

**CIPFA PROFESSIONAL EXAMINATION 3
FINANCE AND MANAGEMENT CASE STUDY EXAMINATION JUNE 2003**

MALTSHIRE POLICE AUTHORITY

TUTORIAL GUIDE

1 General Comments

- (a) It is important that candidates answer all the questions as set.
- (b) Where illustrative figures or information are asked for in a question, or their use is implied in the data, then they must be shown in the candidate's answer.
- (c) Evasion of the terms of the question on the grounds that the situation depicted in the Case Study is unlikely to have arisen or occurred, or is improbable in concept, should be penalised.
- (d) Working papers submitted with answers should be scrutinised and used to test the candidates' line of argument in unfinished work and as a guide to the method by which the candidates have utilised their acquired knowledge to deal with the various aspects of the case study.
- (e) Detailed calculations are set out in the appropriate attached appendices. It must be emphasised that these are not 'model answer' figures but are based upon what are judged to be the 'best' assumptions made in answering the question. Candidates should not therefore be judged on whether they got the figures 'right', but on how they reached their figures and how reasonable are their assumptions and arguments.

2 Synopsis of Case

Maltshire is the largest and one of the most rural of the ten shires that comprise the fictional Northern European island of Wisky. Barleytown, its capital city, provides headquarters for both Maltshire Council and the Maltshire Police Authority (MPA), which has responsibility for all law and order matters within the shire. The MPA, created in 1993 as a result of the reorganisation of the forces in Wisky, is divided into 4 Police Divisions and operates a fleet of 700 vehicles, which are serviced and maintained through five MPA-operated vehicle workshops. There is a sixth workshop, unused since 1993 and currently let to a local golf club for storage purposes.

The recently appointed Chief Constable (CC) and Assistant Chief Officer (Finance) are keen to bring best practice and a more commercial approach to the MPA. In addition, the CC is concerned about the allocation of spending and is eager to see resources transferred from support services to front line policing. One early step is to create a VFM and Projects Section within the audit operation and the candidate takes on the role of the VFM and Projects Officer.

The Fleet Management operation is one of the areas identified for VFM study. This not only reflects the significant size of its gross budget, but also operational concerns. There is felt to be over-capacity in the five workshops and the Chief Constable is eager to close one in order to generate revenue savings. In addition, there is dissatisfaction with the quality of some of the work carried out in the workshops, the number of subsequent breakdowns, the amount and timing of recharges, and the lack of formal service standards and a customer focused approach.

The candidate is required to carry out a review of the vehicle workshops, determine which should be closed and draft a report to the Chief Constable on the implications of this. The Workshop Quality Workgroup, established to resolve the service, quality and recharging related matters, has called for a further short report on these wider issues. Finally the golf club lease on the sixth workshop has ended and the candidate is required to consider the various options available on this, as well as potential audit implications thrown up by the workshop review.

The case material also gives candidates full opportunity to demonstrate their understanding of the case material, their ability to apply management knowledge and their skill at communicating relevant information clearly and tactfully.

Aims

- (a) To test candidates' understanding of the case material and particularly the potential audit issues raised by some of the content;
- (b) To test their ability to recognize and comment upon the potential audit issues requiring investigation at the Elgin Workshop;
- (c) To test their ability to analyse and evaluate the issues and costs relating to the Aberfeldy Workshop;
- (d) To test their ability under severe time pressure to prepare a briefing note on these issues for the ACO (Finance).

