



LOS ANGELES FIRE DEPARTMENT

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FIRE CHIEF

October 24, 2012

BOARD OF FIRE COMMISSIONERS
FILE NO. 12-178

TO: Board of Fire Commissioners

FROM: Brian L. Cummings, Fire Chief 

SUBJECT: SUPPLY AND MAINTENANCE DIVISION DASHBOARD REVIEW OF FLEET OPERATIONS

FOR INFORMATION ONLY:	<input type="checkbox"/> Approved	<input type="checkbox"/> Approved w/Corrections	<input type="checkbox"/> Withdrawn
	<input type="checkbox"/> Denied	<input type="checkbox"/> Received & Filed	<input type="checkbox"/> Other

For Information Only

The Los Angeles Fire Department (Department) fleet maintenance operations are reviewed daily by Command staff to ensure that the availability of apparatus and vehicles meets the Department's operational needs. Current indicators of out-of-service vehicles show that the fleet repair workload exceeds available mechanic labor hours and creates a significant challenge to meeting apparatus availability demands.

Summary:

Fire apparatus out-of-service rates recently caused the Supply and Maintenance Division (Division) to analyze fleet maintenance labor requirements, apparatus out-of-service rates, reserve apparatus availability, and operational staffing support and arrived at the following conclusions:

- Staffing vacancies and fleet maintenance requirements are severely impacting the level of service provided by the Department's Maintenance Section.
- Unstaffed positions due to vacancies, job-related absences, the Early Retirement Incentive Program (ERIP), and the Division's current operational structure contribute to escalating out-of-service rates for emergency equipment.
- If steps are not taken to balance the fleet repair workload with available maintenance labor, either by reducing fleet size or by increasing staffing levels to match fleet repair requirements, the out-of-service vehicle count will continue to increase and will eventually result in apparatus not being available to keep emergency equipment at required operational levels.

Of paramount concern is the Department's aging and less reliable fleet, a growing backlog of deferred repairs, and increased maintenance expense. Furthermore, rather than performing scheduled repairs and preventive maintenance on the Department's life saving equipment, the Maintenance Section now primarily and routinely only performs emergency and unscheduled repairs due to deferred repairs and break downs.

Three options to improve the challenges cited above are as follows:

1. Support is needed to fill *authorized* vacant positions in the Division which will increase the number of journey level mechanics working on apparatus and thus improve the ratio of labor to fleet-workload. This option will increase Division staffing *and* workload capacity from approximately 68% to 78% and will allow the Division to continue to repair mission-critical and safety-critical items only with little or no improvement in apparatus availability.
2. Support is needed to fill *authorized* vacant positions in the Division *and* provide funding for available overtime hours. This option will increase the number of journey level mechanics working on apparatus and thus improve the ratio of labor to fleet-workload and will also provide additional labor hours for apparatus repairs. Full authorized staffing and applied available overtime in the Division will increase Division staffing from approximate 68% to 78% and workload capacity from 68% to 90%. This option will allow the Division to perform more scheduled repairs and preventive maintenance, make emergency repairs as needed, and address some deferred repairs.
3. Support is needed to fill ALL authorized positions *and* ERIP vacant positions (eleven ERIP positions; see Attachment A). This option will fully staff the Division and will increase workload capacity without overtime to approximately 95%. With minimal applied overtime and implementation of operational efficiencies, staffing to fleet-workload balance will be achieved and unscheduled repairs will be minimized as the Division focuses on preventive maintenance, scheduled and preemptive repairs, and repairing deferred and backlog items.

In addition to the above cited improvement options, the following fleet repair workload strategies should also be supported:

1. Triage repairs when short on maintenance labor hours to keep apparatus in service. Non mission-critical and non safety-critical defects can be backlogged.
2. Utilize outside service providers for apparatus warranty repairs.
3. Grant backfill authority for all future vacancies to prevent reoccurrence of staffing shortages.
4. Outsource occasional repairs due to surges in workload, staffing shortages, and Department priorities, subject to and compliant with the City Charter 1022 Process and vendor contracts.

