REPORT OF THE DEPARTMENT OF MOTOR VEHICLES

Developing an Activity Based Costing System at the Department of Motor Vehicles

TO THE GOVERNOR AND THE GENERAL ASSEMBLY OF VIRGINIA



HOUSE DOCUMENT NO. 17

COMMONWEALTH OF VIRGINIA RICHMOND 2005

December 1, 2004

The Honorable Mark R. Warner
Governor
The Honorable John H. Chichester, Chairman
Senate Finance Committee
The Honorable Marty E. Williams, Chairman
Senate Transportation Committee
The Honorable Vincent F. Callahan, Jr., Chairman
House Appropriations Committee
The Honorable Leo C. Wardrup, Chairman
House Transportation Committee
The Honorable Whittington W. Clement
Secretary of Transportation

Dear Sirs:

This letter transmits the report, "Developing an Activity Based Costing System at the Department of Motor Vehicles," that is required by Chapter 4 of the 2004 Acts of Assembly. The report shows the progress that the Department of Motor Vehicles has made in developing a cost allocation system based on the model provided by the Auditor of Public Accounts in his report issued in November 2003. The Auditor is issuing a separate report to meet his requirements in Chapter 4 above.

I am pleased that my staff has been able to accomplish a significant level of achievement to date on a methodology that was completely new to us. We feel assured that when completed, the model will provide accurate costs of DMV's products and services that can be used for evaluation and comparative purposes. This, in turn, will provide a means to budget our resources more effectively.

If you have any questions after reading the report, please contact me at 804.367.6606, DB.Smit@dmv.virginia.gov.

Sincerely,

D. B. Smit

Attachment

DBS/jc

copy: The Honorable Walter J. Kucharski

Auditor of Public Accounts

Background

DMV is a regulatory agency that is responsible for the granting, suspension, revocation and reinstatement of driver and vehicle licenses; regulation of motor carriers; transportation safety programs; and revenue collection. This is accomplished by approximately 1800 classified employees located across the state in 88 locations including DMV Headquarters in Richmond. Customers conduct approximately ten million transactions annually which yield \$2.1 billion dollars in revenue that funds the Commonwealth's transportation system.

DMV has made great strides in developing alternative service delivery methods using technologies such as the Internet, interactive voice response telephone systems, and self-service centers. At the same time, the agency has been very conscious of maintaining an acceptable level of service for customers that require a face-to-face transaction. The agency plans to launch a pilot campaign to increase customer use of alternative service outlets. This modest pilot campaign will test the effectiveness of direct mail in changing customer behavior and will provide a cost/benefit model that shows the amount of investment required to increase alternative service use. To measurably steer customers out of our CSCs and to alternative services, the agency must invest in promotional activities such as direct mail campaigns and other forms of paid advertising.

Direction

In the 2003 Acts of Assembly, Chapter 1042 (Appropriation Act), the Auditor of Public Accounts (APA) was directed to "...develop a cost accounting system which will accurately and completely document the true total costs, both direct and indirect, of the activities and services provided by the Department of Motor Vehicles." It was also stated that the APA was to have the assistance of the Secretary of Transportation and DMV. By the time the Act was approved in May 2003, work had already begun between the APA and DMV. An exhaustive review of activities was carried out utilizing staff from all levels of each operational area of DMV. In addition, the APA was given transaction counts and revenue totals by source to assist in the development of the cost accounting system.

In November 2003, the Auditor of Public Accounts issued a Special Report that described DMV's financial structure and provided a cost allocation model based on Activity Based Costing (ABC). The intent was that this model would provide DMV with a tool to calculate the cost of its various products and activities. This, in turn, would allow comparisons to be made as to which service delivery methods are more cost beneficial and effective. For example, is it less expensive to renew a vehicle registration using the Internet versus a face-to-face transaction in a customer service center? This tool will also provide an analysis of the agency's fees and help determine if they are sufficient to cover the cost of providing services.

Implementation

The responsibility for implementation of the model was given to DMV's chief financial officer and delegated to the controller. A staff member from Internal Audit was reassigned as the in-charge accountant to handle the analysis and day-to-day operations. This team worked with other work units, especially the Budget, Accounts Payable and

Information Technology areas, to develop the system and information-gathering procedures.