Assessment

- (a) Identification of and comment upon the potential audit issues requiring investigation at Elgin Workshop (60%) (12 marks)
 - Comment upon the “monthly visits” by James Grant to see Tel Lisker, the manager at Elgin Workshop, querying - 24
 - the purpose of these visits
 - the possibility that this relates to the Golf Club income
 - whether this money is being paid in
 - if so, how and where is it being coded;
 - Comment about the lack of knowledge/paperwork re the Aberfeldy lease (are there others?) and the involvement of the former Chief Constable (was this official?)
 - A note that confidential information is being leaked (letters from James Grant and Fiddick Factors) – from Elgin workshop?
 - A note that the letter from the Health & Safety Manager is not conclusive in itself and comment that Health & Safety breaches have risk management implications which in turn have financial consequences -
 - fire risk - unsafe storage of parts, smoking near petrol, use of mobiles near pumps
 - accident risk – unsafe storage of parts, car support, safety clothing, faulty hose;
 - A note that there is a clear lack of health and safety awareness/compliance and the need for further training in this area;
 - Comment that, in terms of staffing, there is further evidence in the letter from the Health and Safety Manager of overcapacity, excessive non-productive time and poor workload planning;
 - Examination of the cost of spares at Elgin Workshop and the purchase records –
 - calculation of the cost of spares per vehicle and per service for Elgin Workshop
 - comparison of this with the unit costs for the workshops as a whole
 - comparison with the unit costs for the workshops as a whole, net of Elgin costs
 - conclusion that the costs are very high comparatively
 - comment that an untidy workshop makes stock control difficult; 20
 - a note that spares are being purchased on a frequent basis from a non-contract supplier, usually at higher costs 26
 - comment that some of the spares purchased (rear bumper and front wing) do not relate to routine maintenance 26
 - a note of the comments made by the Shire Council Health and Safety Officer
 - specific reference to the wing being fitted to a very old car 20,26
 - comment upon the letter from Fiddick Factors and the reference to “my contacts” 17
 - a query whether Glen Morangie, a director at Fiddick Factors, and Glyn Morangie, Stores Officer at Elgin Workshop are related and, if so, whether this has been declared to the MPA; 17,20

- Examination of the fuel issue costs at Elgin Workshop –
 - calculation of the cost of fuel per vehicle and per service (as a proxy for mileage) for Elgin Workshop
 - comparison of this with the unit costs for the workshops as a whole
 - comparison with the unit costs for the workshops as a whole, net of Elgin costs
 - conclusion that the costs are very high comparatively
 - a note of the comments made by the Shire Council Health and Safety Officer
 - a query about why petrol is being put into plastic containers;
- Examination of the water usage costs at Elgin Workshop –
 - calculation of the cost of water per vehicle and per service for Elgin Workshop
 - comparison of this with the unit costs for the workshops as a whole
 - comparison with the unit costs for the workshops as a whole, net of Elgin costs
 - conclusion that the costs are very high comparatively
 - a note of the offer made to Ed Radour on his visit
 - a note of the comments made by the Maltshire Council Health and Safety Officer
 - a query about the lorry being steam-cleaned – police vehicle?
- Overall conclusion that, whilst there is no absolute proof of wrongdoing or of who might be involved, there are certainly strong grounds for further investigations on the basis of the analysis carried out.

20

NOTE For suggested calculations see Appendix 1A, but note comments in 1(e) above

(b) Analysis and evaluation of the issues and costs relating to the Aberfeldy workshop. (25%) (5 marks)

- A note that the Aberfeldy Workshop was closed at the last police reorganization in 1993; (i),6
- Comment that it is still used for two weeks a year for police training exercises; 24
- A note of the options to be considered –
 - advertise the lease and let at market rent 29
 - issue a new lease on new terms to the Highland Park Golf Club 24
 - sell the property; 19,29
- Calculation and comparison of the revenue effects of each;
- Conclusion and recommendation that a renewed lease with the Golf Club is probably the best option as it –
 - generates the best income stream
 - maintains the workshop's use for police training.
- Comment that the lease arrangement needs to be formalized with a proper agreement and contract drawn up.

NOTE For suggested calculations see Appendix 1B, but note comments in 1(e) above

(c) Presentation, format, tact and general readability. (15%) (3 marks)

APPENDIX 1A

QUESTION 1

	Workshops	Elgin	Net *	PAGE
	£	£	£	
<u>1. Spares</u>				
Cost	525,000	141,600	383,400	18
No. of vehicles	700	156	544	6
No. of services	4,402	874	3,528	28
Cost per vehicle	750	908	705	
Cost per service	119	162	109	
<u>2. Water</u>				
Cost	10,100	5,100	5,000	13
No. of vehicles	700	156	544	6
No. of services	4,402	874	3,528	28
Cost per vehicle	14	33	9	
Cost per service	2	6	1	
<u>3. Fuel</u>				
Cost	2,500,000	675,000	1,825,000	18
No. of vehicles	700	156	544	6
Cost per vehicle	3,571	4,327	3,355	