5. Apply overtime for periods of workload surges subject to Department apparatus out-of-service rates.
6. Utilize funding from the Municipal Improvement Corporation of Los Angeles (MICLA) to replace older apparatus that exceeds replacement life cycle guideline. New apparatus requires less maintenance than older apparatus and have extended warranties that further reduce Department’s fleet repair workload.

Findings:

Fleet maintenance and repair is inherently labor intensive and proper management and application of this labor is essential for a safe, reliable, and fully functional Fire Department fleet. To this end, it must be understood that the Department fleet requires 61,214 hours of labor per year for maintenance and repairs. Current staffing, however, reduces the number of maintenance hours that are available. Therefore, the Division’s current staffing can only perform 68% of the fleet repair workload. The remaining 32% of workload is deferred or partially accomplished with scheduled overtime. After accounting for overtime, it is found that approximately 20% of needed repairs are still not being addressed.

Staffing Review:

The repair workload generated by the Department’s fleet exceeds the current labor capacity of the Maintenance Section. As a result of this imbalance between the Division’s labor capacity and the workload generated by the Department’s fleet, the availability of apparatus will continue to diminish to the point where there will be insufficient apparatus to meet sworn staffing levels while the cost to deliver a “product” will remain unnecessarily high due to the excessive use of overtime. Given the current size, make up, age, and vocation of the Department’s fleet, Maintenance Section staffing is inadequate in terms of number, type, and deployment of labor hours. Of the five major job class categories at the Supply and Maintenance Division, the following vacancies (as illustrated below) should be filled, thus allowing the Division to regain balance and maintain the fleet properly:

Major Job Class Category	Number of Approved Positions	Number of Vacant Positions	Percentage of Vacancy
Management / Supervision	9	3	33%
Heavy Duty Equipment Mechanics (HDEM) (includes Senior HDEM)	28	2	7%
Equipment Mechanics (includes Senior Equipment Mechanics)	15	0	0%
Journey level craft workers	16	2	12%
Helpers	15	3	20%
Total staffing authorities and vacancies	83	10	12%

Staffing Needs:

The Department's fleet repair workload and the Maintenance Section's staffing level must be balanced in order to provide safe, reliable, and fully functional fire apparatus for all operational contingencies. The following list of vacant positions is in priority order. Filling all of these vacancies will balance the Division's workload and workforce.

1. Automotive Supervisor - 3714 (One Authorized Position vacancy, \$78,132.96 annual salary) – One full-time position is critical to the productivity and efficiency of the Light Vehicle Repair Shop. This vacancy is currently staffed by an Automotive Electrician. The regular appointment of an Automotive Supervisor to this position will allow the Automotive Electrician's labor hours to be applied directly to apparatus repair.
2. Senior Automotive Supervisor - 3716 (One Authorized Position vacancy, \$90,055.44 annual salary) – One full-time position is critical for efficient and economical management of fire fleet maintenance and repair. A full-time position is necessary for training and safety and to ensure compliance with relevant laws. A second Senior Automotive Supervisor vacancy is not currently staffed. These administrative duties are absorbed by other craft and supervisory personnel which reduces their labor hours directly applied to repair the fleet. The regular appointment of a Senior Automotive Supervisor will ensure compliance with relevant laws, statutes, and mandates related to budget, safety, training, environment, and hazardous materials.
3. Equipment Repair Supervisor - 3746 (One Authorized Position vacancy, \$82,538.64 annual salary) – One of five authorized Equipment Repair Supervisor (ERS) positions is vacant due to one member in this classification promoting and transferring to the Department of Water and Power (DWP). This full-time supervisory position is critical to the economic recovery of warranty dollars spent on new vehicle extended warranties. Currently, all front-line supervisors and various craft personnel periodically arrange and/or perform warranty repairs, but all warranty repairs are not being effectively realized. Appointing one ERS to supervise warranty repairs will allow other supervisory and craft workers' labor to be directly applied to non-warranty fleet repairs thus allowing the City to utilize many other local repair resources at no cost to the City. This appointment will result in the economic recovery of warranty dollars spent on new vehicle extended warranties and will further allow for the labor hours of other supervisory and craft workers to be applied directly to heavy apparatus repairs.
4. Senior Heavy Duty Equipment Mechanic - 3745 (One Authorized Position vacancy, \$77,610.96 annual salary) – One Senior Heavy Duty Equipment Mechanic position is vacant due to an employee transfer to DWP. This vacancy is currently staffed by a Heavy Duty Equipment Mechanic. The regular appointment of a Senior Heavy Duty Equipment Mechanic to this position will allow one Heavy Duty Equipment Mechanic's labor hours to be applied directly to apparatus repair.