The controller and accountant conducted a review of literature on ABC methods and procedures. ABC is a proven cost allocation methodology used extensively in both the public and private sectors. As it is named, it focuses on the activities of an organization and breaks them down to cost drivers. Direct and indirect costs for each of these drivers are captured and weights are assigned based on either transaction counts or percentages of total costs. Using calculations based on this information, the cost of both an activity, for example, Driver Services, and the cost drivers, such as issuing a driver license, can be obtained.

The next step was to redesign the agency's cost structure to bring it in line with the organizational chart and also, to be more adaptive to the ABC model. To do this, it was necessary to examine each administration's organization and cost codes with the assistance of its management. This step was completed in <u>April</u> 2004 and resulted in establishment of <u>19</u> new cost codes; <u>416</u> existing codes being rearranged; <u>83</u> deleted; and, a cost structure that is much more effective <u>with a net total of 352</u> cost codes. A copy of the structure is included in Appendix A.

In the APA model, the cost associated with DMV's customer service centers was shown as direct overhead. This cost was allocated across the model by determining the time required by each type of transaction and the number of transactions processed. Because this is the largest cost that DMV incurs, it was necessary to validate the timing of face-to-face transactions on a statewide basis. The Center for Survey Research at the University of Virginia was engaged to carry out the timing study using sampling methods and visits to customer service centers where actual transactions were timed by trained analysts. The results of this study were given to DMV in September 2004 and selected parts are presented in Appendix B.

The next significant step was to develop the strategy for allocating direct costs and indirect costs (administration, finance, human resources, etc.) to the cost drivers. As before, consultations are being held with the management of the functional activities and the list of direct costs, and their source, for each cost driver will be developed. Indirect costs will be allocated based on the percentage of direct costs to total costs. This strategy also plans to devise a method of allocating some support costs, such as systems development, to direct costs where the costs are accumulated in a viable manner. Because the volume of transactions fluctuate significantly during a fiscal year, and because the system should generate representative cost information, a full year's data is needed. Therefore, the data for the first half of FY 2005 will be used to develop a baseline of costs. This information will be shared with the APA and other interested parties. The first full calculation of costs will be performed after the close of FY 2005 on June 30, 2005. Thereafter, it is planned that a new computation will be performed semi-annually.

Conclusion

DMV recognizes that constant refinements can be made in the ABC system to develop more detailed costs. We plan for this tool to evolve continually so as to provide more exact costs and determine costs as needed on an ad hoc basis. This will be extremely valuable for our strategic planning, decision making and performance measurement activities. The Department of Motor Vehicles would like to thank the Auditor of Public Accounts for their time, effort and assistance in developing the ABC model. This system will be an invaluable tool to use in enhancing operations and service to the citizens of Virginia.

Appendix A **DMV Cost Code Table** Sorted by Organizational Code CARS **DESCRIPTION** COST **ORG LEVELS** AGY CODE DIV WKU **ADM Commissioner's Office** 100 011 001 **Information Technology Services** 114 011 002 **Systems Development Div** 196 011 002 001 **Systems Development Services** 115 011 002 001 001 **Database Support Services** 168 011 002 001 002 **UNIX Support Services** 145 011 002 002 **Data Security** 172 011 002 003 E-Government Systems (EGS) 113 011 002 004 **Systems Support Group** 167 011 002 005 **Operations Services Division** 123 011 002 006 **Operations Services** 164 011 002 006 001 **Desktop Services Group (DSG)** 147 011 002 006 002 **Voice Technology Services** 121 011 002 003 006 **Network Systems Section** 111 011 002 006 004 Web Services 502 011 002 007 **Hearings & JLIS Admin** 160 011 003 105 011 003 **Hearings Office** 001 Judicial & Legal Info. Svcs 244 011 003 002 306 011 **Customer Service Mgmt - Support** 004 **CSM - Performance/Data/Projects** 309 011 004 001 002 **CSM - Procedures/Support** 310 011 004 **CSM** - Training 311 011 004 003 004 **Quality Assurance** 501 011 004 261 011 004 **State Board of Elections** 005 **Customer Service Mgmt - Admin** 312 011 004 006 Special Investigations 185 011 005 **Investigative Services** 159 011 006 Special Handling 214 011 006 001 135 011 006 002 Security Law Enforcement Information Svcs. 276 011 006 003