* Total workshops excluding Elgin

APPENDIX 1B

QUESTION 1

		Aberfeldy	PAGE
<u>1. Lease of Aberfeldy</u>			
Current rent	£125 per month	1,500	24
Options			
Option 1 – Golf Club	£250 per month	3,000	24
Option 2 – Market rent	120 sq mtres @ £20	2,400	6,29
Option 3 – Sell (£45,000)	Interest @ 4%	1,800	19,29

4. Question 2

Aims

- (a) To test candidates' ability to understand, collate, analyse and evaluate a considerable volume of financial and non-financial data;
- (b) To test candidates' ability to analyse and critically appraise the workflow demands in comparison with available resources at the five vehicle workshops, in order to identify the amount and location of spare capacity;
- (c) To test candidates' ability to consider the rationalisation options as regards the operation of the remaining workshops, to calculate potential savings and to comment upon the wider implications of those proposals;
- (d) To test candidates' ability to consider the management, operational and accounting implications of closing one of the workshops and the actions required in preparation for this once a final decision has been made;
- (e) To test candidates' ability to produce a well-structured and meaningful major report addressing all these issues for the Chief Constable.

Assessment

- (a) Background to the report and production of projected outturn figures for 2003 analysed across the five workshops as well as Central Fleet Management. (20%) (8 marks)
 - General background to the report and identification of the main objectives –
 - attribution of the workshops budget over the five workshops
 - identification of which workshop should be closed
 - consideration of how this will be achieved and its implications
 - Projected outturn figures for 2003 analysed across the five workshops and central Fleet Management through collation of the figures for -
 - staffing costs 10
 - premises costs 13
 - supplies and other costs 18
 - capital charges 19
 - general overheads; 5
 - A comparison of the projected outturn with the original budget for 2003; 5
 - A note that this produces a budget saving of £14,000;
 - An explanation that this reflects lower than expected inflation and savings on some premises heads as well as a more accurate estimate of expenditure on spares and consumables.

NOTE For suggested points see Appendix 2A, but note comments in 1(e) above.

- (b) Through an analysis of work-flows at the five workshops and a comparison with available resources in terms of direct hours, identification of spare capacity in each of the workshops. (20%) (8 marks)
 - A note of the annual work hours per employee (52 weeks at 37½ hours per week); 21
 - Calculation of direct hours for foremen and mechanics (annual work hours at 40% and 60% respectively); 21
 - Calculation of the direct hours available in each of the five workshops;
 - A statement of the direct hours required based upon prior years' analysis; 28
 - A comparison of direct hours available and direct hours required;
 - A statement of the surplus direct hours in each workshop.

NOTE For suggested calculations see Appendix 2B, but note comments in 1(e) above.

(c) Consideration of the options for closure and the likely savings to be achieved together with evaluation of the wider issues involved in closing one of the workshops. (30%) (12 marks)

- A comment that there are two candidates for closure on the basis of the surplus direct hours criterion – Dronach and Elgin;
- A comparison of the financial and non-financial factors affecting the two options;
- Calculation of the net savings from both options –
 - a note of the direct hours requirement from both closure options and how these would be met by other workshops and the transfer of mechanics-
 - Elgin closure offset by spare capacity at Dronach & calculation of the shortfall
 - Dronach closure offset by spare capacity at Elgin and Cadam
 - calculation of net saving in terms of number of mechanics for both workshops
 - calculation of net staff savings through closure at both workshops
 - calculation of the net premises running cost savings achieved through closure
 - a note of the rent saving on Dronach
 - a note that supplies/other costs will be unaffected by either closure
 - a note of the saving on capital charges as a result of the sale of Elgin
 - a note of the 2003 one-off costs of the closures and how these will be met
 - a note of the potential capital receipt from the sale of Elgin;
- Summary figures showing that –
 - the closure of Dronach produces higher ongoing revenue cost savings and has less impact through one-off costs
 - the closure of Dronach avoids the lease review in 2004 and a likely significant increase in rent
 - the closure and sale of Elgin produces a large capital receipt;
- Examination of non-financial considerations –
 - Elgin is the most modern workshop with the capacity to take additional work 20
 - it is the closest to HQ where the largest proportion of vehicles are based 20
 - it is the most economic in terms of premises and maintenance costs
 - Dronach is not owned by the MPA, its rent is not cheap and this is subject to periodic rent reviews 12,20
 - it is the smallest of the workshops with the lowest workload (productive hours) 6,28
 - its closure allows utilisation of the spare capacity at Cadam and produces the better staffing fit 16
 - it has a poor reputation for quality of work; 9,15,28
- Conclusion that –
 - the better option is to close Dronach and utilise the spare capacity at Cadam and Elgin
 - a figure of £10,000 will need to be found in 2003 to meet this, but it can be found out of the projected outturn saving
 - this option does not meet the target saving of £250,000 set for 2004, even when the ongoing projected outturn saving is taken into account;
- Consideration of other saving options –
 - Spare capacity in excess of 200 hours – use of part time mechanics?
 - review workshop operations and try to increase the direct hour percentages (leading to longer term staff reductions?)
 - review purchasing policy for spares and consumables (central purchasing, stricter purchase control?)
 - review central overheads in the light of the closure;
 - where is the income for the sixth workshop?