5. Heavy Duty Equipment Mechanic – 3743 (One Authorized Position Vacancy, \$76,274.64) -Vacancy is due to resignation of one Heavy Duty Equipment Mechanic. Hiring one employee in this classification will reduce heavy apparatus repair backlog and will allow for faster return to service of defective apparatus.
6. Auto Body Builder and Repairer - 3704 (Two Authorized Position vacancies, \$67,463.28 annual salary) – Two Auto Body Builder and Repair positions are vacant due to a promotion and a transfer to DWP, but the workload remains. Hiring at least one employee in this classification will reduce Body Shop vehicle accident backlog and will allow for faster return to service of vehicles that come into the shop. Currently, no one employee is filling this vacancy.
7. Mechanical Helper - 3771 (Three Authorized Position vacancies, \$50,821.92 annual salary) – Hiring three employees in this classification will reduce heavy and light vehicle backlog and will provide needed staffing in the carpenter shop for ground ladder inspections.

Classification	Salary	Number of Authorized Vacancies	Cost
Automotive Supervisor	\$78,132.96	1	\$78,132.96
Senior Automotive Supervisor	\$90,055.44	1	\$90,055.44
Equipment Repair Supervisor	\$82,538.64	1	\$82,538.64
Senior Heavy Duty Equipment Mechanic	\$77,610.96	1	\$77,610.96
Heavy Duty Equipment Mechanic	\$76,274.64	1	\$76,274.64
Auto Body Builder and Repairer	\$67,463.28	2	\$134,926.56
Mechanical Helper	\$50,821.92	3	\$152,465.76
TOTAL Cost to Fill All These Vacancies		10	\$692,004.96

Repair Capability:

The Department's Maintenance Section fleet staff is currently at a 12% vacancy factor. A Mechanical Repair Unit (MRU) is a nationally recognized measure of automotive repair capability used to measure fleet repair staffing requirements. Each unit represents 13.2 hours of hands-on repair work done by an authorized mechanic. As an example, a sedan requires 1.1 MRUs (14.5 hours) as compared to an Aerial Truck that requires 13 MRUs (171.5 hours). When total fleet staff is compared to the fleet MRU value, the Department is operating at 26.5% less than the median value of four other cities' fleet operations departments. Alternatively, when total mechanic staff is compared to the fleet MRU value, the Department is operating at 13.3% less than the median value of four other cities' fleet operations departments.

