



**Metro**

June 26, 2013

Metro Board Members

Re: Report on the Review of Metro's TAP Program (13-AUD-11)

Dear Metro Board Members:

The Metro Board directed the Office of the Inspector General to conduct a comprehensive review of the TAP (transit access pass) program to include:

- Review of TAP related contracts, change orders and charges; identify tasks that can be performed in-house; and create a transition plan to reduce and phase out non-specialized tasks currently being performed by consultant services.
- Report on duplication of effort by consultants and Metro staff.
- An analysis of consultant expenditures.
- An evaluation of the TAP organization and methods to integrate into various Metro departments.
- A cost/benefit analysis on monies expended versus regional success.

To minimize cost, the OIG thoroughly surveyed the TAP program, gathered pertinent records and documents, and wrote a detail scope of work. The OIG retained Bazilio Cobb Associates to perform the review of Metro's TAP Program. A draft report was issued to TAP management on May 14, 2013. TAP management agreed with the findings and recommendations in the report and indicated that corrective actions have been taken or will be initiated.

The attached report contains a number of recommendations to increase the efficiency and effectiveness of the TAP Program in the following areas:

- Contracts, contract modifications and expenditures
- Functions, objectives, and benefits of TAP
- TAP regional integration progress and obstacles
- TAP organizational structure, key functions, and staffing

We appreciate the opportunity that Metro Board has given us to work on this project and I will be available to answer any questions that the Board Directors may have concerning this report.

Sincerely,

  
Karen Gorman  
Acting Inspector General

cc: Arthur T. Leahy



**Metro Office of the Inspector General**

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## Review of Metro's TAP Program

June 2013

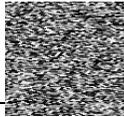
**BCA** Bazilio Cobb Associates

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**Certified Public Accountants and Consultants**

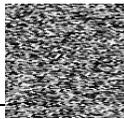
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## **TABLE OF CONTENTS**

1. Executive Summary .....	1
2. Background .....	13
3. Scope and Methodology .....	14
4. Contracts, Contract Modifications, and Expenditures.....	16
A. Cubic Transportation Systems (Cubic) .....	18
B. ACS State & Local Solution (ACS)/Xerox .....	22
C. Booz, Allen and Hamilton (BAH).....	23
D. CH2MHill .....	25
E. Systra .....	25
5. Functions, Objectives and Benefits of TAP .....	27
A. Objectives and Functions of TAP.....	27
B. Benefits of TAP.....	31
6. TAP Regional Integration Progress and Obstacles .....	38
A. Recent Progress Toward Regional Integration.....	38
B. Obstacles to Regional Integration .....	40
7. TAP Organizational Structure, Key Functions and Staffing .....	52
A. TAP Organization Structure .....	52
B. Use of Consultants by TAP .....	55
C. Use of Temporary Employees by TAP .....	55
D. TAP Functions Currently not Adequately Staffed.....	56
E. Implementation of Previous Review Recommendations .....	57
8. Appendix .....	58



# **1. Executive Summary**

## **Background**

The Universal Fare System (UFS) and Transit Access Pass (TAP) projects are intended to create a regional smart card transit fare system for use by MTA and regional municipal partners. In June 2012, the MTA Board of Directors passed a motion directing the Inspector General to conduct a comprehensive audit of the TAP Program.

## **Scope and Methodology**

The scope of this audit focused on reviewing contracts and contract modifications, analyzing expenditures by contractors, reviewing duplication between contractors and staff, evaluating the TAP organizational structure, and evaluating the benefits of TAP and regional success. To complete this review we:

- Obtained and reviewed TAP contracts, contract modifications, and charges since the inception of the Program. We also reviewed a sample of contractor billings and expenditures for the past three fiscal years.
- Reviewed organization charts, job descriptions, work plans, and interviewed all MTA management, employees and consultants assigned to the TAP Program.
- Reviewed Board actions presentations, reports, and materials related to TAP.
- Conducted interviews with representatives of 17 transit agencies in the County.
- Reviewed the previous review report on TAP completed in 2009.
- Met with and discussed issues and information with TAP Program management.

## **Significant Findings and Recommendations**

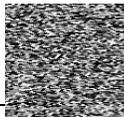
Below we discuss the significant findings and recommendations of our review. More detail of these and other findings are contained in the body of this report.

## **Contracts, Contract Modifications and Expenditures**

The TAP Program has involved substantial contracts and work by five major contractors/consultants. These include Cubic, ACS/Xerox, Booz Allen and Hamilton, CH2MHill, and Systra. Since inception the MTA Board has authorized expenditures totaling \$255.3 million in TAP contract costs, with actual contract amounts totaling \$222.2 million. As of June 30, 2012, actual contract expenditures total \$198.6 million. Of the actual contract expenditures, \$145.8 million was funded by the TAP budget and \$52.8 million was funded by other Metro funding sources.

### ***Cubic***

The largest contractor for TAP is Cubic, with \$160.3 million under contract. Metro has had one contract with Cubic since March 2002, with a total of 96 contract modifications. These included changes to the base contract, as well as substantial increases to the original scope of work.



- **Cubic Base Contract** - was to design, engineer, construct and install Metro's automated fare collection system. The base contract was for \$84 million, with an additional \$5 million contingency. A total of 77 contract modifications have been issued on the base contract; 28 modifications had no cost impact, and 49 modifications had a total cost impact of \$4.2 million.
- **Increases to the Original Scope of Work** - 19 contract modifications totaling \$76.3 million were issued due to significant increases in the scope of work from the base contract. Changes in the scope of work included:
  - Orange Line/Orange Line Extension (\$9.6 million)
  - Eastside Extension (3.9 million)
  - Expo Line (\$6.3 million)
  - Regional Central Computer Center (\$5.3 million)
  - Contract Operators Fare boxes (\$2.5 million)
  - Gates (\$10 million)
  - Maintenance and System Support (\$34.7 million)

Given the substantial number of contract modifications and increase in contract value, creating new contracts for the additional scope of work may have been more transparent for the Board and public.

### **Recommendation**

We recommend TAP management consider closing out the current contract with Cubic and issuing new contracts for future work required.

### **ACS / Xerox**

Affiliated Computer Systems (ACS), since purchased by Xerox, was contracted by TAP to design and develop a customer relationship management system, operate the financial clearinghouse for fare revenue, operate and maintain the Customer Service Center, and host the Regional Central Computer system. In 2006, the MTA Board authorized a contract in the amount of \$61.1 million. The actual contract amount to date totals \$46.6 million, with \$38.9 million expended as of June 30, 2012.

A total of 15 contract modifications were issued under the ACS contract. Eight modifications (\$.8 million) were for minor changes such as conducting a fare evasion study, purchasing card stock, and temporary staff for spikes in workload. Six modifications had no cost impact. One extended the period of performance for two years (\$14.2 million). The Board contracting authority for \$24.2 million was cancelled due to a decision to not exercise two options to extend the period of performance further.

### **Booz, Allen and Hamilton (BAH)**

BAH was awarded three contracts for TAP totaling \$13 million.

- **Implementation Management** - In April 2001, a contract in the amount of \$4.5 million was issued to BAH to provide consultant services for program

implementation. As of December 31, 2012, 13 modifications were executed increasing the contract amount from \$4.5 million to \$12.5 million. Contract modifications include:

- Regional TAP Support (\$3 million)
  - Orange Line and Base Contract (\$1.3 million)
  - Gating Study (\$.4 million)
  - Gating Support for 24 months (\$1 million)
  - Support Regional Integration (\$2.1 million)
  - Four contract modifications with minor cost impacts (\$.2 million)
  - Four contract modifications were extensions with no cost impact
- **TAP Support** - In October 2009, Metro issued a bench contract for professional services, for a three-year period with two one-year options beginning on November 1, 2009.
  - **Gating Technical Oversight** - In July 2010, Metro issued a contract in the amount of \$.5 million for the period from July 1, 2010 to June 30, 2011.

### **CH2MHill**

CH2MHill was issued two task orders under the Countywide Planning & Development Bench Contract totaling \$800,000.

- **Regional Fare Policy** - September 2011 for \$300,000. One modification was issued for \$100,000 to develop a RFP for a new contractor for the TAP Regional Service Center. Actual task order expenditures through June 30, 2012 totaled \$400,000, with no funds remaining.
- **TAP Technical Support** - January 2012 for \$400,000, with no contract modifications. Actual task order expenditures through June 30, 2012 totaled \$100,000, with \$300,000 remaining.

### **Systra**

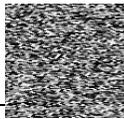
Systra was issued two task orders under a Countywide bench contract totaling \$770,000 to provide support in rail system tasks. Actual task order expenditures through June 30, 2012 totaled \$430,000 with \$340,000 remaining.

### **Contract Expenditure Review**

We reviewed between 36% and 70% of the total value for invoices submitted by each of the contractors during FY 2010 to FY 2012. All expenditures under these contracts tested were found to be allowable and appropriate. We found minor recording errors.

### **Functions, Objectives and Benefits of TAP**

A majority of the original business objectives and functionalities of the Program have been implemented and are operational. The technology to support electronic fare media has significantly changed since the original objectives for TAP were defined, and



much has been learned on the issues and needs of the region. Thus, it is important that new business objectives for TAP be developed.

### **Recommendation**

We recommend TAP Program management work with transit operators throughout the region to develop new business objectives, system functionalities, specific timelines, and measureable success criteria.

### **Benefits of TAP**

Overall, it appears there have been substantial benefits achieved from the implementation of TAP. However, these benefits have not been well documented or analyzed, nor has enough been done to increase or maximize the potential benefit that could be achieved. The following are the key benefits of TAP.

- **Increased revenue due to reduced fraud, forgery and fare evasion** – by replacing paper passes that were susceptible to forgery and fraud, and made it easier for bus operators to verify the validity of fare media presented.
- **Reduced fare payment time (Bus Dwell Time)** – and the related time it takes to load passengers at each bus stop.
- **Improved data collection and analysis** – provides more accurate passenger count information, improved information on passenger behavior, and improved information for system planning and scheduling.
- **Improved customer convenience and security** – including auto-load capabilities, balance protection, and lowest fare guarantee programs.
- **Reduced cost of fare media, distribution, collection and counting** – by automating fare tracking and reducing the use of cash.

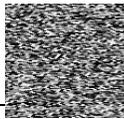
### **Recommendation**

We recommend the TAP Program develop and implement an ongoing approach and system for tracking and reporting on the impact of TAP on each of these benefits. We also recommend the TAP Program obtain specific customer feedback and satisfaction information to identify benefits of the system and target improvements to customer priorities.

### **TAP Regional Integration Progress and Obstacles**

The expectation of regional integration has been partially implemented, with 9 transit operators currently integrated, and the remaining 15 operators recently signing letters of intent to implement TAP. The positive progress toward regional integration has been the result of the following:

- **Change in Metro Leadership** – seen as bringing a new attitude and approach, and improving communication and coordination with regional partners.
- **Mobile or Light Validator** – significantly simplifies implementation for transit operators.
- **Metrolink TAP Compatible Ticketing** – has been resolved through development of paper ticket stock with a TAP chip embedded.



- **Gate Latching Initiatives** – gates for Metro rail lines have now been installed and gates are scheduled to be latched in June 2013 on the Metro Red and Purple lines.

Even with the positive momentum currently toward regional integration, there continue to be obstacles, including:

- **Allocation and Distribution of Fare Revenue** – the lack of a capability for clearing, settlement, and distribution of actual fare revenues was historically a major obstacle. Transit operators on TAP expressed confidence in the financial clearinghouse. Those not on TAP expressed concern about its accuracy.
- **Comprehensive Business Rules and Agreements** – several operators continue to be concerned about the lack of clarity in operating rules and agreements.
- **Future Allocation of TAP Back Office and Support Costs Among Operators** – many regional transit operators remain concerned about how these costs will be allocated in the future.
- **Capital, Operating and Maintenance Requirements and Costs** – some transit operators remain concerned about these costs.
- **Interagency Transfer Approach Throughout the Region** – limits the functionality and benefits of TAP.
- **Improved and More Flexible Reporting Capabilities** – the current format and flexibility of TAP data reporting limits its usefulness.
- **Support Provided by the TAP Service Center** – current contractor provided Service Center quality and level of support could be improved.
- **Marketing and Information on How to Use TAP** – requiring a comprehensive and effective marketing and information campaign.
- **Involvement in TAP Planning and Decision-Making** – regional transit operators have played a limited role in planning and actual decision making for TAP.

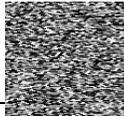
## Recommendation

We recommend TAP management work with regional transit agencies to address the above concerns and obstacles.

## TAP Organizational Structure, Key Functions and Staffing

An objective of this review was to evaluate the current TAP organizational structure, including its effectiveness, and the use of consultants versus Metro staff.

- **TAP Organizational Structure** – does not provide appropriate clarity or distribution of authority and responsibility, spans of control, coverage of key functions, or resources.
- **Use of Consultants** – the TAP Program has been reliant on consultants to perform key functions. Going forward, the Program would be more effective by having ongoing key functions performed by Metro employees.

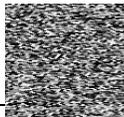


- **Use of Temporary Employees** – who may not be able to be assigned or assume full-time responsibilities, and are limited in total work hours annually.
- **Functions Currently Not Adequately Staffed** – including implementation support for regional transit agencies, resolution of regional fare policy issues, oversight of the TAP Service Center, and TAP Marketing and Information.

### **Recommendation**

We recommend TAP management move forward with the proposed revised organizational structure, and plans to replace consultants with Metro employees, transition temporary employees to full-time employees, and augment current staff.

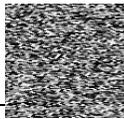
Management responses to all recommendations are presented in Exhibit 14 in the appendix of this report.



The following exhibit lists all the findings and recommendations contained in the report.