NOTE For suggested calculations see Appendix 2C, but note comments in 1(e) above

(d) Consideration of the management (staffing, facilities, operations) and accounting implications of closing the recommended workshop and a note of the actions required of the Fleet Manager in these respects as preparation for 31 December 2003 and the new structure. (20%) (8 marks)

- Consideration of staff-related issues –
 - immediate discussions with Personnel to develop a communication and implementation action plan for the workshop rationalisation
 - continuation of the policy of not making any further permanent appointments pending implementation
 - early discussions with the staff, their representatives and union officials about the planned changes and the staff reductions
 - offer of one to one staff meetings re transfers, early retirements etc.
 - regular ongoing communication throughout the process
 - a review of current staffing to identify posts filled on a temporary basis, early retirement possibilities, transfer options and the need for redundancies
 - if redundancies are likely, determination of a redundancy strategy to reflect any existing policy
 - to avoid too great an effect on staff morale, early determination of, and communication on, how the staff rationalisation will be achieved
 - offer of staff counselling, if required
 - issue of formal letters to those affected to meet statutory requirements;
- Consideration of property related issues and actions –
 - early discussion with the Facilities Officer re the property implications of the proposed closure and to ensure minimum disruption
 - if Dronach, confirmation of the lease position as regards termination notice and any other conditions
 - if Elgin, get approval and plan for sale
 - action plan for –
 - preparatory work/improvements at the receiving site(s)
 - removal of stores and small equipment to the receiving site(s)
 - issue of orders for removal of larger fixed equipment and reinstallation at the receiving site(s)
 - emptying and removal (?) of underground fuel tank at the closure site
 - meter readings and discontinuation of supplies at the closure site
 - renewal or updating of relevant equipment maintenance contracts
 - updating of inventories and stock records;
- Liaison with key uniformed personnel and the senior police officers responsible for the North and West Divisions –
 - to discuss operational implications of closing one of the three workshops in their areas
 - to re-allocate vehicles to the two remaining workshops in accordance with the resources available
 - allocation of store contents in accordance with this;
- Consideration of accounting and costing issues –
 - implement new budget basis for 2004
 - review coding and costing structure for post-implementation
 - ensure that Fleet staff are fully aware of these
 - ensure payments and charges are correctly coded from January 2004
 - liaise with the Shire Council Payroll Section to ensure that staff costs/pensions are correctly allocated from January 2004.

21

(e) Presentation, format, readability and general logic of approach/argument (10%) (4 marks).