Field Investigations

District 1 Investigators

District 2 Investigators

District 3 Investigators

District 4 Investigators

District 5 Investigators

District 6 Investigators

Federal Asset Forfeiture

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254 011

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Human Resources	Motor Carrier Enforcement Div.	184	011	006	006		
Human Resources	Communications Office	104	011	007			
Employee Services Div. 102 011 008 001 Organiz. Davol. & Training 103 011 008 002 Compensation & Employment Services 162 011 008 003 Transportation Safety Administration 137 011 009 001 Reporting & Evaluation Services 144 011 009 002 Program Development 161 011 009 003 Motorcycle Rider Safety Program 235 011 009 003 Financial & Administrative Services 112 011 010 001 Financial Services 119 011 010 001 Purchasing 124 011 010 001 Accounts Payable 180 011 010 001 Accounts Receivable 181 011 010 001 002 Payroll 940 011 010 001 003 Administrative Services 227 011 010 001 004 Personal Property Tax Services 227 011 010 001 004 Personal Property Tax	Communications Office	104	011	007			
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Program Development							
Motorcycle Rider Safety Program 235 011 009 003 001							
Financial & Administrative Services						001	
Financial Services							
Purchasing	Financial & Administrative Services	112	011	010			
Accounts Payable 180 011	Financial Services	119	011	010	001		
Accounts Receivable	Purchasing	124	011	010	001	001	
Accounts Receivable		180	011	010	001	002	
Personal Property Tax Services		181	011	010	001	003	
Personal Property Tax Services	Payroll	940	011	010	001	004	
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Printing Services	Administrative Services	122	011	010	002		
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Automated Interface Work Center 215 011 014 003 001							
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Dealer Licensing	205	011	014	003	002	
Title & Registration Work Center	211	011	014	004		
CVR On-Line Dealer	281	011	014	004	001	
TRIVIN On-Line Dealer	286	011	014	004	002	<u> </u>
Motorist Services	242	011	014	005		<u> </u>
			<u></u>			†
Motor Carrier & Tax Services Admin.	282	011	015			
Motor Carrier & Weigh Station Admin	221	011	015	006		†
Compliance Services	157	011	015	001		†
Tax Services Division	190	011	015	002		
Fuels Tax Licensing & Reporting	156	011	015	002	001	
Rental Tax & Special Collections	226	011	015	002	002	
Motor Carrier Services	220	011	015	003		
Intrastate Registration & Compliance		011	015	003	001	+ 1
International Registration & Road Tax		011	015	003	002	+
MCS Mileage/Hauling Permits	189	011	015	004		
Weighing Stations Division		011	015	005		+
Weighing Station Hdqtrs		011	015	005	001	+ 1
Weigh Stations Technical Services		011	015	005	002	+
Southern IRIS Mobile Unit		011	015	005	003	+
Southern Mobile Units		011	015	005	004	+ 1
Northern Mobile Units		011	015	005	005	+ 1
Northern IRIS Mobile Unit		011	015	005	006	+ 1
Dahlgren Scales		011	015	005	007	+
New Church Scales		011	015	005	008	+ 1
Suffolk Scales		011	015	005	009	+ -
Middletown Scales		011	015	005	010	+ -
Hollins Scales		011	015	005	011	+ -
Aldie Scales	907	011	015	005	012	+ +
Dumfries Scales		011	015	005	013	+ 1
Troutville Scales		011	015	005	014	+ -
Sandston Scales		011	015	005	015	+ 1
Stephen City Scales		011	015	005	016	+ 1
Alberta Scales		011	015	005	017	+
Bland Scales		011	015	005	018	+
Carson Scales		011	015	005	019	
			-	-		+
Financial Analy. & Reconciliation	150	011	016			
,		-				+
Facilities Serv & Plan Admin	173	011	017			+
Facilities Services Division		011	017	001		
Department of Taxation		011	017	001	001	+
DMV Headquarters		011	017	001	002	
Facilities Planning Division		011	017	002		+
Transportation Services		011	017	003		
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Information Services Admin.	130	011	019			
User Services		011	019	001		
Data Integrity Services		011	019	002		
Customer Records		011	019	003		
Vehicle Records Work Center		011	019	003	001	
Driver Records Work Center		011	019	003	002	+
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Microfilming Services	125	011	019	004		
Other Program Activities		011	020			
Motor Vehicle Dealer Board	210	011	020	001		
	<u> </u>	<u> </u>				
Internal Audit	188	011	021			
Driver Services Administration	216	244	000			
		011	022	004		
Driver Monitoring Division		011	022	001	204	
Court Suspension Work Center		011	022	001	001	
Driver Improvement Work Center		011	022	001	002	
Medical Review Services		011	022	001	003	
Driver & Commercial Licensing Serv Division		011	022	002		
Driver License Central Issue		011	022	002	001	
Driver Licensing Work Center		011	022	002	002	
Commercial Licensing Work Center	228	011	022	002	003	
CSM - Full Services	656	011	023			
Bristol District Manager		011	023	001		
Bristol CSC		011	023	001	001	
Vansant CSC		011	023	001	002	
Galax CSC		011	023	001	003	
Gate City CSC		011	023	001	004	
Tazewell CSC		011	023	001	005	
Norton CSC		011	023	001	006	
Wytheville CSC		011	023	001	007	
Abingdon CSC		011	023	001	008	
Marion CSC		011	023	001	009	
Bristol Training Center		011	023	001	010	
Clintwood CSC		011	023	001	011	
Jonesville CSC		011	023	001	012	7
Lebanon CSC		011	023	001	013	T
Christiansburg CSC		011	023	001	014	T
Pulaski CSC		011	023	001	015	
Roanoke District Manager	322	011	023	002		<u> </u>
Bedford CSC		011	023	002	001	
Covington CSC	648	011	023	002	002	
Danville CSC	602	011	023	002	003	
Lynchburg CSC	604	011	023	002	004	<u> </u>
Martinsville CSC	633	011	023	002	005	
Rocky Mount CSC	668	011	023	002	006	
Lexington CSC		011	023	002	007	
Roanoke CSC		011	023	002	008	
Roanoke Dealer Center		011	023	002	009	
South Boston CSC		011	023	002	010	
Altavista CSC		011	023	002	011	
Roanoke Training Center		011	023	002	012	
Staunton District Manager		011	023	003		
Charlottesville CSC		011	023	003	001	
Culpeper CSC		011	023	003	002	
Fredericksburg/Spotsylvania CSC		011	023	003	003	
Woodstock CSC		011	023	003	003	
WOOUSlock GGG		011	020			