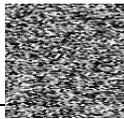
<b>Exhibit 1</b>			
<b>Summary of Findings and Recommendations</b>			
<b>No.</b>	<b>Finding</b>	<b>Recommendation</b>	<b>Page</b>
1	Substantial increases in scope, including system expansion, were accomplished through contract modifications rather than separate new contracts.	TAP Program management should consider closing-out the current contract with Cubic and issuing new contracts for future work required.	19
2	Cubic's base contract modification value exceeded MTA Board approved amounts by \$401,591.	TAP Program management should follow through on plans to use the additional Board authority for miscellaneous changes to the Cubic contract to cover previous contract modifications that exceeded Board approved amounts.	20
3	The total value for all contract modifications is less than the MTA Board approved amount.	TAP Program management should seek board direction to re-allocate the remaining MTA Board authorized funds.	20
4	Individual modification values and payments for the Cubic contract are not tracked in the Financial Information System (FIS).	TAP Program management should work with other appropriate Metro departments to include a tracking number in the FIS system for each modification that has a dollar value.	20
5	All expenditures under the Cubic contract tested were found to be allowable and appropriate.		21
6	Some Cubic billings were recorded in the wrong fiscal year.	TAP Program management should work with MTA Accounting staff to correct the expenditure period recording error.	21
7	Documentation attached to Cubic billing transactions in the Financial Information System (FIS) did not contain sufficient detail required to verify if the invoiced amount was adequately supported.	TAP Program management should work with other appropriate Metro departments to direct staff to scan pertinent documents required to support billing amounts into FIS.	22

<b>Exhibit 1</b>			
<b>Summary of Findings and Recommendations</b>			
<b>No.</b>	<b>Finding</b>	<b>Recommendation</b>	<b>Page</b>
8	All expenditures under the ACS/Xerox contract tested were found to be allowable and appropriate.		23
9	Some ACS/Xerox billings were coded in the wrong fiscal year.	TAP Program management should work with MTA Accounting staff to correct the expenditure period recording error.	23
10	All expenditures under the Booz, Allen and Hamilton contract tested were found to be allowable and appropriate.		24
11	All expenditures under the CH2MHill contract tested were found to be allowable and appropriate.		25
12	All expenditures under the Systra contract tested were found to be allowable and appropriate.		26
13	A majority of the original business objectives and functionalities of TAP Program have been implemented and are operational.	TAP Program management should work with transit operators throughout the region to develop and publish new business objectives and system functionalities for TAP and regional electronic fare collection, as well as specific timelines and measureable success criteria.	27
14	TAP has likely reduced the level of fraud, forgery, and fare evasion on the system, resulting in increased fare revenue. However, quantifying the increased fare revenue has not been effectively tracked nor reported.	The TAP Program should work with other appropriate Metro departments to develop and implement an ongoing approach and system for tracking and reporting on the impact of TAP on fare media fraud, forgery, fare evasion and fare revenue.	32



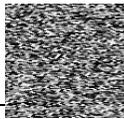
<b>Exhibit 1</b>			
<b>Summary of Findings and Recommendations</b>			
<b>No.</b>	<b>Finding</b>	<b>Recommendation</b>	<b>Page</b>
15	TAP has likely reduced the amount of time it takes for passengers to pay their fare, and the related time it takes to load passengers at each bus stop. However, the extent of reduced fare payment time and bus dwell time has not been effectively tracked nor reported.	TAP Program management should work with other appropriate Metro departments to develop and implement an ongoing approach and system for evaluating and reporting on the impact of TAP on passenger fare payment time, related bus dwell time, and overall impact on system efficiency.	33
16	TAP has had a substantial positive impact on the amount and quality of information available to transit operators. However, the potential benefit from the use of this information has not been fully utilized.	TAP Program management should work to identify current and potential uses of the TAP data and information, and should work with regional transit agencies to increase the accessibility and usefulness of this information, and provide case studies and examples of how this data can be used to improve and better understand customer behaviors and target marketing efforts, and to improve transit system operations and efficiency.	34
17	TAP has likely produced substantial benefits to transit riders and customers throughout the region. However, there has been no initiative to identify the priorities and concerns of transit customers, to identify the level of customer satisfaction or dissatisfaction with the TAP system and services, and to identify potential improvements.	TAP Program management should develop and implement an ongoing approach and system for collecting, analyzing, and using customer feedback and satisfaction information to identify benefits of the system to customers, determine levels of satisfaction, and target system improvements to customer priorities.	36

<b>Exhibit 1</b>			
<b>Summary of Findings and Recommendations</b>			
<b>No.</b>	<b>Finding</b>	<b>Recommendation</b>	<b>Page</b>
18	TAP has likely reduced the cost of fare media, distribution, collection, and counting. However, the extent of this cost reduction has not been effectively tracked nor reported.	TAP Program management should work with other appropriate Metro departments to develop and implement an ongoing approach and system for evaluating and reporting on the impact of TAP on cost of fare media, distribution, collection, and counting.	37
19	Substantial progress has recently been made toward regional integration of TAP.	TAP Program management should continue to build on the positive direction and momentum gained over the past several months, and continue to move TAP toward regional integration.	38
20	The lack of a capability for clearing, settlement, and distribution process for actual fare revenues among Metro, municipal operators, and regional partners was historically a major obstacle to regional integration of TAP.	TAP Program management should continue to work with municipal operators on TAP to improve the financial clearinghouse function and with operators that have not yet implemented TAP to increase their understanding of the financial clearinghouse and address their concerns.	41
21	An annual, independent review of the clearing, settlement, and distribution process has not been completed.	The TAP Program should move forward with implementing the Oversight Committee and the annual independent review for the financial clearinghouse function.	42
22	Although operating rules and memoranda of understanding for the TAP Program have been developed, many regional transit operators remain concerned about the lack of clarity in these operating rules and agreements.	TAP Program management should work with regional transit agencies to review and revise the TAP rules and memoranda of understanding to ensure they are fully understood and agreed to, and concerns are adequately addressed.	43



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<b>Summary of Findings and Recommendations</b>			
<b>No.</b>	<b>Finding</b>	<b>Recommendation</b>	<b>Page</b>
23	Although guidance on funding of TAP Program and Service Center costs have been developed, many regional transit operators remain concerned about how these costs will be allocated in the future.	TAP Program management should work with regional transit agencies to review and revise the current and future approach to allocating TAP Program and Service Center operations costs, and ensure they are fully understood and agreed to, and concerns are adequately addressed.	44
24	Although Metro has committed to fund most initial capital costs of implementing TAP, some regional transit agencies remain concerned about ongoing capital, operating and maintenance requirements and costs.	TAP Program management should work with regional transit operators to identify the potential ongoing capital, operating, and maintenance costs related to TAP and TAP equipment, and provide technical assistance to those agencies that request such assistance.	45
25	Documentation on the use of funding provided to regional transit agencies to purchase TAP equipment and implement TAP could not be located.	TAP Program management should ensure that obstacles to TAP implementation for each transit agency are substantially resolved prior to funding of TAP equipment purchases.	46
26	The current approach to issuing interagency transfers throughout the region limits the functionality and benefits of TAP.	TAP Program management should work with regional transit operators to develop and implement a revised and consistent interagency transfer policy for the region.	47
27	The format and flexibility of TAP data reporting capabilities could be improved.	TAP Program management should work with regional transit operators to identify and implement improvements to data reporting capabilities on an ongoing basis.	47
28	The quality and level of support provided by the TAP Service Center could be improved.	TAP Program management should complete its efforts to review and revise how TAP support services are provided.	48

<b>Exhibit 1</b>			
<b>Summary of Findings and Recommendations</b>			
<b>No.</b>	<b>Finding</b>	<b>Recommendation</b>	<b>Page</b>
29	The marketing of TAP, and information on how customers can obtain and use TAP could be improved.	TAP Program management should work with regional transit operators to identify and implement improvements to the TAP marketing and information campaigns.	49
30	The TAP Program would be more effective if TAP stakeholders were more directly involved in planning and decision making.	TAP Program management should identify and evaluate options for increasing stakeholder involvement in TAP planning and decision making and present these options to the Metro Board for consideration.	50
31	The current TAP Program organizational structure does not provide appropriate clarity or distribution of authority and responsibility, spans of control, coverage of key functions, or resources needed for TAP to be effective.	TAP Program management should move forward with implementation of the proposed revised organization structure.	53
32	The TAP Program would be more effective if key ongoing functions were performed by full-time Metro employees rather than consultants.	TAP Program management should move forward with plans to replace consultant staff with full-time Metro employees.	55
33	The TAP Program would be more effective if key ongoing functions were performed by permanent full-time Metro employees rather than temporary employees.	TAP Program management should move forward with plans to convert temporary staff position to full-time Metro employee positions.	55
34	Some key functions for TAP to be successful, and integrated throughout the region, are currently not staffed within the TAP Program.	TAP Program management should move forward with plans to augment the TAP Program staff to address staff shortages.	56
35	Most of the recommendations made in the previous review of TAP report have not been implemented.	TAP Program management should complete the implementation of open recommendations made in the previous review of TAP report.	57



## **2. Background**

The Universal Fare System (UFS) and Transit Access Pass (TAP) projects are intended to create a regional smart card transit fare system for use by Metro and regional municipal partners. UFS is the regional automated fare collection system and equipment. TAP is the smart card based regional fare payment program including loading, payment, and boarding transactions using UFS fare boxes, ticket vending machines, and validation devices. These two projects have essentially merged, and today are generally referred to as TAP. We use the term TAP to refer to the two projects throughout this report.

These projects were initiated in 1997, and have included contracts for program implementation, equipment, and a customer relationship management system. These contracts have had substantial modifications, change orders, extensions, and revisions. Internal Metro staff has also expended substantial effort and resources toward implementing these programs. The original budget has been increased significantly and the scope of work for the TAP Program has been expanded substantially.

In June 2012, the Board of Directors passed a motion directing the Inspector General to conduct a comprehensive review of the TAP Program including contracts and contract modifications, potential for in-house task provision, duplication between consultants and Metro staff, expenditure analysis, organizational structure, and costs and benefits of the program within the region.

In July 2012, the Chief Executive Officer assigned responsibility for the TAP Program to the Executive Director of Management, Budget, and Local Programming. As part of this action a multi-department task force was created to assess 1) how the TAP Program functions can be integrated within the agency, 2) the efficiency of TAP Program organizational structure, and 3) the scope of work for consultants, staff assignments, and resource needs. The intent is for the TAP Program to become a fully integrated Metro Program. The Request For Proposals for this review recognized that there is overlap between the task force assessment and this review. Thus, this review was conducted in close coordination with the task force.

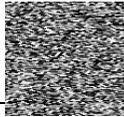
### **3. Scope and Methodology**

The scope of this review focused on the following objectives identified in the Request for Proposals:

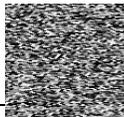
1. Review contracts, contract modifications (change orders), and contract charges.
2. Report on duplication of effort and redundancy by consultants and Metro staff.
3. Conduct an analysis of expenditures by consultants, including type of work for the last three years.
4. Evaluate the TAP Program organizational structure and methods to integrate it into various Metro departments based on function.
5. Provide cost/benefit analysis on monies expended versus regional success.
6. Gather other information that would provide context, background, or insight to the Board regarding the implementation of the TAP Program.

To complete this review we conducted the following tasks:

- Obtained and reviewed the work of the task force.
- Obtained, reviewed, and summarized TAP related contracts, change orders, and charges from inception to June 30, 2012.
- Identified Metro employees who work on the TAP Program and summarized tasks, time spent, and costs.
- Obtained and reviewed consultant billing summaries for FY 2010 to 2012.
- Reviewed consultants' expenditures for the last three fiscal years from 2010 to 2012.
- Selected a sample of transactions (ranging from 36% to 70% of total billed amounts) from each consultant's invoices billed to Metro and performed a detailed analysis to verify if the expenditures were reasonable, allowable, and adequately supported.
- Reviewed the role of consultants to identify non-specialized tasks being performed by consultants that could be performed by Metro employees.
- Held discussions with MTA management on the role of consultants versus Metro employees.
- Reviewed organization charts, job descriptions and work plans for all TAP Program employees.
- Conducted interviews with current and former TAP Program management, and with OMB management.



- Conducted individual interviews with all TAP employees and consultants.
- Conducted interviews with Metro management.
- Analyzed organization structure and functions of the TAP Program Office and other Metro departments involved.
- Evaluated the effectiveness of the current organizational structure based on TAP goals, objectives, current stage, and best practices.
- Discussed organization structure and options with TAP management.
- Reviewed Board actions, presentations, reports, and related materials to identify:
  - Functions, objectives, and expectations,
  - Potential benefits, and
  - Expected regional implementation.
- Reviewed progress reports and conducted interviews with key personnel to identify the status of TAP functions, objectives and expectations.
- Conducted interviews with representatives of 17 transit agencies in the County.
- Reviewed the 1998 Board report allocating \$17.5 million to transit operators.
- Reviewed and summarized contracts provided between transit operators and Cubic to acquire and install fare box equipment.
- Contacted Cubic to obtain additional contracts not available from Metro.
- Contacted Capital Planning to follow up and determine if any documentation on the distribution and use of funds provided to transit operators exists.
- Reviewed the 2009 TAP review report conducted by KPMG, TAP Program management responses, and the implementation progress report.
- Developed and submitted questions and document requests regarding prior review management responses and implementation progress report.



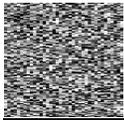
## **4. Contracts, Contract Modifications, and Expenditures**

The TAP Program has involved substantial contracts and work by five major contractors/consultants. These include Cubic, ACS/Xerox, Booz Allen and Hamilton, CH2MHill, and Systra. For each of these we obtained, reviewed, and summarized TAP related contracts, contract modifications, and charges since the program was initiated in 1997.

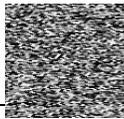
For each of these contractors we also identified and summarized the type of work completed. In addition, we obtained and reviewed billing summaries for FY 2010 to 2012 and reviewed expenditures for the last three fiscal years from 2010 to 2012. A sample of transactions (ranging from 36% to 70% of total billed amounts) was selected from each contractor's invoices billed to Metro to verify if the expenditures were reasonable, allowable, and adequately supported.

As depicted on the following page, since inception the Board has authorized expenditures totaling \$255.3 million in TAP contract costs, with actual contract amounts totaling \$222.2 million. As of June 30, 2012, actual contract expenditures total \$198.6 million, with \$23.6 million remaining under contract. Of the actual contract expenditures, \$145.8 million is funded by the TAP budget, and \$52.8 million was funded by other Metro funding sources.

The sections following the exhibit on the next page provide information on the contracts with each of the five TAP contractors, describes the type of work performed by each contractor, and the results of our expenditure testing.



<b>Exhibit 2</b>							
<b>Summary of TAP Contracts, Modifications, and Amounts</b>							
<b>Contractor</b>	<b>Contract No.</b>	<b>Description</b>	<b>No. of Mods</b>	<b>Board Authorized Amount</b>	<b>Contract Amount</b>	<b>Amount Booked (June 30, 2012)</b>	<b>Amount Remaining (June 30, 2012)</b>
Cubic	OP-02-4610-10	Universal Fare System	96	\$183,254,448	\$160,465,080	\$145,731,837	\$14,733,243
ACS / Xerox	PS33201664	Regional TAP Service Center	15	51,587,664	46,596,447	38,870,459	7,725,988
Booz, Allen and Hamilton	PS-4610-1026	UFS Implementation Manager	13	12,425,693	12,524,309	12,512,947	11,362
Booz, Allen and Hamilton	PS41602581	UFS Gating Technical Oversight	0	-	499,639	499,613	26
Booz, Allen and Hamilton	PS-4010-2178-11-08	TAP Support	1	500,000	495,196	58,001	437,195
CH2MHill	PS40102178-16-05-01A	Regional Fare Policy for TAP	1	500,000	407,545	402,173	5,372
CH2MHill	PS92402142-C14	TAP Technical Support	0	5,000,000	443,955	102,133	341,822
Systra	OP-39602112-02	Rail Vehicle and Rail Systems Engineering and Consulting Services Bench	2	2,000,000	771,117	427,678	343,439
<b>TOTALS</b>				<b>\$255,267,805</b>	<b>\$222,203,288</b>	<b>\$198,604,841</b>	<b>\$23,598,447</b>



## **A. Cubic Transportation Systems (Cubic)**

Cubic is a wholly owned subsidiary of Cubic Corporation specializing in the Defense and Transportation industries. The following summarizes the type of work performed by Cubic.