APPENDIX 2A

QUESTION 2

	Total	Central	Workshops	Burgie	Cadam	Dronach	Elgin	Farclas	PAGE
		£	£	£	£	£	£	£	
1. Projected outturn 2003									
Staffing									
Administration	117,300	117,300	0	0	0	0	0	0	10
Workshop Managers	124,700	0	124,700	25,300	24,400	25,300	26,100	23,600	10
Supervisors	96,200	0	96,200	19,700	20,400	18,500	19,100	18,500	10
Stores Officers	78,000	0	78,000	15,400	14,900	15,900	16,400	15,400	10
Mechanics	500,300	0	500,300	92,400	92,400	93,000	130,100	92,400	10
Training	6,000	1,000	5,000	1,000	1,000	1,000	1,000	1,000	10
	922,500	118,300	804,200	153,800	153,100	153,700	192,700	150,900	
Premises									
Building Maintenance	42,400	0	42,400	11,000	10,800	11,100	3,400	6,100	13
Cleaning	6,600	0	6,600	1,700	1,300	1,100	1,300	1,200	13
Energy	45,250	0	45,250	9,850	7,500	11,600	7,600	8,700	13
Water (metered)	10,100	0	10,100	1,300	1,400	1,100	5,100	1,200	13
Rates	65,150	0	65,150	15,850	15,000	10,500	16,500	7,300	13
Rent	35,000	0	35,000	0	0	35,000	0	0	13
	204,500	0	204,500	39,700	36,000	70,400	33,900	24,500	
Supplies & Other									
Equipment Maintenance	22,700	800	21,900	3,900	4,200	3,600	4,700	5,500	18
Spares & Consumables	525,000	0	525,000	103,300	89,200	91,500	141,600	99,400	18
Petrol	2,500,000	0	2,500,000	475,000	450,000	425,000	675,000	475,000	18
Office Expenses	5,800	3,900	1,900	300	400	300	600	300	18
	3,053,500	4,700	3,048,800	582,500	543,800	520,400	821,900	580,200	
Capital Charges									
Charges	60,000	0	60,000	14,000	13,500	0	17,000	15,500	19
Direct/Indirect Expenditure	4,240,500	123,000	4,117,500	790,000	746,400	744,500	1,065,500	771,100	
Central Overheads ¹									
Admin Buildings-Central	9,000								5,18
Corporate Services	7,000								5,18
Propty Insurance-W/shops	18,000								5,18
Shire Services	11,500								5,18
	45,500								
Total Expenditure	4,286,000								
1. Budget Comparison 2003									
Original Budget	4,300,000								5
Projected outturn	4,286,000								
Saving	14,000								

¹ Candidates who have allocated central overheads over Central and the 5 workshops here should not be penalized. See Question 3 Appendix 3B for the figures

APPENDIX 2B

QUESTION 2

				PAGE						
				Workshops	Burgie	Cadam	Dronach	Elgin	Farclas	
<u>1. Workshop Capacity</u>										
Hours per annum	=	37½ x 52	= 1,950							21
Direct Hours Basis										
Supervisors	@	40%	= 780							21
Mechanics	@	60%	= 1,170							21
Staff										
Supervisors	No.			5	1	1	1	1	1	10
Mechanics	No.			27	5	5	5	7	5	10
Direct Hours										
Supervisors	No.			3,900	780	780	780	780	780	
Mechanics	No.			31,590	5,850	5,850	5,850	8,190	5,850	
				<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	
				35,490	6,630	6,630	6,630	8,970	6,630	
<u>2. Workshop Demand</u>										
Direct Hours worked										
Maintenance	No.			27,381	6,006	5,553	4,340	5,421	6,061	28
Breakdowns	No.			942	192	78	321	206	145	28
Tyres/Exhausts	No.			777	159	168	132	151	167	28
				<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	
				29,100	6,357	5,799	4,793	5,778	6,373	
<u>3. Workshop Comparison</u>										
Surplus (Deficit) Direct Hours				6,390	273	831	1,837	3,192	257	

APPENDIX 2C

QUESTION 2

				Dronach	Elgin	PAGE
1. Direct Hours Requirements						
Current requirement		No.		4,793	5,778	28
Met from spare capacity -						
Cadam	831 less contingency	No.		631	0	16
Dronach	1,837 less contingency	No.		0	1,637	16
Elgin	3,192 less contingency	No.		2,992	0	16
				<hr/>	<hr/>	
				3,623	1,637	
				<hr/>	<hr/>	
Shortfall		No.		1,170	4,141	
Additional/transferred mechanics		No.	No.	1	4	
(@ 1,170 days each)		Current	No.	5	7	
		Net saving		<hr/>	<hr/>	
				4	3	
				<hr/>	<hr/>	
2. Closure Savings 2004						
				£	£	
Staffing						
Workshop Manager	1	@	25,000	25,000	25,000	25
Foreman	1	@	19,300	19,300	19,300	25
Storeman	1	@	15,600	15,600	15,600	25
Mechanics	Net 4 & 3	@	18,500	74,000	55,500	25
				<hr/>	<hr/>	
				133,900	115,400	
				<hr/>	<hr/>	
Premises						
Building Maintenance		100%		11,100	3,400	13
Cleaning		100%		1,100	1,300	13
Energy		75%		8,700	5,700	13
Water (metered)		-		0	0	13
Rates		100%		10,500	16,500	13
Rent		100%		35,000	0	13
				<hr/>	<hr/>	
				66,400	26,900	
				<hr/>	<hr/>	
Supplies & Other						
Equipment Maintenance		.		0	0	14
Spares & Consumables		.		0	0	14
Office Expenses		.		0	0	14
				<hr/>	<hr/>	
				0	0	14
				<hr/>	<hr/>	
Capital Charges				0	17,000	5,19
				<hr/>	<hr/>	
Gross Saving				200,300	159,300	
				<hr/>	<hr/>	
3. Other One-off Costs/Savings						
Revenue costs						
Removals/works				5,000	10,000	27
Redundancy/pensions				2,000	2,000	21
Staff relocation payments				3,000	4,000	21
				<hr/>	<hr/>	
				10,000	16,000	
				<hr/>	<hr/>	
NOTES						
The lease on Dronach workshop is coming up for review in 2004 and is expected to increase significantly						12
There would be a potential capital receipt of £350,000 for the MPA from the sale of Elgin.						29