Stafford CSC	673	011	023	003	005
Staunton CSC	652	011	023	003	006
Front Royal CSC	667	011	023	003	007
Warrenton CSC	638	011	023	003	008
Waynesboro CSC	611	011	023	003	009
Winchester CSC	631	011	023	003	010
Harrisonburg CSC		011	023	003	011
Harrisonburg Training Center	977	011	023	003	012
Fairfax South District	332	011	023	004	
Alexandria CSC	600	011	023	004	001
Woodbridge CSC	613	011	023	004	002
Franconia CSC		011	023	004	003
Manassas CSC		011	023	004	004
Springfield CSC		011	023	004	005
Northern VA Dealer Center		011	023	004	006
Pentagon CSC		011	023	004	007
Richmond District Manager		011	023	005	
Chester CSC		011	023	005	001
Richmond Central/HQ		011	023	005	002
East Henrico CSC		011	023	005	003
Richmond HQ 1 Training Ctr		011	023	005	004
West Henrico CSC		011	023	005	005
Richmond HQ 2 Training Ctr.		011	023	005	006
Headquarters Dealer Center		011	023	005	007
North Henrico CSC		011	023	005	008
Hopewell CSC		011	023	005	009
Emporia CSC		011	023	005	010
Petersburg CSC		011	023	005	011
Farmville CSC		011	023	005	012
South Hill CSC		011	023	005	013
Chesterfield CSC		011	023	005	014
Tappahannock CSC		011	023	005	015
Kilmarnock CSC		011	023	005	016
North Fairfax District		011	023	006	+
Sterling CSC		011	023	006	001
Tysons Corner CSC		011	023	006	002
Fair Oaks CSC		011	023	006	003
Fairfax/Westfields Training Ctr.		011	023	006	004
Leesburg CSC		011	023	006	005
Fairfax/Westfields CSC		011	023	006	006
Arlington CSC		011	023	006	007
Portsmouth District Manager		011	023	007	
Chesapeake CSC		011	023	007	001
Onancock CSC		011	023	007	002
Hampton CSC		011	023	007	003
Newport News CSC		011	023	007	004
Norfolk/Widgeon CSC		011	023	007	005
Norfolk/Military Circle CSC		011	023	007	006
Portsmouth CSC		011	023	007	007
VA Beach/Hilltop CSC		011	023	007	008
Hampton Training Center		011	023	007	009
VA Beach/Buckner CSC		011	023	007	010
			<u></u>	<u></u>	