- Universal Fare Collection System (UFS Project) - Cubic was contracted by Metro for the development and implementation of the Universal Fare Collection System (UFS) project. Its work involved replacement of Metro Bus and Municipal Operator fare boxes, Metro Rail ticket vending machines, vaulting, and revenue reconciliation equipment. The work also required replacement of equipment at all fare media locations.
- Regional Central Data Collection System (Clearing House Project) - Cubic provided preliminary and final design, installation of equipment and system integration and training for the establishment of the Regional Central Data Collection System (RCDCS). This system provided the regional back office and clearinghouse functions needed to perform funds settlement and financial reconciliation and manage data for the regional participants. The system was used to generate reports, perform credit/debit card transaction processing, and distribute TAP card information to the TAP services providers.
- Metro Rail Gating Project (Gating Project) - Cubic provided the design and installation of rail gates at approximately 42 locations including all stations at Metro Red Line and Green Line, selected stations at Metro Blue Line and Gold Line.

After implementation, Cubic continued the installation and maintenance of the rail gates in accordance with the Board authorized lease and service agreements.

### ***Base Contract***

The base contract was to design, engineer, construct and install Metro's automated fare collection system. In March 2002, the Board authorized a base contract in the amount of \$84 million, with an additional \$5 million contingency for contract modifications. A total of 77 contract modifications have been issued on the base contract; 28 modifications had no cost impact, and 49 modifications had a total cost impact of \$4.2 million.

### ***Increases to Original Scope of Work***

A total of 19 contract modifications totaling \$72.3 million were issued due to significant increases in the scope of work from the base contract, including system expansion, system support, and maintenance. Changes in the scope of work included:

- Orange Line/Orange Line Extension (\$9.6 million)
- Eastside Extension (3.9 million)
- Expo Line (\$6.3 million)
- Regional Central Computer Center (\$5.3 million)

- Contract Operators Fare boxes (\$2.5 million)
- Gates (\$10 million)
- Maintenance and System Support (\$34.7 million)

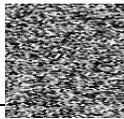
The exhibit below summarizes the contract modifications to the Cubic contract, including the base contract and changes due to substantial changes in the scope of work.

<b>Exhibit 3</b>		
<b>Summary of Cubic Contract Modifications</b>		
<b>Change Type</b>	<b>Number of Changes</b>	<b>\$ Amount</b>
<b>Changes to Base Contract</b>		
Administrative Changes	28	\$ 0
System, Equipment, Deductive Changes	49	4,185,120
Subtotal - Base Contract	77	4,185,120
<b>Significant Changes in Scope</b>		
Orange Line / Orange Line Extension	4	9,602,732
Eastside Extension	3	3,858,279
Expo Line	6	6,270,889
Regional Central Computer System	2	5,333,900
Contract Operators Fare box	1	2,499,916
Gates	2	10,044,611
Maintenance / System Support Services	1	34,666,189
Subtotal - Significant Changes in Scope	19	72,276,516
<b>Total Changes</b>	<b>96</b>	<b>\$76,461,636</b>

Expenditures incurred as of June 30, 2012 totaled \$145.8 million of which \$93 million was funded from the TAP budget and \$52.7 million was funded from other Metro funding sources.

***Finding 1: Substantial increases in scope, including system expansion, were accomplished through contract modifications rather than separate new contracts.***

The original contract with Cubic was issued in March 2002, over eleven years ago. The contract has been modified 96 times, including 19 modifications for substantial increases in the scope of work. Maintaining the base contract requirements as well as adding significant changes to the scope of work on the same contract without competition created questions. Although there may not have been any other alternatives but to use Cubic for the additional scope of work, negotiating and creating new



contracts for the additional scope of work may have been more transparent to the Board and public.

**Recommendation 1: TAP Program management should consider closing-out the current contract with Cubic and issuing new contracts for future work required.**

**Finding 2: Cubic's base contract modification value exceeded Board approved amounts by \$401,591.**

On February 28, 2002, the Board approved a base contract contingency amount of \$5 million for contract modifications. As of June 30, 2012, the total contract modification value, excluding modifications with separate delegated authority totaled \$5,401,591. We found no evidence of additional approval from the Board for the additional \$401,591 in expenditures over the Board approved amount as of June 30, 2012.

However, the Board did authorize an additional \$500,000 for miscellaneous changes to the Cubic contract on January 24, 2013. TAP Program management informed us that they plan to apply this additional Board authorized amount to cover the amount of fiscal year 2012 expenditures that were over the previous Board approved amounts.

**Recommendation 2: TAP Program management should follow through on plans to use the additional Board authority for miscellaneous changes to the Cubic contract to cover previous contract modifications that exceeded Board approved amounts.**

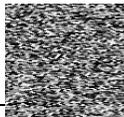
**Finding 3: The total value for all contract modifications is less than the Board approved amount.**

Since program inception, the Board has approved eight additional modifications to Contract No. OP-02-4610-10 for additional scope of work, including UFS equipment for new rail lines, regional central computer center, gating, system support and maintenance for a total amount of \$72.3 million. The total contract value for modifications No. 3, 25, 28, 40, 44, 61, 63 and 68 was \$71 million, \$4.8 million less than the Board approved amount. Per Metro's Contracting Officer, the remaining \$4.8 million cannot be used for other contract modification actions.

**Recommendation 3: TAP Program management should seek Board direction to re-allocate the remaining Board authorized funds.**

**Finding 4: Individual modification values and payments for the Cubic contract are not tracked in the Financial Information System (FIS).**

There were five purchase orders created in the FIS system for the Cubic contract. Invoices and payments are tracked in the FIS system by purchase order and project number. Individual modification values and payments are not tracked in the FIS system.



Some of the modifications are currently being tracked manually in Microsoft Excel spreadsheets by Construction Management staff.

Including a tracking number in the FIS system for each modification that has a dollar value would allow all modifications to be properly tracked. Construction Management staff would not have to track these manually. Also, since most of the modifications have a not-to-exceed amount, the Accounts Payable staff would be able to reject an invoice if it exceeds the purchase order amount for each individual modification before sending the invoice to management for review and approval.

***Recommendation 4: TAP Program management should work with other appropriate Metro departments to include a tracking number in the FIS system for each modification that has a dollar value.***

### **Review of Cubic Invoices and Payments**

Cubic incurred a total of \$13.4 million in expenditures for the fiscal years 2010 to 2012. During this period, a total of 58 invoices were submitted by Cubic for payment. We reviewed invoices totaling \$5.9 million, or 44% of the total invoice value.

We verified expenditures incurred and billed were allowable according to appropriate contracts, contract modifications, approved budget, funding source types, and applicable federal and state laws and regulations. We also verified that expenditures were approved properly for payment, if the actual payment was recorded and paid, and if the expenditures were recorded with proper accounting codes in the system.

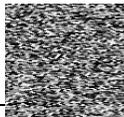
***Finding 5: All expenditures under the Cubic contract tested were found to be allowable and appropriate.***

Based on our sample testing of \$5.9 million of Cubic expenditures, we found that the expenditures incurred and billed were allowable according to appropriate contracts, contract modifications, approved budget, funding source types, and applicable federal and state laws and regulations. We also found that expenditures were approved properly for payment, the actual payment was recorded and paid, and the expenditures were recorded with proper accounting codes in the financial system.

***Finding 6: Some Cubic billings were recorded in the wrong fiscal year.***

In performing the invoice testing for Cubic expenditures, we noted some consultant billings were coded in the wrong fiscal year. We found expenditures of \$0.73 million that were incurred in fiscal year 2009 (February 2009 through June 2009), but were recorded in fiscal year 2010. Recording expenditures in the wrong accounting period results in inaccurate project financial reporting.

***Recommendation 5: TAP Program management should work with Metro Accounting staff to correct the expenditure period recording error.***



***Finding 7: Documentation attached to Cubic billing transactions in the Financial Information System (FIS) did not contain sufficient detail required to verify if the invoiced amount was adequately supported.***

During our review of Cubic's billing transactions in the FIS, we noted that the attached documents did not contain enough detail for us to verify if the invoiced amount was adequately supported. As a result, we had to request additional documents from Metro staff to verify if the billed amounts were adequately supported. Per TAP Program management, the department lacked sufficient labor resources to scan the supporting documents into FIS.

Scanning supporting documentation into FIS will result in avoiding the potential for loss of data due to change of personnel and create more efficiency in providing documents for management review and audit.

***Recommendation 6: TAP Program management should work with other appropriate Metro departments to scan pertinent documents required to support billing amounts into FIS.***

## **B. ACS State & Local Solution (ACS)/Xerox**

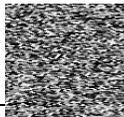
ACS is a wholly owned subsidiary of Affiliated Computer Systems, Inc. that specializes in information technology and business process outsourcing solutions for both government and commercial sectors. ACS was recently purchased by Xerox Corporation.

The contract with ACS is to design and develop a customer relationship management system; operate the clearinghouse for the distribution of fare revenue funds; operation and maintenance of the Customer Service Center; and host the Regional Central Computer system. In 2006, the Board authorized a contract in the amount of \$61.1 million. The actual contract amount to date totals \$46.6 million, with \$38.9 million expended as of June 30, 2012. The original or base contract was issued for \$31.6 million.

A total of 15 contract modifications were issued under the ACS contract as follows:

- Eight contract modifications totaling \$0.8 million included conducting a fare evasion study, purchasing smart card stock, adding temporary staff for spikes in call volume and card processing, and settling a claim.
- Six contract modifications had no cost impact.
- One modification extended the period of performance from July 1 2011 to June 30, 2013, with a cost of \$14.2 million.

The Board contracting authority for \$24.2 million was cancelled due to a decision to not exercise two options to extend the period of performance further.



## **Review of ACS/Xerox Invoices and Payments**

ACS/Xerox incurred a total of \$22.3 million in expenditures for the fiscal years 2010 to 2012. During this period a total of 59 invoices were submitted by ACS/Xerox for payment. We reviewed invoices totaling \$8.1 million, or 36% of the total invoice value.

We verified expenditures incurred and billed were allowable according to appropriate contracts, contract modifications, approved budget, funding source types, and applicable federal and state laws and regulations. We also verified that expenditures were approved properly for payment, if the actual payment was recorded and paid, and if the expenditure was recorded with proper accounting codes in the system.

***Finding 8: All expenditures under the ACS/Xerox contract tested were found to be allowable and appropriate.***

Based on our sample testing of \$8.1 million of ACS/Xerox expenditures, we found that the expenditures incurred and billed were allowable according to appropriate contracts, contract modifications, approved budget, funding source types, and applicable federal and state laws and regulations. We also found that expenditures were approved properly for payment, the actual payment was recorded and paid, and the expenditures were recorded with proper accounting codes in the financial system.

***Finding 9: Some ACS/Xerox billings were coded in the wrong fiscal year.***

In performing the invoice testing for ACS/Xerox expenditures, we noted some consultant billings were coded in the wrong fiscal year. We found expenditures of \$0.45 million that were incurred in fiscal year 2010 (March 2009 through February 2010), but were recorded in fiscal year 2011. Recording expenditures in the wrong accounting period results in inaccurate project financial reporting.

***Recommendation 7: TAP Program management should work with Metro Accounting staff to correct the expenditure period recording error.***

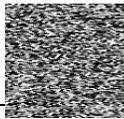
## **C. Booz, Allen and Hamilton (BAH)**

Booz, Allen and Hamilton (BAH) is a privately held corporation that provides strategy and technology consulting services to government clients around the world. BAH was awarded three contracts for TAP:

- Implementation Management (February 2001 to June 2010)
- Gating Technical Oversight (July 2010 to July 2011)
- TAP Support (November 2010 to November 2011)

### ***Implementation Management***

In April 2001, Contract No. PS-4610-1026 in the amount of \$4.5 million was awarded to BAH to provide consultant services for program implementation of the universal fare system project. As of December 31, 2012, 13 modifications were executed with a total value of \$8 million increasing the contract amount from \$4.5 million to \$12.5 million.



Total board authorized amounts increased from \$4.5 to \$12.4 million. Contract modifications include:

- Regional TAP Support (\$3 million)
- Orange Line and Base Contract (\$1.3 million)
- Gating Study (\$.4 million)
- Gating Support for 24 months (\$1 million)
- Support Regional Integration (\$2.1 million)
- Four contract modifications with minor cost impacts (\$.2 million)
- Four contract modifications were extensions with no cost impact

### ***Gating Technical Oversight***

In July 2010, MTA issued Contract No. PS46102581 to BAH to provide gating technical oversight services in the amount of \$.5 million for the period from July 1, 2010 to June 30, 2011.

### ***TAP Support***

In October 2009, the Board approved the Countywide Planning & Development Bench Contract PS-4010-2178 in an amount not to exceed \$20 million. This contract was for professional services for a three-year period with two one-year options beginning on November 1, 2009.

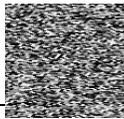
### **Review of BAH Invoices and Payments**

BAH incurred a total of \$2.25 million in expenditures for the fiscal years from 2010 to 2012. During this period, a total of 29 invoices were submitted by BAH for payment. We reviewed invoices totaling \$1 million or 44% of the total invoice value.

We verified expenditures incurred and billed were allowable according to appropriate contracts, contract modifications, approved budget, funding source types, and applicable federal and state laws and regulations. We also verified that expenditures were approved properly for payment, if the actual payment was recorded and paid, and if the expenditure was recorded with proper accounting codes in the system.

***Finding 10: All expenditures under the Booz, Allen and Hamilton contract tested were found to be allowable and appropriate.***

Based on our sample testing of \$1 million of BAH expenditures, we found that the expenditures incurred and billed were allowable according to appropriate contracts, contract modifications, approved budget, funding source types, and applicable federal and state laws and regulations. We also found that expenditures were approved properly for payment, the actual payment was recorded and paid, and the expenditures were recorded with proper accounting codes in the financial system.



## **D. CH2MHill**

CH2MHill is an employee-owned, multinational firm providing engineering, construction, operations and related services to public and private clients. In 2010, CH2MHill acquired the transit practice of Booz, Allen and Hamilton that had been providing services to the TAP Program. CH2MHill was issued two task orders under the Countywide Planning & Development Bench Contract PS-4010-2178.