5. Question 3

- (a) To test candidates' ability to discuss and evaluate a number of quality-related issues and to make recommendations to improve client satisfaction;
- (b) To test candidates' understanding of statistical techniques in assessing the significance of the relative performances by the workshops on servicing quality;
- (c) To test candidates' ability to review current pricing structures with a view to producing a revised basis which better reflects actual costs to users;
- (d) To test candidates' ability to consider and propose other means of monitoring and improving client satisfaction.
- (e) To examine candidates' competence in drafting a short report for discussion by the MPA's Workshop Quality Workgroup (WQW) that covers all these issues.

Assessment

- (a) Brief introduction, identification of the main areas to be covered and statistical analysis of breakdown figures for the five workshops. (35%) (14 marks)
 - Brief introduction and a note of the quality-related concerns to be covered –
 - the incidence and significance of vehicle breakdowns
 - the charging for vehicle maintenance and fleet management services
 - other client satisfaction issues;
 - A note of the sampling exercise undertaken for a number of vehicles in each of the workshops and a table setting out the results; 28
 - A note that the number of breakdowns found in the Dronach and Elgin workshops is higher than elsewhere; 28
 - A chi-squared test to ascertain whether there is any clear evidence statistically that the number of breakdowns is influenced by the workshop servicing the vehicles;
 - Conclusion that at the 5% significance level, there is evidence of association between the number of breakdowns and the workshop servicing the vehicles;
 - A proportion test of significance to ascertain whether the breakdown results at Dronach workshop are significantly out of line with the regional comparator; 23
 - Conclusion that this test does show the Dronach workshop to have a higher breakdown rate at the 95% significance level;
 - Consideration of any factors which might account for these results –
 - the amount of time spent on each vehicle
 - the quality of the work undertaken
 - Calculation of the amount of time spent on each service at each of the five workshops and the average; 28
 - Conclusion that Dronach spends less time on each service than other workshops;
 - A note that there are currently no measures of quality of work in place.

NOTE For suggested calculations see Appendix 3A, but note comments in 1(e) above.

- (b) Consideration of improved recharge methodologies for the costs of the Fleet Management operation and production of a proposed structure. (35%) (14 marks)
- Consideration of how to attribute the four overhead categories over central Fleet and the five workshops –
 - staff numbers
 - floor areas
 - number of vehicles
 - number of vehicles weighted for mileage
 - maintenance hours (proxy for mileage)
 - one basis for all or separate;
 - Conclusion that, whilst not particularly significant in cost terms, the four overheads are different and need individual treatment;
 - Determination of a basis for each –
 - central premises – a clear charge to central Fleet Management 13
 - central services – mainly related to central Fleet Management, so charge there 18
 - property insurance – relates to workshops, so allocate on floor area basis 13
 - Shire services – largely personnel/payroll related, so allocate across Fleet Management and workshops on the basis of staff numbers; 18
 - Attribution of the 2003 overhead costs over the 2003 projected outturn base costs for central Fleet Management and the individual workshops on the above bases;
 - Determination of a basis for charging out central Fleet Management costs and conclusion that these are best attributed as a largely fixed cost on a per vehicle basis; 27
 - Calculation of the central Fleet Management cost per vehicle;
 - Consideration of fuel and spare/consumable issues and conclusion that these are best charged out on the basis of actual cost plus a handling oncost of 2% and 10% respectively; 27
 - Calculation of the recharges generated on this basis for each of the five workshops;
 - Calculation of the residual costs to be recovered for each of the five workshops and overall;
 - Acknowledgement of the basis agreed for charging out residual workshop costs - recovery through a charge per direct labour hour; 27
 - Calculation of the resultant charge per hour for the individual workshops and workshops overall;
 - A note of the significant variances between hourly costs at the five workshops;
 - As a result, recommendation that, for 2003 at least, the hourly charge-out rate should be that for the workshops taken together - £35 per hour;
 - Comparison of this with the regional comparator figure and comment that this is well above the £30 average; 23
 - Better candidates might comment that the provisional 2004 figure (whichever closure is accepted) will be below the regional comparator figure and comment that the composite rate approach could be reviewed for 2004, when the charge-out rate will be both lower and more uniform across the workshops as a result of the rationalization from 1 January 2004.

