changed:

- a. 4 Aluminum rims
- b. Replace front and rear wheel studs
- c. Front and rear wheel bearings as needed
- d. Hub cap gaskets
- e. Front and rear lug nuts
- f. Rear axle gaskets

8 hours



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12. Interior Clean

- a. Clean dash, seats, and window ledges
- b. Clean interior windows
- c. Remove any interior graffiti
- d. Mop floor and step wells

6 hours

13. Final Inspection

The following items will be inspected to meet C.H.P.'s and Metro's standards; any defects found are corrected at this time.

- a. Interior lights
- b. Exterior lights
- c. Exterior mirrors
- d. Engine oil level
- e. Engine coolant level
- f. Transmission oil level
- g. Exhaust system leaks
- h. Brake system air loss
- i. Interlock system
- j. Front and rear door operation
- k. Touch bars
- l. Farebox installed
- m. Radio installed
- n. Wheelchair operation
- o. Brake rod travel
- p. Fire suppression system

24 hours