### ***TAP Technical Support***

A task order was issued in January 2012 for \$400,000 to provide system integration and technical system program management oversight. No contract modifications have been issued on this task order. Actual task order expenditures through June 30, 2012 totaled \$100,000, with \$300,000 remaining.

### ***Regional Fare Policy***

A task order was issued in September 2011 for \$300,000 to provide a regional fare policy program and to continue providing technical support for the TAP financial clearing systems. One task order modification was issued for \$100,000 to develop a RFP for a new contractor for the TAP Regional Service Center. Actual task order expenditures through June 30, 2012 totaled \$400,000, with no funds remaining.

### **Review of CH2MHill Invoices and Payments**

CH2MHill incurred a total of \$560,000 in expenditures during FY 2012. During this period, a total of 9 invoices were submitted by CH2MHill for payment. We reviewed invoices totaling \$400,000 or 70% of the total invoice value.

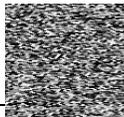
We verified expenditures incurred and billed were allowable according to appropriate contracts, contract modifications, approved budget, funding source types, and applicable federal and state laws and regulations. We also verified that expenditures were approved properly for payment, if the actual payment was recorded and paid, and if the expenditure was recorded with proper accounting codes in the system.

***Finding 11: All expenditures under the CH2MHill contract tested were found to be allowable and appropriate.***

Based on our sample testing of \$400,000 of CH2MHill expenditures, we found that the expenditures incurred and billed were allowable according to appropriate contracts, contract modifications, approved budget, funding source types, and applicable federal and state laws and regulations. We also found that expenditures were approved properly for payment, the actual payment was recorded and paid, and the expenditures were recorded with proper accounting codes in the financial system.

## **E. Systra**

Systra is a planning engineering design, and construction management firm specializing in transportation systems and facilities. In March 2008, the Board approved a five-year bench contract with three firms for architectural and engineering services. These



contracts provided for an amount not to exceed a cumulative value of \$10 million inclusive of two one-year options effective April 1, 2008.

The Board also approved task orders under the individual bench contracts for up to \$1 million per task order. Systra was issued two task orders under the bench contract for a total of \$770,000 to provide support in rail system tasks. Actual task order expenditures through June 30, 2012 totaled \$430,000 with \$340,000 remaining.

### **Type of Work Performed by Systra**

Systra was contracted by Metro to provide TAP rail systems operations and engineering support under Contact No. OP-39602112-02. Systra hired CH2MHILL and Aline Consulting, Inc. as the main subcontractors to provide technical support to this project. The services provided included the following:

1. Engineering support and construction management oversight.
2. Technical oversight and engineering support for gate locking.
3. Technical specifications for new smart card / phone applications.
4. Engineering support for TAP regional roll-out.
5. TAP management support.
6. Engineering support for Metrolink TAP integration.

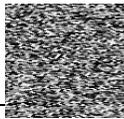
### **Review of Systra Invoices and Payments**

Systra incurred a total of \$430,000 in expenditures during FY 2012. During this time period a total of 4 invoices were submitted by Systra for payment. We reviewed invoices totaling \$250,000 or 58% of the total invoice value.

We verified expenditures incurred and billed were allowable according to appropriate contracts, contract modifications, approved budget, funding source types, and applicable federal and state laws and regulations. We also verified that expenditures were approved properly for payment, if the actual payment was recorded and paid, and if the expenditure was recorded with proper accounting codes in the system.

***Finding 12: All expenditures under the Systra contract tested were found to be allowable and appropriate.***

Based on our sample testing of \$250,000 of Systra expenditures, we found that the expenditures incurred and billed were allowable according to appropriate contracts, contract modifications, approved budget, funding source types, and applicable federal and state laws and regulations. We also found that expenditures were approved properly for payment, the actual payment was recorded and paid, and the expenditures were recorded with proper accounting codes in the financial system.



## 5. Functions, Objectives and Benefits of TAP

An objective of this review was to identify the original and any subsequent goals and objectives of the TAP Program, as well as the projected benefits. This included determining if the goals and objectives had been achieved, and if the benefits had been realized.

To identify the original and subsequent goals and objectives of the TAP Program we reviewed Board actions, presentations, reports, and related materials to identify:

- Functions, objectives, and expectations,
- Potential benefits, and
- Expected regional implementation.

To identify if the goals and objectives have been achieved, and if benefits have been realized we:

- Reviewed progress reports and conducted interviews with key personnel to identify the status of TAP functions, objectives and expectations.
- Conducted interviews with representatives of 17 transit agencies in Los Angeles County.
- Reviewed TAP management reports and information on operations.
- Interviewed TAP leadership and staff.

Progress toward achieving regional implementation or integration, along with obstacles to integration identified, is discussed in the next chapter of this report.

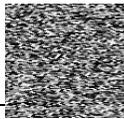
### A. Objectives and Functions of TAP

A complete list of the TAP business objectives and functions is provided in Exhibit 4 on the following page. The previous review of the TAP Program, conducted in 2009, also included a review of the business objectives and functions.

***Finding 13: A majority of the original business objectives and functionalities of TAP Program have been implemented and are operational.***

As shown in the Exhibit below, a majority of the original business objectives and functionalities of the TAP program have been implemented and are operational. Some original functionalities have been excluded due to system redesign and some original business objectives cannot be measured at this time.

<b>Exhibit 4: TAP Business Objectives and Functionalities</b>		
	<b>Planned Functionality Features</b>	<b>Included / Excluded in Current System Design</b>
<b>High Level Functional Elements (1996)</b>	A compatible system of hardware and fare media.	Included
	An integrated operator console to control driver log-in, all cash and electronic fare transactions and optional operator controlled features.	Included
	An integrated software system and regional financial clearing-house to collect data from cash and electronic transactions of all participating operators, and reconcile interagency transactions and product integrated financial reports at the end of each service day.	Included, but not delivered as of 2009 Delivered as of 2013
	Convenient off-bus value restoration systems for each electronic fare medium accepted to allow high value, credit card and debit card transfer to stored value fare cards.	Included, but not delivered as of 2009 Delivered as of 2013
	The ability to electronically issue and accept MetroCard transfers on the bus.	Excluded in 2001
	An ergonomic design that replaces current fare boxes.	Included
	A system that is able to be procured, operated, and maintained using traditional and nontraditional financing.	Included
	An optional on-bus MetroCard sales system.	Excluded in 2001
<b>Business Objectives (1998)</b>	Increased cost-effectiveness and functionality.	Cost effectiveness – Cannot be determined from data available (See section of report on TAP benefits) Functionality – Included
	Enable flexibility in fare pricing, enabling an increased share of prepaid fare media.	Included
	Maximize fare revenue collected while adhering to Consent Decree.	Cannot be determined from data available.
	Enable region-wide seamless fare collection – across operators, modes and fare structures.	Included, but not delivered as of 2009 or 2013
	Increase the reliability of the fare system.	Included
	Improve data collection and efficiency.	Included
	Improve passenger convenience in fare payment.	Cannot be determined from data available.
	Address shortcomings of the MetroCard system while continuing to support its use.	Excluded



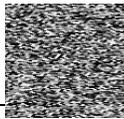
<b>Exhibit 4: TAP Business Objectives and Functionalities</b>		
	<b>Planned Functionality Features</b>	<b>Included / Excluded in Current System Design</b>
<b>General Functionality (2001)</b>	MetroCard magnetic stripe debit card.	Excluded in 2001
	A Smart Card.	Included
	Bus fareboxes.	Included
	Ticket vending machines.	Included
	Card validators for rail stations.	Included
	Point of Sale devices to add value to Smart Cards.	Included, but not delivered in 2009 Delivered in 2013
	A computer network to integrate the entire system and to provide consolidated reporting and interface to the regional clearinghouse network.	Included

The previous review concluded three objectives had yet to be implemented as of 2009. These three objectives have since been implemented, and are as follows:

- **Regional Financial Clearinghouse For Settlement And Distribution Of Fare Revenues** – was implemented in 2009. Based on feedback from those transit operators that are currently part of TAP it is working satisfactorily. The financial clearinghouse is discussed in more detail under Chapter 6 on Regional Integration and Obstacles.
- **Stored Value Fare Cards** – The TAP cards are enabled to store value, and there is currently approximately \$2 million of stored value sales and use on the TAP system monthly.
- **Improved Data Utilization** – TAP provides significant opportunity for improved data utilization. However, there is additional potential for improved use of data provided by TAP. This is discussed in more detail in a later section of this chapter of the report.

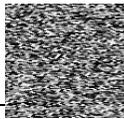
The previous review of the TAP Program recommended a planning process be established that includes defining clear and achievable objectives and measurable success criteria. The status of this recommendation is noted as “in-process” by the TAP Program. The response states that “the overall goal is to provide the region with a universal fare system allowing patrons to use one payment method. The objectives often change over time. However, this overall regional goal has stayed the same.”

It is important that new business objectives for the TAP Program be developed, given that the original business objectives and functionalities have been implemented. The technology to support electronic fare media has significantly changed since the original business objectives were defined. In addition, much has been learned since 1998 on the issues and needs of the region.



The following comments from representatives of the regional transit operators support the need for newly defined business objectives, and include:

- The hardware and infrastructure of TAP needs to be updated. Metro has been on TAP for 10 years. Some of the fare boxes and hardware are at the end of useful life. We need to be looking at replacement and updated hardware.
- Some have raised the concern that the TAP technology is old now. This raises questions about are we implementing a system that is now outdated?
- As a region we should be looking at moving toward a system that has a more open architecture – not so locked into one vendor.
- Big decision is whether to stick with current fare box system, or do we do this right and plan and come up with a true regional fare media that can be used everywhere, and has enough flexibility to be used by everyone. If we stick with the box, it will take a couple years to get all the policy issues resolved. Once up and running the current fare box will be at the end of its useful life. Huge regional decisions need to be made. Formally, the life of the box is about 8 years, we currently already beyond that. May be able to add a couple more years.
- Some other systems have already incorporated new technologies like Near Field Communication (NFC). If we implement the next generation of electronic fare collection correctly we can do something major for our customers in the region. We need to do this correctly. A key decision needs to be made. Do we move forward with TAP or design a new regional fare system?
- Biggest issue with implementation of TAP is mistrust. If Metro made a concerted effort to establish more trust and improve communication it would really help in moving things along. Would suggest ambassadors, or specific points of contact, for each agency.
- Need a task force to define the future of electronic fare collection. Bring all the agencies that have a stake in the system and work together to find the best solution. Have to think through from a very strategic perspective on how to move to the next level.
- There is no clarity on what is the next generation for electronic fare collection. How are we going to accommodate smart ticketing, smart phone technology, credit and debit cards when customers get on the bus? We need to learn about the options.
- Overall approach has to be more of a collaborative effort with all the participants being more involved in setting the scope of the approach. We need more consensus on the project from the region, with a regional grounds up approach to building the next generation. There are several subcommittees and such, but not sure the right structure is in place. The Muni's and Metrolink need to sit down together, and there needs to be a different governance structure put in place. Needs some more formal governance to make sure this gets done and done in a regionally correct way.



- Need to be looking to the future on what should be developed. Need to be able to evolve to accommodate smartphones, and looking super-regionally. Need some type of open system from San Diego to Santa Barbara. Expect fare boxes to have about a 10 year life. If we do not take advantage of the opportunities, we will not have the opportunity for another 10 years.
- Need to be looking at emerging technologies including Near Field Communications (NFC) and other smart phone applications. Smartcard technology is getting toward the end of its product life. The equipment on the vehicles is the real expense. If you want it to change, you need a long lead time for planning.

***Recommendation 8: TAP Program management should work with transit operators throughout the region to develop and publish new business objectives and system functionalities for TAP and regional electronic fare collection, as well as specific timelines and measureable success criteria.***

## **B. Benefits of TAP**

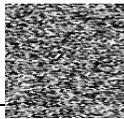
Overall, it appears there have been substantial benefits achieved from the implementation of TAP. However, these benefits have not been well documented or analyzed. In addition, little has been done to increase or maximize the potential benefits that could be achieved.

Below we discuss the benefits of the TAP program that were presented to the Board when decisions were made to implement TAP. The benefits of TAP include 1) increased revenue due to reduced fraud, forgery and fare evasion, 2) reduced fare payment time (bus dwell time), 3) improved data collection and analysis, 4) improved customer convenience and security, and 5) reduced cost of fare media, distribution, collection, and counting. In addition, we describe the information that is currently available on what benefits have been achieved, and recommendations to increase each of these benefits.

### **1. Increased Revenue Due To Reduced Fraud, Forgery and Fare Evasion**

Prior to implementation of TAP printed paper passes and paper transfers were the primary form of fare media throughout the region. The exception was the Metro Card, which was a magnetic stripe card in use by some transit agencies. The paper passes and transfers were fairly easy to forge. In addition, it was common for passengers to pass their paper passes and transfers to other passengers to use, reducing the amount of fare revenue collected.

Paper passes and transfers also relied heavily on review and verification by the bus operator of the validity of the pass. It was often difficult for operators to scrutinize and challenge paper passes when they were concentrating on loading passengers and safely operating the bus.



In addition, given the open design of the rail lines, fare evasion on the rail lines was a common occurrence. With no gates fare evaders would often take the risk of being caught by those assigned to verify riders had paid the fare and purchased passes.

Board presentations estimated that pass forgery and transfer fraud/abuse reduced passenger revenues by approximately \$3.8 million annually. The presentation to the Board stated that most of the loss due to pass forgery (\$2 million) could be eliminated by the TAP smartcard approach.

The presentation stated some of the transfer theft and abuse cost (\$1.8 million) could be eliminated, but the use of emergency and fare box printed transfers would still provide opportunities for transfer theft and abuse. It was estimated that nearly \$58 million in increased fare revenue from reduced fraud and forgery could be realized with the use of the TAP smart cards.

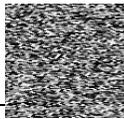
***Finding 14: TAP has likely reduced the level of fraud, forgery, and fare evasion on the system, resulting in increased fare revenue. However, quantifying the increased fare revenue has not been effectively tracked nor reported.***

TAP has made it much easier for bus operators to verify the validity of the fare media presented. When a boarding passenger passes their TAP card over the fare box the fare box emits two different distinctive tones indicating if the card is valid or not valid. The bus operator does not have to view the card, and is able to concentrate more fully on loading passengers and operating the bus.

Bus operators for Metro and for the other regional transit operators interviewed are instructed to take limited action to enforce a fare when the fare media is identified as not valid. Operators are required to "state the fare" and then allow the passenger to proceed to board if they choose. Metro buses are equipped with a system that allows the invalid fare to be recorded, and this information can be used to target the fare enforcement efforts of the Sheriff's Department. In addition, the functionality of the handheld device used by the Sheriff's Department to validate TAP cards could potentially be enhanced to allow fare enforcement personnel to issue citations and move toward an automated and paperless citation process.