Smithfield CSC	655	011	023	007	011
Courtland CSC	647	011	023	007	012
Suffolk CSC	615	011	023	007	013
Williamsburg CSC	619	011	023	007	014
Gloucester CSC	681	011	023	007	015
Hampton Dealer Center	680	011	023	007	016
Driver License Quality Assurance	515	011	023	008	
Roanoke CDL Testing	520	011	023	008	001
Staunton CDL Testing	521	011	023	008	002
Bristol CDL Testing	662	011	023	008	003
Fairfax South CDL Testing	678	011	023	008	004
Portsmouth CDL Testing	683	011	023	008	005
Richmond CDL Testing	684	011	023	008	006
Fairfax North CDL Testing		011	023	008	007
CSM-Assisted Services	316	011	024		
Telephone Information Centers		011	024	001	+
Customer Contact Center		011	024	001	001
Altavista CIS		011	024	001	002
License Agent Management		011	024	002	
Abingdon License Agent		011	024	002	001
Independence License Agent		011	024	002	002
Pearisburg (Giles Co.) License Agent		011	024	002	003
Amherst License Agent		011	024	002	004
Appomattox License Agent		011	024	002	005
Stuart License Agent		011	024	002	006
Warm Springs License Agent		011	024	002	007
Charlotte Courthouse License Agent		011	024	002	008
Berryville License Agent		011	024	002	009
Luray License Agent		011	024	002	010
Madison License Agent		011	024	002	011
Highland County License Agent		011	024	002	012
Lovingston License Agent		011	024	002	013
Orange License Agent		011	024	002	014
Town of Remington License Agent		011	024	002	015
Lorton License Agent		011	024	002	016
Amelia License Agent		011	024	002	017
Blackstone License Agent		011	024	002	018
Dillwyn License Agent		011	024	002	019
Lawrenceville License Agent		011	024	002	020
Mineral License Agent		011	024	002	021
Palmyra License Agent		011	024	002	022
Surry License Agent		011	024	002	023
Victoria License Agent		011	024	002	024
Caroline County License Agent		011	024	002	025
King George License Agent		011	024	002	026
West Point License Agent		011	024	002	027
Sterling License Agent		011	024	002	028
Falls Church License Agent		011	024	002	029
Fairfax License Agent		011	024	002	030
Purcellville License Agent		011	024	002	031
Poquoson License Agent		011	024	002	032
i oquoson License Agent	305	J 1 1	U2-4	002	VUL

Mathews County License Agent	377	011	024	002	033	
Cape Charles License Agent	314	011	024	002	034	
Chincoteage License Agent	386	011	024	002	035	
Arlington County License Agent	301	011	024	002	036	
Capital Outlay Projects	998	011	099			