NOTE For suggested calculations see Appendix 3B, but note comments in 1(e) above.

- (c) Consideration of service and quality issues surrounding the workshop and Fleet Management operations, and recommendations to improve the current situation and improve client satisfaction. (20%) (8 marks)
- ❑ Introduction of a formal vehicle booking-in system to ensure an even service workflow for the workshops and to avoid vehicles being delayed in workshops as a result of workflow peaks;
 - ❑ Agreement and formalisation with clients of core performance levels (SLAs), covering –
 - maintenance service coverage
 - time allocations
 - service standards
 - charging basis
 - complaint and arbitration arrangements;
 - ❑ The introduction of monthly internal invoices for clients (petrol, spares, fixed charge and hourly charged direct work) with sufficient details to support the charges levied;
 - ❑ The requirement for clients to check these and, subject to the resolution of any queries, to approve the charge within a specified period;
 - ❑ Introduction of a more client focused post-service approach including a report of service findings on each vehicle -
 - tick list of work done and notes on findings
 - notes on potential future work (early warning re brakes, exhausts, tyres etc.)
 - ❑ Introduction of a short post-service client questionnaire asking for some assessment of the quality of work undertaken;
 - ❑ The recording of relevant performance-related statistics (number of breakdowns etc.);
 - ❑ The establishment of relevant performance indicators and comparisons with peer group figures, where appropriate;
 - ❑ The introduction of annual broader-based client satisfaction questionnaires;
 - ❑ In the longer term, the introduction of more formal quality initiatives and standards –
 - Motor Federations
 - ISO standards and registration
 - Training standards
 - TQM
 - IIP etc..
- (d) Presentation, format, tact and general readability. (10%) (4 marks)

APPENDIX 3A

QUESTION 3

	Burgie	Cadam	Dronach	Elgin	Farclas	W/shops	PAGE
1. Breakdown Analysis							
Observed sample results (O _i)							
Breakdowns	2	1	8	4	1	16	28
No breakdowns	28	29	27	33	27	144	28
	<u>30</u>	<u>30</u>	<u>35</u>	<u>37</u>	<u>28</u>	<u>160</u>	28
Overall weightings							
Breakdowns						10.0%	
No breakdowns						90.0%	

2. Chi-squared Test

H₀ = no association

H₁ = association

Expected sample results (E_i)*

Breakdowns	3.00	3.00	3.50	3.70	2.80
No breakdowns	27.00	27.00	31.50	33.30	25.20
* Sample size for workshop x overall %	<u>30.00</u>	<u>30.00</u>	<u>35.00</u>	<u>37.00</u>	<u>28.00</u>

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Breakdowns	0.333333	1.333333	5.785714	0.024324	1.157143
No breakdowns	0.037037	0.148148	0.642857	0.002703	0.128571

$\sum (O_i - E_i)^2 / E_i =$ **9.593163**

Degrees of freedom (v) = 4

(r-1) x (c-1)

From tables $\chi^2_{(0.05)(v=4)} =$ **9.488**

Reject H₀ at the 5% significance level and conclude that there is evidence of association between breakdown levels and the servicing workshop.