Comments from representatives of the transit operators regarding the impact of TAP on forgery, fraud, and fare evasion include:

- Have seen a substantial increase in fare revenue and decrease in fare evasion. With paper passes it was easy for riders to just wave a piece of paper, difficult for operators to check the paper.
- TAP will help reduce fare evasion and forging tickets. Currently doing an audit of fare evasion. Current fare evasion is a little less than 3%. Would hope to be able to reduce the fare evasion by about 50%, with TAP as one of the solutions.
- One of the challenges is the customer will approach the fare box, box says the TAP card is not valid, but the operator cannot really enforce or resolve. The bus operators are instructed challenge and state the fare, and then let them ride. The operators are to try to get the customer to pay but not to escalate the situation.



- TAP has improved security over forgery or fraud. We did a contract with LASD as a sub with Metro focused on fraud with ASI TAP cards. Over the last year we have had over 400 convictions for fraudulent use of cards. The TAP has also pretty much eliminated forgery.

The previous review of TAP, conducted in 2009, recommended that a process for obtaining and analyzing information from TAP to evaluate trends in fare revenue be implemented. The review also recommended analysis of actual fare evasion based on site studies be conducted. The status of this recommendation is noted as "in-process" by TAP Program management.

The response states that site studies of actual fare evasion are underway, and the program is working with the Sheriff's Department to evaluate fare evasion on the system. The TAP Program has conducted analysis of fare evasion on the Red, Green, and Purple rail lines, and calculated the level of actual fare evasion. The primary purpose of this analysis is to support efforts to gate the entries and exits from the stations for these lines. The analysis has shown that net fare evasion rates range from 11% to 18% for these lines.

***Recommendation 9: The TAP Program should work with other appropriate Metro departments to develop and implement an ongoing approach and system for tracking and reporting on the impact of TAP on fare media fraud, forgery, fare evasion and fare revenue.***

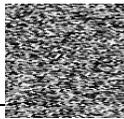
## **2. Reduced Fare Payment Time (Bus Dwell Time)**

Fare payment time is the time it takes for a passenger boarding a bus to make payment of their fare. The amount of time it takes to pay fares directly impacts the amount of time each bus must spend at a bus stop loading passengers.

In Board presentations, the average fare payment time using TAP was estimated to be reduced from the 3.07 seconds to between 2.27 and 2.68 seconds depending on how transfers were handled with the TAP smart card. By reducing the fare payment time, the amount of time buses take to load passengers, or bus dwell time, could be reduced. According to the 2001 analysis and presentation, reduced bus dwell time could reduce the number of bus operators required by Metro. The cost savings from the reduced bus operators ranged from \$.5 million to \$2.2 million depending on how transfers were handled with the TAP smart card.

***Finding 15: TAP has likely reduced the amount of time it takes for passengers to pay their fare, and the related time it takes to load passengers at each bus stop. However, the extent of reduced fare payment time and bus dwell time has not been effectively tracked nor reported.***

The TAP Program has not completed any analysis of the impact of TAP on passenger fare payment and loading time, nor the impact on overall system efficiency. As part of this review we met with and discussed passenger loading and bus dwell time with



Metro's System Performance Analysis (SPA) group. We were told that SPA had attempted to evaluate the impact of TAP on bus dwell time and system efficiency.

Specifically, they attempted to determine if there was any correlation between increased use of TAP for fare payment and the amount of time it takes to load passengers. They stated they were unable to reach any definitive conclusions because there were too many other variables involved. For example, even if a bus loads its passengers more quickly, it may still delay leaving the stop to avoid going off schedule.

Taking advantage of the TAP's potential benefit of faster boarding time may take more concerted effort, including analyzing in detail the impact on boarding time, and making appropriate changes in schedules. The TAP Program should work with SPA to develop and implement an approach to tracking the impact on bus loading and dwell time, and develop approaches to take advantage of this potential benefit.

Comments from representatives of the transit operators include:

- TAP improves boarding time on buses. Have seen a major difference in bus loading time using TAP, and have also received feedback from operators that TAP speeds bus loading.
- Hoping implementing TAP will speed boarding time, and decrease bus dwell time.

***Recommendation 10: TAP Program management should work with other appropriate Metro departments to develop and implement an ongoing approach and system for evaluating and reporting on the impact of TAP on passenger fare payment time, related bus dwell time, and overall impact on system efficiency.***

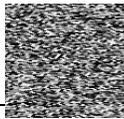
### **3. Improved Data Collection and Analysis**

The data from TAP has three primary uses 1) to provide more accurate passenger count information, including by time and route, 2) to provide improved information on rider behavior and response to marketing efforts, and 3) to provide improved information for system planning and scheduling.

***Finding 16: TAP has had a substantial positive impact on the amount and quality of information available to transit operators. However, the potential benefit from the use of this information has not been fully utilized.***

Prior to implementation of TAP, Metro and the other regional transit systems mostly relied on operators to count passengers, and to provide information on different types of fares or passes used. This approach was not very accurate given the multiple responsibilities of the operators. TAP has essentially automated the counting of passengers, including recording specific information on the type of fare or pass used. This provides much more accurate, detailed, and useful information on passengers.

Comments from representatives of the transit operators regarding the impact of TAP on information captured include:



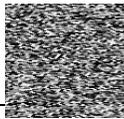
- TAP allowed us to capture better data. Before TAP, we had to rely on the operators to push the correct button. With TAP, we have better data and more confidence in the data. Primarily, it has helped with passenger count, but also counting by type of fare and by route.
- Internally, the primary benefit of TAP is tracking. We know how much customers are using the various systems, and information provides detailed transaction details by operator. This has really cleaned up and protected relationship on funding reimbursements.
- If there is ever any kind of question about use of TAP, the TAP data helps answer customer questions about service.
- Passenger counts are currently not accurate – using electronic eyes and such to do the counting. Expect that when TAP is implemented the passenger count data accuracy will improve substantially.
- The only way to count passengers currently is for the operator to do the count. If we can move the counts into TAP, it would automate the count, and the count would be much more accurate. We are audited annually for EZPass. If we could remove the human factor the passenger count and accuracy will be much cleaner.

TAP data also has the potential to obtain and use better information on actual customer behavior, and the ability to segment that data by different customer groups or markets. This could allow Metro and other transit operators the ability to evaluate the outcomes and effectiveness of targeted marketing campaigns, as well as to determine if efforts to effect customer behaviors were working.

Comments from representatives of the transit operators regarding the impact of TAP on understanding different customer groups and market segmentation include:

- TAP allows us to know how different customer groups are paying and provides market segmentation data. A few years ago, we did a big push with the local school district. We worked with the school district to get TAP machines at bigger schools. This has really helped in getting the students on board and getting them familiar with the technology.
- TAP has the potential to provide much improved data. This includes origin and destination information for system planning, data to determine Return on Investment (ROI) on marketing efforts based on targeted marketing and driving the ridership. Right now there are too many unknowns. Currently, there is no market segmentation data; we may find out they would be better off marketing in areas where there is no current marketing, because they do not have the data.

As mentioned in the above comment, TAP data also has the potential to provide important origin and destination information to improve system planning and efficiency. Passengers using TAP are currently only required to use their TAP cards when boarding or at their origin. However, this information can be used to determine both the origin and destination for their trip.



As part of this review we met with and discussed origin and destination information with Metro's System Performance Analysis (SPA) group. We were told that SPA had begun using the information collected through TAP to identify both the origin and destination of passengers.

This is accomplished by making the reasonable assumption that the next time a passenger uses their TAP card it will be from the destination of their previous tip. For example, if a passenger boards in the Antelope Valley you can track that as their original destination. When the same passenger boards next at Union Station it can be extrapolated that Union Station was that passenger's destination during their initial trip.

While there may be some exceptions to this, and the assumption may not be accurate in all cases, it provides a reasonable proxy for actual destination data. Staff from the SPA group informed us that they were using this origin and destination data to identify travel patterns throughout the County that could potentially be served in much more direct and efficient ways.

Once the efforts to lock the gates at the rail stations are implemented, the amount of actual origin and destination data, where those lines are part of the passenger trip, will increase. The use of this data, and the potential to expand on requiring passengers to "TAP" out of the system when exiting could provide additional valuable origin and destination data. This could potentially facilitate not only improved service, but allow for changes in fare policy including distance based fares.

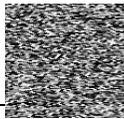
***Recommendation 11: TAP Program management should work to identify current and potential uses of the TAP data and information, and should work with regional transit agencies to increase the accessibility and usefulness of this information, and provide case studies and examples of how this data can be used to improve and better understand customer behaviors and target marketing efforts, and to improve transit system operations and efficiency.***

#### **4. Improved Customer Convenience and Security**

Presentations to the Board regarding TAP stated that substantial benefits could be provided to customers under the TAP smart card system, including auto-load capabilities, balance protection (through card registration), lowest fare guarantee programs and third-party applications.

***Finding 17: TAP has likely produced substantial benefits to transit riders and customers throughout the region. However, there has been no initiative to identify the priorities and concerns of transit customers, to identify the level of customer satisfaction or dissatisfaction with the TAP system and services, and to identify potential improvements.***

Comments from representatives of the transit operators all included the perspective that TAP provides a major customer convenience, making it easy to transfer among systems, more flexible payment options, increased security over fare payments, and other key benefits.



As with any customer based service, information from the customer's served is essential for establishing priorities and determining the timing of various elements of the customer service. It is also essential for obtaining feedback on what elements of the service are working well, which are not working satisfactorily, and how the service could most be improved from the perspective of those using it.

***Recommendation 12: TAP Program management should develop and implement an ongoing approach and system for collecting, analyzing, and using customer feedback and satisfaction information to identify benefits of the system to customers, determine levels of satisfaction, and target system improvements to customer priorities.***

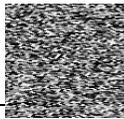
### **5. Reduced Cost of Fare Media, Distribution, Collection, and Counting**

Board presentations regarding TAP estimated the annual costs for collection, counting, fare media, and distribution could be reduced by about \$1.2 million annually using the TAP smart card. These cost savings were mostly due to estimated reduced cash room processing costs.

***Finding 18: TAP has likely reduced the cost of fare media, distribution, collection, and counting. However, the extent of this cost reduction has not been effectively tracked nor reported.***

Some information indicates that these potential benefits have been accomplished. However, there is no objective analysis of the extent of each of these benefits. Operator interviews have provided substantial positive information on the benefits of TAP. Some of the transit operators interviewed stated that there is less administrative work needed with TAP. Prior to TAP there was a lot of manual work required, including manually counting passes. Since implementation of TAP this is no longer required, and the administrative workload has been reduced.

***Recommendation 13: TAP Program management should work with other appropriate Metro departments to develop and implement an ongoing approach and system for evaluating and reporting on the impact of TAP on cost of fare media, distribution, collection, and counting.***



## **6. TAP Regional Integration Progress and Obstacles**

The overall objective of the TAP Program was “to enable seamless, coordinated, intermodal and interagency transit travel in Los Angeles County.” An objective of this review was to identify progress made toward the regional integration of the TAP Program. This included identifying obstacles to regional integration.

To identify expectations for regional integration we reviewed Board actions, presentations, reports, and related materials. To identify progress toward regional integration we:

- Reviewed progress reports and conducted interviews with key personnel to identify the status of TAP functions, objectives and expectations.
- Conducted interviews with representatives of 17 transit agencies in Los Angeles County.
- Reviewed TAP management reports and information on operations.
- Interviewed TAP leadership and staff.

### **A. Recent Progress Toward Regional Integration**

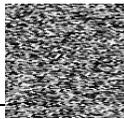
As early as 2001 the municipal operators supported the implementation of TAP under specific conditions. In 2001, a letter to the Metro Board included the following conditions:

- Allow the cash paying customer the ability to transfer to another system without having to pay another full fare.
- Provide funding to upgrade the Municipal Operators fare collection systems.
- Allow integration with the Municipal Operators fare collections systems.
- Provide for the development of a Smart Card Clearinghouse Procedures with the Municipal Operators prior to the installation of new equipment on buses.

The expectation of regional implementation has been partially implemented, with 9 transit operators currently participating. The remaining 15 transit operators have recently signed letters of intent to implement TAP.

#### ***Finding 19: Substantial progress has recently been made toward regional integration of TAP.***

The positive progress toward regional integration of TAP has been the result of 1) a change in leadership and approach for TAP, 2) use of the mobile or light validator for TAP, 3) resolution of Metrolink TAP compatible ticketing, and 4) completion and testing of gate latching initiatives. Each of these is discussed in the following sections.



## **1. Change in Leadership of TAP**

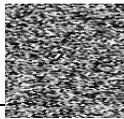
The change in leadership at Metro for the TAP Program, implemented in October 2012, has had substantial positive impact on regional integration progress.

Comments from representatives of the transit operators regarding the recent leadership changes include:

- Have seen a major change in the attitude and approach by TAP management. There are now a lot of people supporting TAP that were not supporters in the past.
- Munis were recently given more input and control, which has created the increased momentum toward regional implementation. Previously, Metro made all the decisions and expected the Munis to come along. Should have done more policy work at the front end before designing the system – instead designed the system first.
- Communication and coordination is better now. TAP has been reorganized, and a better team is in place. They meet more frequently with the Munis, and the Transit Operators Group (TOG) and other working group helps with getting the word out.
- The change in TAP management has been very positive.
- New leadership at the helm TAP is working much better because the new leader listens. That is what got us to join TAP. Under the new leadership we have meetings, are able to express concerns, and come up with amicable solutions. The new leader also understands the importance of accurately distributing the fare revenue.
- The new leader is very fair and practical. Whatever bugs or issues come up now are handled efficiently. Previously, there was one way and you either towed the line or you did not. Now there is much more of a partnership in terms of working with the municipal operators. When it comes to money (fare revenue) people need to have faith there is integrity in the system and their voices will be heard.
- Changes made in TAP management have really been fantastic. My agency would not be on board if changes had not been made. Before there was no desire before to work with us.

## **2. Mobile or Light Validator for TAP**

The standard approach for transit operators to implement TAP was to replace the entire fare box on each of their transit vehicles with a TAP enabled fare box. This required a major capital expense, and limited the choice of transit operators in terms of fare box equipment available. Recently, this approach has been modified to allow for implementation using a mobile or light validator for TAP. This is a much smaller piece of equipment that can be used with existing fare box equipment to validate and accept



TAP cards.

While there are still implementation hurdles to overcome, the mobile validator significantly simplifies implementation for transit operators. All transit operators in the County that were not already part of TAP have expressed an interest in becoming part of TAP using the mobile validators.

### **3. Metrolink TAP Compatible Ticketing**

A long-term obstacle to implementation of TAP by Metrolink was the lack of compatibility between paper issued Metrolink tickets and plastic TAP cards. These obstacles have recently been resolved through the development of paper ticket stock with a TAP chip embedded inside. This ticket stock works in the existing Metrolink ticket vending machine, and tickets issued using this stock can be used as TAP cards. The TAP enabled paper tickets were recently tested, and worked without failure. Metrolink plans to become part of TAP in June 2013 using the TAP embedded paper ticket stock.