Table 1 from UVA's Transaction Timing Study, page 5

CSC Transaction Times

		Minutes					
	Number	Min	Max	Mean	Std Dev	Precision⁴	
Driver Services							
Learner's Permit ¹	151	1.23	13.30	4.37	2.25	0.36	
Road Test for DL	97	3.00	30.00	16.12	5.01	1.00	
Road Test for CDL	4 ⁵	20.00	50.00	33.75	13.77	13.49	
Original Driver's License ¹	119	0.48	19.12	7.60	3.92	0.70	
Renew DL, straight ¹	133	0.77	6.66	2.78	1.35	0.23	
Renew DL, expired ²	32	1.39	10.12	4.42	2.07	0.72	
Renew DL, violations ¹	89	1.13	11.51	4.08	2.60	0.54	
Knowledge Test	95	0.04	0.19	0.07	0.02	0.00	
Fee Collection	44	0.06	3.26	0.76	0.77	0.23	
Camera Station	94	0.12	2.48	0.39	0.35	0.07	
Deliver Driver's License	102	0.01	0.29	0.08	0.05	0.01	
Address Change ³	72	0.32	4.79	1.92	0.95	0.22	
Duplicate DL	58	0.47	10.12	3.43	1.82	0.47	
ID Card	68	0.39	11.77	5.31	2.27	0.54	
Handicap Placard	40	1.01	5.43	2.43	1.03	0.32	
Vehicle Services							
Title only	49	1.30	7.42	4.13	1.56	0.44	
Title with Stock Plates	122	1.00	16.56	5.86	2.72	0.48	
Title with Ordered Plates	34	3.40	18.47	7.81	3.31	1.11	
Decal Renewal	124	0.38	4.42	1.79	0.90	0.16	
Information Services							
Information Request	55	0.54	4.54	1.72	0.90	0.24	
Motor Carrier	9 ⁵	7.06	29.43	16.24	6.81	4.45	
Total valid timings	1591		·				

APPENDIX B CONTINUED

Table 2 from UVA's Transaction Timing Study, page 7

¹ Timing includes application, vision test, and fee collection
² Timing includes application, vision test, proof of legal presence, and fee collection
³ Timing includes application only
⁴ Precision or confidence range at the 95% level of confidence

⁵ Precision or confidence range is large due, in part, to the small number of observations

Constructed Key Cost Driver Transactions

		Minutes					
	Number	Min	Max	Mean	Std Dev	Precision	
Learner's Permit			ı				
Application, Vision Test, Fees	151	1.23	13.30	4.37	2.25	0.36	
Knowledge Test Set-Up	95	0.04	0.19	0.07	0.02	0.00	
Camera Station	94	0.12	2.48	0.39	0.35	0.07	
Deliver Driver's License	102	0.01	0.29	0.08	0.05	0.01	
Column Totals		1.40	16.26	4.91	2.68	0.25	
Original Driver's License							
Application, Vision Test, Fees	119	0.48	19.12	7.60	3.92	0.70	
Camera Station	94	0.12	2.48	0.39	0.35	0.07	
Deliver Driver's License	102	0.01	0.29	0.08	0.05	0.01	
Road Test at 40% (updated)				6.45			
Column Totals		0.61	21.89	14.52	4.32	0.48	
Renewal DL, straight							
Application, Vision Test, Fees	133	0.77	6.66	2.78	1.35	0.23	
Camera Station	94	0.12	2.48	0.39	0.35	0.07	
Deliver Driver's License	102	0.01	0.29	0.08	0.05	0.01	
Column Totals		0.90	9.43	3.25	1.75	0.19	
Renew DL, expired							
Application, Vision Test, Fees	32	1.39	10.12	4.42	2.07	0.72	
Camera Station	94	0.12	2.48	0.39	0.35	0.07	
Deliver Driver's License	102	0.01	0.29	0.08	0.05	0.01	
Column Totals		1.52	12.89	4.89	2.48	0.32	
Democrat Discriptations							
Renewal DL, violations	00	4.40	44.54	4.00	0.00	0.54	
Application, Vision Test, Fees	89 95	1.13 0.04	11.51 0.19	4.08 0.07	2.60 0.02	0.54 0.00	
Knowledge Test Set-Up Camera Station	95 94	0.04	2.48	0.07	0.02	0.00	
Deliver Driver's License	102	0.12	0.29	0.39	0.35	0.07	
Column Totals	102	1.30	14.47	4.62	3.02	0.30	
Address Change			1				
Application	72	0.32	4.79	1.92	0.95	0.22	
Camera Station at 41%				0.16			
Deliver Driver's License at 41%				0.03			
Total Mean Time				2.12			