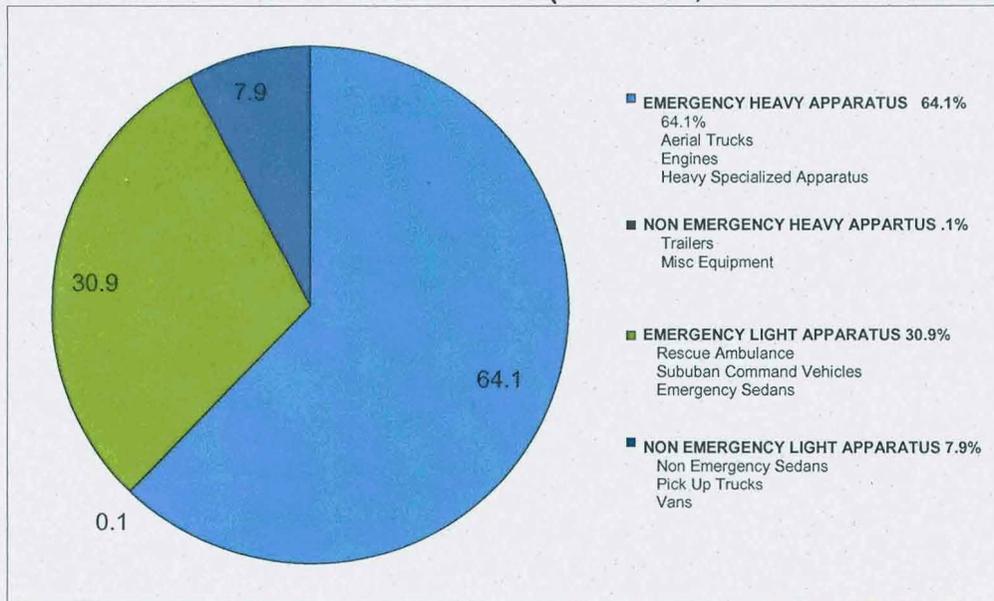
FLEET MRU COMPARISONS: LAFD VS OTHER CITY FLEET SERVICES

	LAFD SHOPS	CITY OF SEATTLE FLEET SERVICES	CITY OF SACRAMENTO FLEET SERVICES	CITY OF LONG BEACH FLEET SERVICES	CITY OF FT WORTH FLEET SERVICES	MEDIAN VALUES
FLEET SIZE	1201	4365	2281	2095	3487	
FLEET MRU RATING	4637	7135	3708	4376	5794	
TOTAL FLEET STAFF	71	123	93	87	126	
FLEET STAFF PER 100 FLEET MRU	1.53	1.72	2.51	1.99	2.17	2.08
TOTAL MECHANIC STAFF	42	67	36	49	82	
FLEET MECHANICS PER 100 FLEET MRU	0.91	0.94	0.97	1.12	1.42	1.05

Current Use of Overtime:

The MRU analysis shows that in general, the Maintenance Section is operating with a shortage of approximately 19,628 mechanic labor hours per year. The amount of labor required for maintenance and repair work only is approximately 38,150 hours per year for heavy apparatus, and approximately 23,064 hours per year for light apparatus.

DISTRIBUTION OF REPAIR WORKLOAD GENERATED BY THE USAGE OF LAFD FLEET BY GENERAL APPARATUS CATEGORY (TOTAL 61,214 HOURS ANNUAL)



Presently, mechanic straight time addresses 68% of the heavy apparatus workload and 67% of the light apparatus workload. Overtime hours that are currently available cannot fully address the imbalance between repair workload and available mechanic straight time labor. On heavy apparatus straight time and overtime hours allow the Division to address about 80% of the heavy apparatus workload, but leaves a deficit of approximately 7,581 hours of repair labor year that is not performed. On the light vehicle side, straight time and overtime hours allow the Division to address about 76% of the light vehicle workload, but leaves a deficit of approximately 5,544 hours of repair labor that goes undone every year. The effects of this deficit or "imbalance" of labor to fleet workload are:

1. An increase, over the last four years, in emergency apparatus out-of-service rates and the length of time the apparatus is out-of-service. This has resulted in a diminishing availability of emergency apparatus in the reserve fleet categories of Aerial Truck, Engine, and Rescue Ambulance.

Emergency Apparatus	Average Percent Out of Service (Reserve Fleet)		Number of Days Out of Service (Reserve Fleet)	
	FY 2007-08	FY 2011-12	FY 2007-08	FY 2011-12
Aerial Trucks	69%	100%	66 days	99 days
Engines	51%	72%	58 days	108 days
Rescue Ambulances	26%	46%	31 days	60 days

2. Overtime for this fiscal year continues in the same trend as the last two fiscal years.

Maintenance Section Overtime Costs over 3 Fiscal Years			
	FY 2008/09	FY 2009/10	FY 2010/11
Overtime costs	\$933,962	\$827,373	\$847,564

If current overtime trend continues and is extrapolated to the end of this fiscal year, the projected overtime cost will be in the range of \$1,047,000 without impacting or affecting the volume of incoming work, nor decreasing the ongoing backlog.