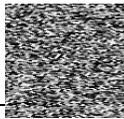
### **4. Gate Latching Initiatives**

The TAP Program, along with several other Metro departments, has been working several years toward latching the gates for Metro rail lines. The gates have now been installed. Standard operating procedures for responding to gate help phones and issues have been developed, and staff within the Rail Operations Center has been augmented and trained to respond to gate related calls. The gate latching and procedures were tested. This successful test, along with the TAP enabled Metrolink tickets, allows for the latching of the gates in June 2013 on the Metro Red and Purple lines.

***Recommendation 14: TAP Program management should continue to build on the positive direction and momentum gained over the past several months, and continue to move TAP toward regional integration.***

## **B. Obstacles to Regional Integration**

Even with the substantial positive momentum currently behind regional integration of TAP there continue to be obstacles that must be overcome. Obstacles to regional integration of TAP, both historically and currently, are discussed below and include 1) fair and accurate allocation and distribution of fare revenue, 2) clarity in TAP program business rules and agreements, 3) unknown future allocation of TAP back office and support costs among operators, 4) unknown capital, operating, and maintenance requirements and costs, 5) efficiency of interagency transfer approach throughout the region, 6) improved and more flexible reporting capabilities, 7) improved support provided by the TAP Service Center, 8) improved marketing and information on how to use TAP, and 9) more regional involvement in TAP planning and decision-making.



## **1. Allocation and Distribution of Fare Revenue**

Municipal operators depend on the fare revenue generated. They reasonably require an accurate and transparent fare revenue collection, allocation, and distribution process. Reduction or variations in fare revenue could have a substantial impact on these operators.

***Finding 20: The lack of a capability for clearing, settlement, and distribution process for actual fare revenues among Metro, municipal operators, and regional partners was historically a major obstacle to regional integration of TAP.***

As discussed previously, the development of a financial clearinghouse for fare revenue was identified as a condition of implementation of TAP by municipal operators in 2001. In February 2005, the contract with Cubic was modified to include providing a regional central data collection system for the financial clearinghouse. This system and clearinghouse was still not implemented in 2009 when the previous review was completed, noting that the financial clearinghouse was one of three original TAP objectives that had not been accomplished. The financial clearinghouse has since been implemented.

We interviewed representatives of 17 of the County's municipal transit operators. The municipal operators that are currently part of TAP expressed confidence in the financial clearinghouse function and the accuracy of the regional allocation of fare revenues. Several stated they had conducted thorough reviews of the financial clearinghouse processes, data, and results. They stated there was still room for improvement, but were satisfied with the accuracy and fairness of the regional fare revenue allocation and distribution.

Comments from representatives of the transit operators that are already part of TAP include:

- All issues with the financial clearinghouse have been resolved. No longer hearing any problems. New leadership of TAP has been able to resolve the concerns with the clearinghouse.
- Previously, had the issue with the clearinghouse, and how the system was going to reimburse revenue from prepaid fares. Primary concern was with the allocation and distribution of revenue. If assured that good data and a transparent system for allocating and distributing fare revenue would feel better about TAP.
- We get a report from the financial clearinghouse every month and they reconcile. We are satisfied with the information tying back to our reports. There could be some other reports generated that could improve accuracy. The financial clearinghouse approach and process makes sense. We have gone through the system and reviewed it thoroughly, and are satisfied with its accuracy. The data is verifiable within reason.
- Accounting has been reconciled on a monthly basis, and we have tried up every month and have not had any difficulties on the reconciliation. Generally, we receive the money owed and are comfortable generally with how it works.

- So far have not had any problems with the clearinghouse. Revenue allocation and distribution is properly functioning.
- Allocation and distribution of revenue has been a big concern with TAP. The issues are with the policies of the program, not the program itself. Been an earlier adopter of TAP, but one of the barriers we have seen is the apprehension or reluctance to adopt because transit operators are not confident they will get what is owed to them. Finalizing business rules and clearinghouse procedures would help resolve the matter.

Operators not yet part of TAP were also interviewed as part of this review. Several also stated they had reviewed the clearinghouse function and felt confident in its accuracy. Other expressed a lack of understanding of the clearinghouse, concerns about its accuracy, and the potential for negative impact on their fare revenue.

Comments from representatives of the transit operators that are not yet part of TAP include:

- Primary obstacle to implementation of TAP has been people are not willing to give up control without knowing how they will get their money back.
- We have ongoing concerns about the allocation and distribution of fare revenue. Need further clarification.
- The financial clearinghouse remains a concern. Still not sure how it all works. Need to be provided a better understanding of how the clearinghouse works.
- The financial clearinghouse and accounting or revenue collection and distribution process needs to be clarified. It seems too complicated, and we are not sure its accurate and fair.

***Recommendation 15: TAP Program management should continue to work with municipal operators on TAP to improve the financial clearinghouse function and with operators that have not yet implemented TAP to increase their understanding of the financial clearinghouse and address their concerns.***

***Finding 21: An annual, independent review of the clearing, settlement, and distribution process has not been completed.***

The prior review of TAP recommended that the process for clearing, settlement, and distribution of fare revenue collected through TAP be conducted annually. TAP Program management has stated that this review has not been scheduled. A planned financial workshop to provide information to municipal operators on the clearinghouse process has also not been scheduled.

TAP management also stated that they would be recommending establishing an Oversight Committee over the clearinghouse function, and if approved the annual review would be implemented as part of the Oversight Committee responsibilities. The Oversight Committee, and the annual independent review of the clearinghouse function

and processes would be positive steps, and would contribute to the level of confidence municipal operators would have in the allocation and distribution of fare revenue.

***Recommendation 16: The TAP Program should move forward with implementing the Oversight Committee and the annual independent review for the financial clearinghouse function.***

## **2. Comprehensive Business Rules and Agreements**

As a regional system of electronic fare collection TAP requires participation from a wide variety of agencies and entities. It is important to establish clear rules and guidelines on the responsibilities of each agency, how these agencies will interact with the TAP Program, and how potential incidents and disagreements will be addressed and resolved. These rules and guidelines should be developed cooperatively, and documented in a signed Memoranda of Understanding.

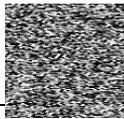
***Finding 22: Although operating rules and memoranda of understanding for the TAP Program have been developed, many regional transit operators remain concerned about the lack of clarity in these operating rules and agreements.***

Comments from representatives of the transit operators on TAP business rules and agreements include:

- We have been working on a handshake agreement with TAP. If something were to happen we need a documented policy or agreement that outlines a process for resolving. This would also eliminate some of the barriers to other agencies.
- We feel like we are working on a project without a contract. We are operating on good faith, but would be better if things were more fully documented. There is still a high level of uncertainty.
- Giving up control of the fare revenue is giving up a lot of their day-to-day activity, without knowing how issues or procedures will be resolved.
- There are a lot of unknowns with TAP. Metro would do a good service by describing what is involved in implementing TAP, including costs and better describing why it is beneficial.
- Unclear who should be responsible for recovering fare revenue due to bad TAP cards. Bus operators have to allow patrons to board for free. Have about 100-150 per month, which adds up over time. We should be able to bill Metro for these.

The TAP Program has developed a set of rules and guidelines for the Program. These rules, titled the Regional TAP Program and Service Center Operating Rules state:

*These operating rules establish operating parameters and procedures for the operation and maintenance of the Transit Access Pass (TAP) system. This document identifies transit operators' responsibilities related to implementation, operation, and maintenance of the system, Metro's*



*responsibilities related to implementation, operation and maintenance of the system, the TAP Service Center's responsibilities related to implementation, operation and maintenance of the system, and system policies. The rules and policies contained in this document are not intended to describe procedures for every scenario that will arise related to the implementation, operation and maintenance of the TAP system.*

The rules are very comprehensive, and appear to address the necessary elements for a program such as TAP. However, it is unclear the extent to which these rules are understood and accepted by the regional transit agencies.

***Recommendation 17: TAP Program management should work with regional transit agencies to review and revise the TAP rules and memoranda of understanding to ensure they are fully understood and agreed to, and concerns are adequately addressed.***

### **3. Future Allocation of TAP Back Office and Support Costs among Operators**

Metro incurs substantial costs to support the TAP Program. This includes the TAP Program Office within Metro as well as the currently contracted TAP Service Center.

The TAP Program consists of Metro staff and contractors that support the development, implementation, and operation of TAP. This program currently is budgeted for \$9 Million in annual expenditures.

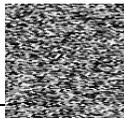
The Service Center, currently operated under contract by ACS/Xerox, also provides support services for TAP. This includes operation and maintenance of the Customer Service Center, operating the clearinghouse of the distribution of fare revenue funds, and hosting of the Regional Central Computer system. The cost of these services is currently approximately \$10 million annually.

***Finding 23: Although guidance on funding of TAP Program and Service Center costs have been developed, many regional transit operators remain concerned about how these costs will be allocated in the future.***

The Regional TAP Program and Service Center Operating Rules provide guidance on how the costs of the Regional TAP Service Center are to be funded as follows:

*Annual operating cost of the Regional TAP Service Center is estimated at \$10 million per year for full regional operations based on an independent Engineers Estimate that was completed before the Request for Proposal (RFP) was issued for the Regional TAP Service Center. These costs are to be funded as follows:*

- *Metro – 70%*
- *Municipal Operator Participants – 15% (to be paid from Prop C 40% Discretionary funds)*
- *Cost recovery – 15% (card fees, surcharges, other TAP applications)*



*Revisions to this cost model will be considered as necessary in future years when participant agencies have fully deployed TAP card capabilities. An assessment of operating costs can be determined annually once the regional participants and Metro have been in a "steady state" of operation.*

Comments from representatives of the transit operators concerns on how future back office and service center operation costs will be allocated include:

- The question of who pays back office and future expenses still has not been answered.
- Would like to know what the future costs will be.
- At the beginning the TAP cards were free, now we have to pay for them. What is next, what else will we have to pay for, such as the marketing? How will that allocated among agencies?

***Recommendation 18: TAP Program management should work with regional transit agencies to review and revise the current and future approach to allocating TAP Program and Service Center operations costs, and ensure they are fully understood and agreed to, and concerns are adequately addressed.***

#### **4. Capital, Operating, and Maintenance Requirements and Costs**

Implementation of TAP by regional transit agencies requires substantial capital expenditures to acquire and install the TAP equipment. This includes the TAP equipment itself, as well as the infrastructure to support TAP, and to link each agency's TAP equipment to the central TAP computer center. TAP installations will also incur some ongoing operating and maintenance costs.

***Finding 24: Although Metro has committed to fund most initial capital costs of implementing TAP, some regional transit agencies remain concerned about ongoing capital, operating and maintenance requirements and costs.***

Comments from representatives of the transit operators concerned about ongoing capital, operating, and maintenance requirements and costs include:

- The main roadblocks to implementing TAP are the capital cost of the equipment and concerns about the ongoing maintenance costs. Not sure what the ongoing costs are, but probably pretty high.
- We expressed interest in the mobile validators, but did not commit. We gave them the number needed for the fleet, but expressed concerns about the maintenance and operating costs. We have very little understanding of what the commitment is.
- Need to see some metrics on the proposed mobile validator. The information is not there to make us comfortable that this is a good viable solution. There are too many unknowns, including who is currently using the mobile validator, and the issues and challenges. Also do not want one more piece of equipment on a

highly technical vehicle. How will this impact our maintenance costs down the road, and who will fund that long term? There is information on how it will be funded upfront, but no information on installation, operations, maintenance requirements and costs.

- The major obstacle to joining TAP has always been the implementation cost, including buying the fare box equipment. If it were not for the local match we would have joined before.
- Still do not have enough information on what technology issues we should be concerned with to implement TAP. What do we need to be doing to make sure we have adequate infrastructure and personnel to take care of the mobile validators? Metro has never provided this information. We are moving forward with the Mobile validators – how do you turn down free equipment? Hope is that they will not just provide free equipment – will provide actual technical assistance.

***Recommendation 19: TAP Program management should work with regional transit operators to identify the potential ongoing capital, operating, and maintenance costs related to TAP and TAP equipment, and provide technical assistance to those agencies that request such assistance.***

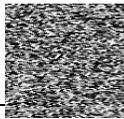
***Finding: 25: Documentation on the use of funding provided to regional transit agencies to purchase TAP equipment and implement TAP could not be located.***

In November 1998, the Metro Board approved \$17.5 million for the regional operators to purchase equipment to facilitate TAP implementation. As part of this review we attempted to obtain documentation on the amounts allocated to different agencies, and on the actual use of those funds.

From interviews, we have learned that funds provided to transit operators was Federal funding (FTA) distributed through the Regional Transportation Improvement Program (RTIP). The FTA RTIP funds were distributed through Metro Capital Planning. No written documentation on distribution, use, or follow-up on funds provided to transit operators could be located by Metro Capital Planning. The timing of this distribution is beyond the record retention period.

We discussed these funds with TAP and transit agency staff. The consensus was that these funds were used appropriately to purchase and install equipment to support implementation of TAP. However, other obstacles and issues prevented implementation of TAP. The primary obstacle was the lack of a financial clearinghouse for allocation and distribution of fare revenue discussed previously in this report. In retrospect, it would have been advisable to ensure obstacles to TAP implementation were resolved prior to providing funding for equipment.

***Recommendation 20: TAP Program management should ensure that obstacles to TAP implementation for each transit agency are substantially resolved prior to funding of TAP equipment purchases.***



## 5. Interagency Transfer Approach throughout the Region

Currently, transit agencies require passengers to purchase any needed transfers on their first boarding. This requires bus operators for some agencies to use the fare box to issue a paper transfer. Other agencies, including Metro, have bus operators issue manual paper transfers.

***Finding: 26: The current approach to issuing interagency transfers throughout the region limits the functionality and benefits of TAP.***

The use of these paper transfers take passengers outside the TAP system and provides little information on the use of transfers. It also significantly slows passenger loading. TAP could be used to accommodate transfers, and some paper transfers could be eliminated if transfers were recorded and paid for on a passenger's second boarding.

Comments from representatives of the transit operators regarding the current interagency transfer policies include:

- TAP should be able to provide better fare media for the customer and for the transit agencies. When passengers order transfers the operators have to print them, punch them correctly, and the passenger has to give it to the next driver. If regionally able to move to the second boarding as transfer those issues could be eliminated
- There are some fare policies that should be streamlined. This includes the transfer policy and senior fares. If these were streamlined would make it much easier to administer. Not all transit agencies are willing to give up the control over fares. Also comes down to money because it could result in lower revenue for some.
- There has been talk in the Region about doing the interagency transfers on the second bus. Starting to get together and work toward resolving regional fare issues.