3. Proportion Test of Significance

Regional rate (test rate) = 10.0000% (π_0) 23

H₀ = p(π_1) = π_0 (0.10)

H₁ = p(π_1) \neq π_0 (0.10)

p (Dronach) = i/n = 8/35 = 22.8571% 28

Se_p² = ($\pi_0(1-\pi_0)$)/n = 0.002571 (0.10(1-0.10)/35)

Se_p = $\sqrt{(\pi_0(1-\pi_0))/n}$ = 0.050709

From tables at 5%, z = 1.96

Critical value (CV) = $\pi_0 \pm (Se \times z)$
 = 0.10 \pm (0.050709 x 1.96)
 = 0.10 \pm 0.0993896
 = **0.0006104 to 0.1993896 (0.06% to 19.94%)**

Actual p = 22.8571%, which is outside the range. Therefore reject the null hypothesis and conclude that the percentage of breakdowns at Dronach workshop does differ significantly from that indicated by the regional figure

4. Analysis of Time per Service

Workshops	Burgie	Cadam	Dronach	Elgin	Farclas	
Analysis						
Service hours	27,381	6,00€	5,553	4,340	5,421	6,061 28
No. of services	4,402	93€	829	853	874	908 28
Hours per service	6.2	6.4	6.7	5.1	6.2	6.7

APPENDIX 3B

QUESTION 3

	Total	Central	Workshops	Burgie	Cadam	Dronach	Elgin	Farclas	PAGE
1. Overheads – Attribution Bases									
Staff Numbers	46	4	42	8	8	8	10	8	10
Floor Areas (sq metres)	3,600	0	3,600	850	830	410	920	590	6
Vehicles	700	0	700	136	136	135	156	137	6
Basis									
Admin Buildings	-	All to Central							5,13
Corporate Services	-	All to Central							5,18
Prop Insur-W/shops	-	Across workshops by floor area			£18,000/3,600 =		£5 per sq metre		5,13
Shire Services	-	Across all by staff numbers			£11,500/46 =		£250 each		5,18
	Total £	Central £	Workshops £	Burgie £	Cadam £	Dronach £	Elgin £	Farclas £	
2. Projected Outturn Costs 2003									
Staffing	922,500	118,300	804,200	153,800	153,100	153,700	192,700	150,900	10
Premises	204,500	0	204,500	39,700	36,000	70,400	33,900	24,500	13
Supplies etc.	3,053,500	4,700	3,048,800	582,500	543,800	520,400	821,900	580,200	18
Capital Charges	60,000	0	60,000	14,000	13,500	0	17,000	15,500	19
	4,240,500	123,000	4,117,500	790,000	746,400	744,500	1,065,500	771,100	
3. Attribution of Overheads									
Revised Costs 2003	4,240,500	123,000	4,117,500	790,000	746,400	744,500	1,065,500	771,100	
Overheads									
Central Premises	9,000	9,000							
Central Services	7,000	7,000							
Property Insurance	18,000		18,000	4,250	4,150	2,050	4,600	2,950	
Shire Services	11,500	1,000	10,500	2,000	2,000	2,000	2,500	2,000	
a	4,286,000	140,000	4,146,000	796,250	752,550	748,550	1,072,600	776,050	
4. Basis of Charge - Central									
Fixed charge per vehicle									
Costs		140,000							
Vehicles		700 (Number)							6
Charge per vehicle		200							
5. Basis of Charge - Fuel									
Actual cost + 2% oncost									
Costs			2,500,000	475,000	450,000	425,000	675,000	475,000	18
Oncost			50,000	9,500	9,000	8,500	13,500	9,500	27
Costs recovered	b		2,550,000	484,500	459,000	433,500	688,500	484,500	
6. Basis of Charge – Spares/Consumables									
Actual cost + 10% oncost									
Costs			525,000	103,300	89,200	91,500	141,600	99,400	18
Oncost			52,500	10,330	8,920	9,150	14,160	9,940	
Costs recovered	c		577,500	113,630	98,120	100,650	155,760	109,340	
7 Basis of Charge– Residual Costs									
Charge per direct hour									
Balance of costs (a-b-c)			1,018,500	198,120	195,430	214,400	228,340	182,210	
Direct hours		(hours)	29,100	6,357	5,799	4,793	5,778	6,373	
Charge per direct hour			35.00	31.17	33.70	44.73	39.52	28.59	
NOTE - Provisional Charge 2004									
Balance of costs 2003			1,018,500						
Cost savings			200,300	(assumes Dronach closure)					
			818,200						
Charge per direct hour			28.12						