3. The number of labor hours devoted to “daily quick repairs” or unscheduled repairs are almost equal to the number of labor hours devoted to scheduled or “change-over” repairs. Scheduled repairs accounted for 59% of total labor hours while 41% are devoted to “quick repairs” or “in and outs.” Last fiscal year, over 973 hours were devoted to after-hours emergency repairs due to apparatus break downs at a cost of approximately \$52,804.
4. The number of “backlogged” or “deferred” repairs is trending upwards and remains consistently high. During the last twelve months, approximately 3,870 repair “defects” were reported and corrected by fleet staff while over 2,011 repair defects (52%) have been deferred. These repair defects continue to stream in daily.

5. Fleet maintenance is required for new and old vehicles. The same amount of money will be spent to maintain new and used (older) vehicles. When vehicles break is the issue at hand. Costs rise due to worn parts. An older fleet costs more to maintain. More maintenance is more time. More time will require a larger staff or the replacement of vehicles. The current life cycle of 15 years for heavy apparatus and six-to-eight years for light apparatus has been found to be the breaking point for cost benefit on fleet maintenance. New vehicles only come with a five-year warranty.

Fleet Replacement Overview

Reduced MICLA money to replace heavy apparatus (Aerial Trucks and Engines) contributes to the Department's aging fleet which in turn creates additional repair needs for vehicles that are older and less reliable.

The following chart represents the decreasing amount of monies that have been spent in the past five years.

MICLA Five Year History Fleet Replacement (including Communications) Budget			
	<u>Budget Year</u>	<u>Amount Requested</u>	<u>Adopted Budget</u>
1)	2012 – 2013	\$23,949,862	* \$19,075,000
2)	2011 – 2012	\$26,697,548	\$ 6,826,792
3)	2010 – 2011	\$26,262,174	\$ 6,111,838
4)	2009 – 2010	\$27,388,972	\$0
5)	2008 – 2009	\$25,147,997	\$25,147,997
*Includes \$14,975,000 for Fleet replacement and \$4,100,000 for Mobile Radios and Mobile Data Computers replacement.			

Since the fleet replacement cycle has been modified in the last three years, only Rescue Ambulances have been purchased, leaving aerials and engines in service longer than the replacement cycle of every 15 years. The actual MICLA amount needed to meet the Department's fleet replacement cycles as outlined in Attachment B is approximately \$50 million. This does not take the whole Department's fleet into account as that amount would be higher with the inclusion of helicopters and boats. The more reasonable figure of \$50 million would cover Aerial Trucks, Engines, and Rescue Ambulances. Considerable attention was given to developing the tiered MICLA requests for FY 2012-13. Should an effort to support an increase in the amount of MICLA funds allocated to the Department occur, a new list will be developed with a prioritized Spending Plan.

There has been an increase in emergency apparatus out-of-service rates throughout the Fire Department fleet as well as and overall increase in apparatus repair costs. The number of backlogged repairs has also increased as the number of aging apparatus increases. Old vehicles require more maintenance to stay on the road, and the Department's fleet is no different. This is evidenced by an 18% increase in the number of annual repair orders during the last four years.

Conclusion:

The Department's efforts to balance workforce labor and fleet requirements have been strained to the point of unprecedented repair backlogs and out-of-service rates. The repair time and rate can only be improved by increasing the labor work force and reducing the number of repairs of an aging fleet. Labor and fleet issues need immediate attention to ensure that the needs of the Department's first responders are met with consistent and timely repairs and support by the Supply and Maintenance Division.

Board report prepared by Tony Varela, Assistant Chief, Supply and Maintenance Division.