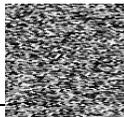
***Recommendation 21: TAP Program management should work with regional transit operators to develop and implement a revised and consistent interagency transfer policy for the region.***

## 6. Improved and More Flexible Reporting Capabilities

As discussed in the previous chapter, increased and improved data is one of the primary benefits provided by TAP. This includes more accurate passenger count information, information on passenger behavior and their response to marketing efforts, and improved information for system planning and scheduling.

***Finding: 27: The format and flexibility of TAP data reporting capabilities could be improved.***

Comments from representatives of the transit operators regarding TAP information and reporting include:



- Have some wishes for improvements of reporting that have been incorporated into the latest change orders. The TAP reports are used on a daily basis. Would like the reporting system to be easier to customize. We have to go back to Metro to design any specific report for our needs. Would be nice if the system would allow adding and removing different categories to the reports without having to become part of the standard reporting system.
- Thought that we would be able to manipulate the data from TAP more. The reports can be exported to Comma Separated Value (CSV) format, but cannot customize them to meet our individual needs. Would like much more flexibility.

The primary concern is that the TAP data is currently provided primarily in comma separated value (CSV) format. Using this format results in substantial effort to reformat and clean up the data provided. The TAP Program has initiated efforts to improve data reporting capabilities.

***Recommendation 22: TAP Program management should work with regional transit operators to identify and implement improvements to data reporting capabilities on an ongoing basis.***

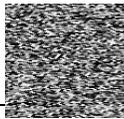
## **7. Support Provided By the TAP Service Center**

The TAP Service Center, currently provided under contract with ACS/Xerox, is responsible for supporting TAP. This includes operating the TAP customer service center for TAP customers to obtain information and resolve issues and concerns. The TAP Service Center also supports TAP participating agencies, providing TAP cards, marketing materials, and other support services. The Service Center is also responsible for supporting the third-party vendor network of TAP cards.

***Finding: 28: The quality and level of support provided by the TAP Service Center could be improved.***

Comments from representatives of the transit operators regarding the TAP Service Center include:

- Customer service center provides poor service. It takes too much time to get through to them, and need to provide a better response, and deal with issues raised more effectively. May need more manpower to handle the calls when something new is implemented. Passengers get frustrated and ended up calling us.
- The support provided by the TAP Operations Center is very slow. It is taking about 4 months to process the new Senior / Disabled cards, and temporary cards are only good for 3 months. Also need to reduce the time it takes to load TAP cards online. Transactions do not load onto TAP cards for 24 or 48 hours. The customer may miss the first day or 2 of use because the added fare does not take effect for up to 2 days.
- Takes a long time to get materials from the TAP service center – took several



months to get TAP brochures. The few times we had to work with the TAP service center staff it has not been good.

- Would need more places to obtain a TAP. Right now TAP is available at just Ralphs markets and a few cash checking companies.
- There are not many locations in our service area. Adding vendors and locations selling TAP cards will be important.

The TAP Program has contracted with a firm (Luminor) to develop a Request for Proposals (RFP) to obtain a new contract and potentially new contractor to provide TAP Service Center services. This includes reviewing which of these services should be provided by Metro departments and staff.

***Recommendation 23: TAP Program management should complete its efforts to review and revise how TAP support services are provided.***

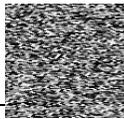
## **8. Marketing and Information on How to Use TAP**

The TAP Program is very complex, encompassing a large number of regional fare options as well as accommodating the various fares of each of the regional transit operators. Understanding all the various fare options, and how to obtain and use TAP is not always straightforward for customers. Given this, it is very important to have a comprehensive and effective marketing and information campaign.

***Finding: 29: The marketing of TAP, and information on how customers can obtain and use TAP could be improved.***

Comments from representatives of the transit operators regarding marketing and providing customers with information on how to use TAP include:

- TAP created a lot of confusion among customers. Still get a lot of questions about how to load TAP, how to use it. Need to do heavy marketing to make sure customers understand how TAP works and how to use it.
- Marketing still needs improvement. Some fares were not eligible, which made customers confused and angry.
- Ticket vending machines creates confusion. Metro is working on making better signage, more information on how to use and how to get TAP.
- Communication to the riders is a major hurdle for implementing TAP. We need a strong strategic marketing plan to let the riders know what to expect.
- Bottom line, we need to make TAP easy for customers to use the system. It seems the approach and system is overly complex. We need to make it much simpler.
- Better and more marketing of the TAP program overall is needed. There have been efforts underway, but this is a big program and has not been publicized as



much as it should be. The region would capture more ridership with better marketing. The lack of marketing results in lower penetration rates.

- Concerned about marketing TAP, and explaining to customers how to use TAP.
- Clarity to passengers regarding what is accepted – many instances where people receive a citation from the Sheriff when they say it was confusing.

***Recommendation 24: TAP Program management should work with regional transit operators to identify and implement improvements to the TAP marketing and information campaigns.***

## **9. Involvement in TAP Planning and Decision Making**

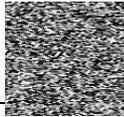
As a regional program TAP has numerous stakeholders. As with any such program, long-term success is more likely if these stakeholders play a significant role in the planning and decision making for TAP.

***Finding: 30: The TAP Program would be more effective if TAP stakeholders were more directly involved in planning and decision making.***

The TAP Program has established the Transit Operators Group (TOG) which is comprised of representatives from many of the transit agencies in the region. However, the primary purpose of this group appears to be information exchange, with a very limited role in planning and actual decision making.

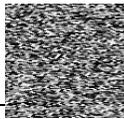
Comments from representatives of the transit operators include:

- Because fully implemented in TAP, there are some things that we have wanted to do that have not been able to do because the TAP program was initially designed around Metro and then included to others. Ticket vending machines – looked at installing at local transit centers – the only problem is that the TVMs were designed and programmed to work solely for Metro – would have to pay for all the development work themselves and buy the equipment. The TVMs were not designed to be used by the region – need more open architecture. More of a criticism of how it was designed and developed initially.
- The future needs to provide more open architecture for payment, going beyond smartcard for the next generation.
- More flexibility within the programming and structure created. Sometimes it feels like everything is designed around Metro and you have to fit into Metro's box to make the system work. Incorporating unique features of current operations by smaller agencies would be beneficial. Metro's policies and approach does not work well in the other communities.
- At Metro's level, sometimes, the flow of information is not adequate for outside agencies. Most of the key portions of the program are being managed by outside consultants. Begin to question where their loyalties stand. Hard to get detailed information. Need to have a better in-house staff to help the Muni's coming on



board. TAP Program staff are stretched thin. Need to look at internal structure to better meet needs and benefit participants.

***Recommendation 25: TAP Program management should identify and evaluate options for increasing stakeholder involvement in TAP planning and decision making and present these options to the Metro Board for consideration.***



## **7. TAP Organizational Structure, Key Functions and Staffing**

An objective of this review was to evaluate the current TAP organizational structure. This included evaluating the effectiveness of the current organizational structure, identifying tasks performed by consultants that can be performed in-house, and to determine if tasks or function of the TAP Program should be moved to other departments.

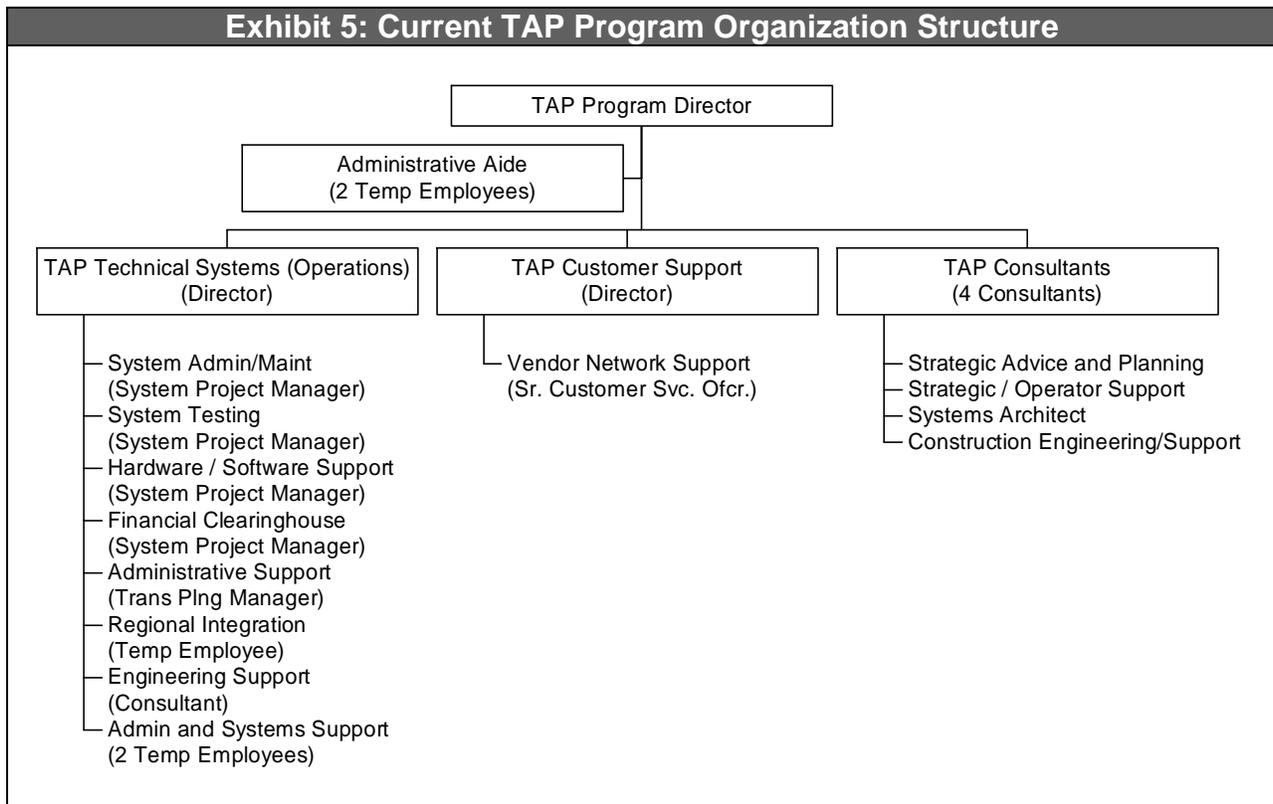
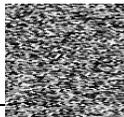
To evaluate the current TAP organizational structure, key functions and staffing we:

- Obtained and reviewed the work performed by the task force.
- Reviewed organization charts, job descriptions and work plans for all TAP employees.
- Conducted interviews with current and former TAP Program management, and with OMB management.
- Conducted individual interviews with all TAP employees and consultants.
- Conducted interviews with MTA management.
- Analyzed organization structure and functions of the TAP Program Office and other MTA departments involved.
- Evaluated the effectiveness of the current organizational structure based on TAP goals, objectives, current stage, and best practices.
- Discussed organization structure and options with TAP management.

### **A. TAP Organization Structure**

An organization's structure should provide a framework of functional areas within which individuals can achieve the organization's goals. An effective organization structure clearly reflects the priorities of the organization, facilitates effective service delivery and problem solving, ensures consistency of direction and management control, minimizes obstacles and barriers to performance, and stimulates a culture of shared accomplishment and teamwork. In addition, an organization must have the staff resources and capabilities to effectively achieve its goals.

The TAP Program is currently staffed with nine full-time employees. The full-time employees are supplemented by five consultants and four temporary employees. The following exhibit shows the current organization structure of the TAP Program.



***Finding 31: The current TAP Program organizational structure does not provide appropriate clarity or distribution of authority and responsibility, spans of control, coverage of key functions, or resources needed for TAP to be effective.***

The TAP Program has three primary functions:

- Planning, Development and Implementation
- Operating and Maintaining
- Customer and Partner Management

Under the current organizational structure, only one of these primary functions is adequately staffed and supported. The planning, development and implementation functions have been supported somewhat by consultants. However, much of this function has not been accomplished. The previous review of TAP identified the lack of overall planning for TAP as a major issue and concern. The review also expressed concerns about the lack of an integrated program management plan, and detailed operating strategy. The review further identified a general lack of program and project management tools and staff capabilities. These concerns have not been addressed by TAP due to inadequate staffing.

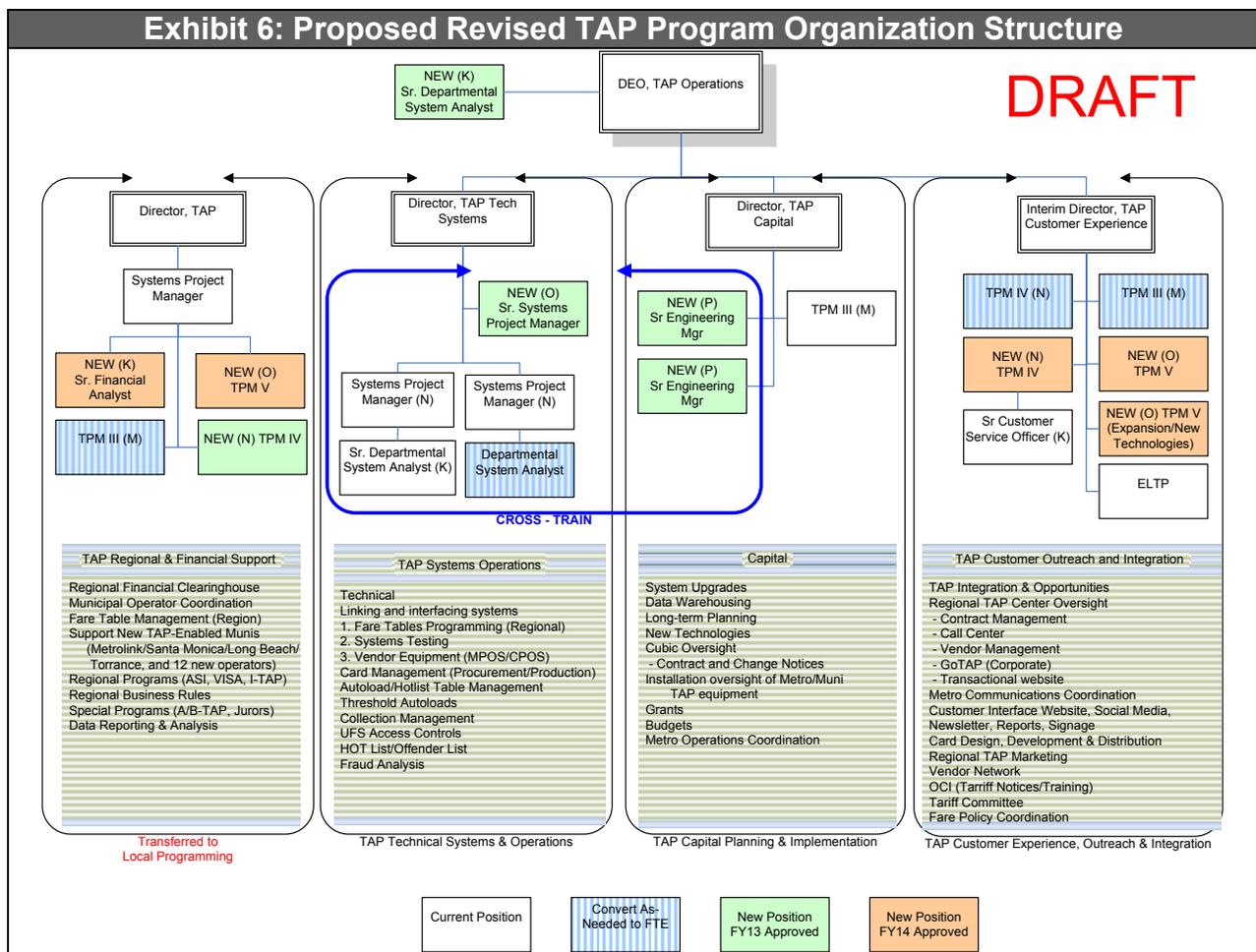
The key TAP function of customer and partner management has also been inadequately staffed and supported. The staff of this function is limited to one Director



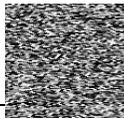
and one Senior Customer Service Officer. Many of the issues and obstacles to regional integration of TAP identified by regional transit agencies are the result of this lack of staff and capability within the TAP Program.