Attachments:

- A. List of ERIP vacant positions and salaries cost
- B. Proposed Fleet Replacement Program (MICLA)

Attachment A

ERIP Vacancies

1. Heavy Duty Equipment Mechanic (3743) – four
2. Senior Equipment Mechanic (3712) – two
3. Mechanical Repairer (3773) – one
4. Senior Automotive Supervisor (3716) – one
5. Senior Garage Attendant (3533) – one
6. Machinist (3763) – one
7. Sheet Metal Worker (3775) – one

Total: 11

The total cost to fill all these vacancies is \$1,489,036.30

Classification	SALARY	Number of Authorized Vacancies		Number of ERIP Vacancies	
			Cost		Cost
Automotive Supervisor	\$ 78,132.96	1	\$ 78,132.96	0	\$ 0.00
Senior Automotive Supervisor	\$ 90,055.44	1	\$ 90,055.44	1	\$ 90,055.44
Equipment Repair Supervisor	\$ 82,538.64	1	\$ 82,538.64	0	\$ 0.00
Heavy Duty Equipment Mechanic (HDEM)	\$ 76,274.64	1	\$ 76,274.64	4	\$305,098.56
Senior HDEM	\$ 77,610.96	1	\$ 77,610.96	0	\$ 0.00
Senior Equipment Mechanic	\$ 69,426.00	0	\$ 0.00	2	\$138,852.00
Mechanic Repairer	\$ 65,625.84	0	\$ 0.00	1	\$ 65,625.84
Auto Body Builder and Repairer	\$ 67,463.28	2	\$134,926.56	0	\$ 0.00
Mechanical Helper	\$ 50,821.92	3	\$152,465.76	0	\$ 0.00
Senior Garage Attendant	\$ 50,279.04	0	\$ 0.00	1	\$ 50,279.04
Machinist	\$ 71,346.96	0	\$ 0.00	1	\$ 71,346.96
Sheet Metal Worker	\$ 75,773.52	0	\$ 0.00	1	\$ 75,773.52
TOTAL		10	\$692,004.96	11	\$797,031.36
TOTAL COST	\$1,489,036.30				

Attachment B

Proposed Fleet Replacement Program (MICLA)
 With Radio Replacement Handi-talkie Radio Replacement

DESCRIPTION	Quantity in Service	Cost per Vehicle	Quantity to Purchase	Total Cost
Apparatus, 100' Aerial Trucks	56	\$803,313.00	15	\$12,049,695.00
Apparatus, Engines**	204	\$590,000.00	30	\$17,700,000.00
Suburbans (Emergency) Command	58	\$73,967.00	25	\$1,849,175.00
Ambulance	205	\$149,000.00	21	\$3,129,000.00
Brush Patrol	13	\$153,444.00	8	\$1,227,552.00
Utility Service Truck	11	\$62,199.00	6	\$373,194.00
Sedans (Emergency)	99	\$24,664.00	40	\$986,560.00
Pick-Up Truck Crew Cab	63	\$38,498.00	24	\$923,952.00
AFV Sedans (Non-Emergency)	69	\$27,721.00	20	\$554,420.00
Sedans (Non-Emergency)	177	\$16,217.00	75	\$1,216,275.00
Generator, Trailerable	7	\$43,995.00	3	\$131,985.00
Swift Water Rescue Vehicle	5	\$121,888.00	1	\$121,888.00
Van, Side Load 8600 GVW	30	\$42,637.00	6	\$255,822.00
Van, Passenger	16	\$38,229.00	4	\$152,916.00
Crash (AFFR)	2	\$1,423,489.00	1	\$1,423,489.00
Road Grader, Cat	1	\$309,395.00	1	\$309,395.00
Dozer Cat D-8	3	\$1,232,282.00	1	\$1,232,282.00
Dozer Tender	3	\$116,114.00	2	\$232,228.00
Dozer Trailer 60-Ton	1	\$78,770.00	1	\$78,770.00
			Total	\$43,948,598.00
RADIO PACKAGE				
100' Aerial Trucks			15	\$602,400.00
Ambulance			21	\$173,792.00
Suburbans			25	\$1,788,461.00
Pick-up's and Light Vehicles (NE)			135	\$1,755,000.00
Heavy - Other			14	\$462,000.00
Light Vehicles - Emergency			41	\$1,353,000.00
** Apparatus, Engines Includes Radios			Total	\$6,134,653.00
TOTAL MICLA (APPARATUS + RADIOS)			Total	\$50,083,251.00