The revised TAP Program organizational structure proposed by TAP management and OMB address the issues and weaknesses of the current organizational structure, and is consistent with best management practices. During this review, we provided feedback on earlier proposed versions of the revised organizational structure. This feedback has been incorporated into the proposed revised structure.

The following exhibit shows the proposed revised organization structure for the TAP Program.



**Recommendation 26: TAP Program management should move forward with implementation of the proposed revised organization structure.**



## B. Use of Consultants by TAP

Consultants can be of substantial value to a program such as TAP. This value is created when consultants possess special knowledge and expertise. It is also created when specific short-term objectives require this special knowledge and expertise. Typically, consultants should be used for short-duration projects, to supplement existing staff, or to conduct short-term analysis to support decision-making or program development.

***Finding 32: The TAP Program would be more effective if key ongoing functions were performed by full-time Metro employees rather than consultants.***

The TAP Program has been reliant on consultants to perform key functions from essentially the beginning of the Program. Initially, consultants were used primarily to evaluate alternative approaches and technology, and to develop preliminary plans for the development and implementation of TAP. The analysis provided was very valuable, and provided much needed support and direction for the Board's decision making, and for Program design. The TAP Program became reliant on the consultant staff, and lacked regular staff required to do much of the work of the Program. We found no duplication of functions and efforts between TAP Program consultants and Metro staff.

The TAP Program has developed a plan to eliminate 4 consultants and replace them with 5 new full-time Metro employee positions. The TAP Program estimated savings of approximately \$1.25 million from discontinuing the consultant services, which will more than cover the costs of the new employee positions. The TAP Program plans to maintain the current consultants through the end of FY 2013 in order to train and provide transition assistance for the new employees.

***Recommendation 27: TAP Program management should move forward with plans to replace consultant staff with full-time Metro employees.***

## C. Use of Temporary Employees by TAP

Temporary employees are intended to fill in when seasonal work or work of a limited duration needs to be accomplished. Temporary employees can also be very useful during transition periods when one employee has left a position and time is needed to recruit, select, and hire a new employee.

***Finding 33: The TAP Program would be more effective if key ongoing functions were performed by permanent full-time Metro employees rather than temporary employees.***

The TAP Program currently has five temporary or "as-needed" employees. Some of these employees have been part of the program for over 5 years. The advantage of such temporary employees is that they do not carry the same overhead costs for benefits as regular full-time employees.

The disadvantage of temporary employees is that they may not be able to be assigned or assume full-time responsibilities. Some of these employees are limited in the total

number of hours they are allowed to work each year, and are essentially half-time employees. Some have been off work for two to three months at a time due to the limits on the number of hours they are allowed to work each year.

The TAP Program has developed a plan to convert 4 current temporary employee positions to new full-time Metro employee positions. The TAP Program estimates the \$1.25 million in savings from discontinuing the consultant services discussed in the previous finding will cover the costs of these new full-time employee positions.

**Recommendation 28: TAP Program management should move forward with plans to convert temporary staff position to full-time Metro employee positions.**

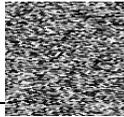
#### **D. TAP Functions Currently not Adequately Staffed**

The previous review of TAP stated that: "The internal staffing of the program management office does not appear sufficient to manage a program of this magnitude." In reviewing the functions and activities required to implement the TAP program, including regional integration, we agree.

**Finding 34: Some key functions for TAP to be successful, and integrated throughout the region, are currently not staffed within the TAP Program.**

The following functions do not currently appear to be adequately staffed:

- **Implementation Support for Regional Transit Agencies** – Several transit agencies have expressed a need for assistance in identifying the potential ongoing capital, operating, and maintenance costs related to TAP and TAP equipment. They also have expressed a desire to better understand the financial clearinghouse for allocating and distributing fare revenue, and a better understanding of TAP operating rules and agreements. TAP has had limited staff resources available to provide this assistance.
- **Resolution of Regional Fare Policy Issues** – A substantial obstacle to regional integration of TAP has been the need to resolve some regional fare policy issues, including the handling of interagency transfers. TAP has had limited staff resources available to address these policy issues.
- **Oversight of the TAP Service Center** – The TAP Service Center is key in supporting the TAP system and regional transit agencies on TAP. The Service Center currently costs approximately \$10 Million annually. TAP has not had staff resources devoted to providing ongoing oversight of this contracted service, nor to addressing and resolving ongoing issues and concerns about the services being provided.
- **TAP Marketing and Information** – TAP can be complex and not always easily understood or used by customers. Effective marketing and information campaigns are critical to ensuring customers have a positive experience using TAP, and regional transit agency partners have a positive experience being part



of TAP. TAP staff resources coordinating and overseeing TAP marketing and information sharing has been very limited.

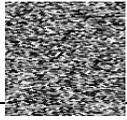
***Recommendation 29: TAP Program management should move forward with plans to augment the TAP Program staff to address staff shortages in the functions listed above.***

## **E. Implementation of Previous Review Recommendations**

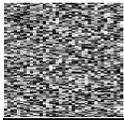
***Finding 35: Most of the recommendations made in the previous review of TAP report have not been implemented.***

The previous review of TAP, conducted in 2009, included a total of thirteen recommendations to improve the operations and effectiveness of TAP. The TAP Program has implemented 2 of the 13 recommendations made as part of the previous review, largely due to lack of staff and capability to effectively implement these recommendations. The specific recommendations, their status, actions taken by TAP to implement, and actions to be completed are listed in the appendix of this report.

***Recommendation 30: TAP Program management should complete the implementation of open recommendations made in the previous review of TAP report.***

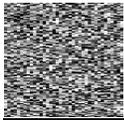


## **8. Appendix**

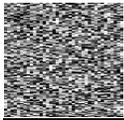


**Exhibit 7: Summary of Contract and Modifications**  
**Cubic Transportation Company**

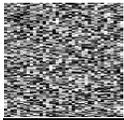
Description		Board Date	Board Authorized Amount	Contract Amount	Remaining Board Authorized Amount
<b>Original Contract:</b>	Universal Fare System	2/28/02	\$84,003,444	\$84,003,444	
<b>Modification</b>					
5	Third Coin Hopper			416,858	
11	SCADA Cable Installation on PGL			48,476	
18	Deletion of Printer from Hand Held Unit			(35,252)	
19	Add Variable Message Indicator			243,828	
22	Data Transmission System			675,000	
23	Mifare Card Initialization and Verification			9,629	
24	Farebox Mounting Adapter for NABI Buses			32,485	
26	Remove Requirement for Focus Group for TVM and SAV			(111,704)	
27	Farebox Rotation			74,967	
29	Stainless Panels			45,521	
30	Metro Orange Line Data COMS cabling			41,560	
32	Add Spare parts for Eastside Extension			15,480	
33	Mifare Card Functionality on UFS			33,105	
35	OCU Mount			87,634	
37.01	PGL Betterments			(33,116)	
38	Willow Station, Installation of third TVM and two SAV			10,084	
39	Upgrade CDCS to Fiber Disk Storage			20,000	
43	HHV, MPOS, CPOS, Interim Maint. Deduct			(162,628)	
45	Replace Go-Cards with Mi-Fare Cards				



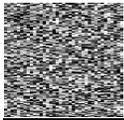
<b>Exhibit 7: Summary of Contract and Modifications Cubic Transportation Company</b>					
<b>Description</b>		<b>Board Date</b>	<b>Board Authorized Amount</b>	<b>Contract Amount</b>	<b>Remaining Board Authorized Amount</b>
46	Relocate Data Probes & Receiver Vault Conduit at Div. 7			(1,157,850)	
47	Revision to UFS Base & Regional Manuals for release to ACS			29,787	
48	Expo Line - Pico Station Infrastructure			46,000	
49.01	Relocation of UFS Lab Equip to UFG 4th Floor			18,542	
50 & 50.01	Expo Line - 7th and Metro, additional infrastructure			106,905	
51	Handheld Validator Holster			51,546	
52	Installation and Testing of Farebox at Transportation Concepts			6,184	
53.01	Relocated OCU's on Ford Cutaways and MST Buses at Contracted Services			16,091	
54	Installation of one Farebox and Testing for Two Fareboxes at Contracted Services			79,170	
56	Contracted Bus Service Equipment Change			18,843	
57	Installation Acceptance Testing, First Transit			36,704	
58	UFS Equipment, Expo, Venice/Robertson			3,040	
59	Regional CDCS, Electrical Power reconfiguration			304,246	
62	UFS Equipment, Expo, Truesdale Station			17,186	
63.01	Transfer of Maintenance dollars from Mod 68.01 for Orange Line moved to System Support Services, Zero dollar impact			284,167	
64	\$5 Dollar Bill handling Units for Fareboxes and TVM			304,658	



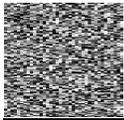
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<b>Description</b>		<b>Board Date</b>	<b>Board Authorized Amount</b>	<b>Contract Amount</b>	<b>Remaining Board Authorized Amount</b>
65	Installation of SAV's for Eastside Extension			34,077	
66	Relocation of Swing Gate, Wilshire Normandie			18,905	
68.01	Transfer Maintenance Dollars to Mod. 63.01			13,031	
69	Additional TVM at Aviation, Greenline			41,844	
70	TAP Card Physical testing			96,726	
71	Concession Light Functionality			45,024	
73	APT Test Server Imaging			33,854	
74	Contracted Services, Relocation			993,795	
75	Additional Limited function, Sales Office Terminal			59,209	
76	Cisco API			69,097	
77	Limited Use Security Key Installation			40,204	
78	Update Farebox Config to Support Aruba Wireless			80,911	
79	Relocation of test Lab Equipment			362,069	
80	Four byte to seven byte Smard Card Software			24,004	
81	Fencing Modification, N. Hollywood & Avalon			15,531	
82	TVM at Hollywood and Western			363,492	
83	DCU/Lite Validator Equipment			386,680	
84	Install TVM's at Three Customer Center			111,188	
85	Cubic Modification to Gate Software/locking Commands			415,184	
86	UFS Equipment for Expo Phase 1, Farmdale Station			15,909	



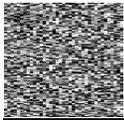
<b>Exhibit 7: Summary of Contract and Modifications Cubic Transportation Company</b>					
<b>Description</b>		<b>Board Date</b>	<b>Board Authorized Amount</b>	<b>Contract Amount</b>	<b>Remaining Board Authorized Amount</b>
87	Relocation of Ticket Vending Machines at Green Line, Long Beach Station			611,677	
88	Mobile Validator, Non-Recurring Engineering			17,592	
89	Expo-Pico Station North Platform TVM/SAV Work			(64,170)	
90	Deletion of Contract Lines 1.03, 1.04, 1.33			34,483	
91	Metro Orange Line Extension, Installation of 12 Owner Provided SAVs			4,129	
95	UFS Equipment Storage Costs				
	UFS System - \$5M Contingency for Contract modifications	2/28/02	5,000,000	5,401,591	(401,591)
	Subtotal		89,003,444	89,405,035	(401,591)
<b><u>SEPARATE DELEGATING AUTHORITY</u></b>					
3	Orange Line - UFS Equipment	1/23/03	7,454,844	7,454,844	-
25, 25.01 & 25.02	Municipal Operators /UFS Regional Central Data Computer System	10/28/04	6,100,000	5,316,714	783,286
28	Eastside Extension - UFS Equipment	7/1/05	3,808,722	3,808,722	-
40	Expo Line - UFS Equipment	7/27/06	5,200,000	5,197,204	2,796
44	Additional UFS receiver vaults for Metro Bus Operating Divisions and Metro contracted bus operations; Capital rehabilitation and build out of vault houses and related infrastructure	2/23/06	4,000,000	2,499,916	1,500,084
61	Fare Gates, Civil Work	2/28/08	10,000,000	10,000,000	-



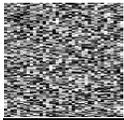
<b>Exhibit 7: Summary of Contract and Modifications Cubic Transportation Company</b>					
<b>Description</b>		<b>Board Date</b>	<b>Board Authorized Amount</b>	<b>Contract Amount</b>	<b>Remaining Board Authorized Amount</b>
63	Gate Maintenance / System Support Services	2/28/2008; 3/26/2009	35,240,000	33,988,558	1,251,442
68	Orange Line Extension - UFS Equipment	4/22/10	3,952,540	2,717,596	1,234,944
	Subtotal		75,756,106	70,983,554	4,772,552
	Total from Inception to June 30, 2012		\$164,759,550	\$160,420,469	\$4,339,081
<b>RECAP OF CONTRACT VALUE FROM INCEPTION TO 1/24/13</b>					
	Total from Inception to June 30, 2012		\$164,759,550	\$160,420,469	\$4,339,081
	Total from 7/1/12 to 1/24/13 (see Exhibit C for details)		18,494,898	44,611	18,450,287
	Grand Total		\$183,254,448	\$160,465,080	\$22,789,368



<b>Exhibit 8: Summary of Modifications Pending Board Approval Cubic Transportation Company</b>						
<b>Mod</b>	<b>Title / Description</b>	<b>Committee Report</b>		<b>Approved Per Board Minute as of 1/24/2013</b>		
		<b>Date</b>	<b>Value</b>	<b>Yes/No</b>	<b>Date</b>	<b>Amount</b>
Mod 92	Twelve month extension of the UFS system support services contract from July 1, 2012 to June 30, 2013	6/21/12	\$9,000,000	yes	6/28/12	\$9,000,000
CN 145	Install/Relocate Validators at approx. 26 Blue and Gold Line stations		1,382,600			
CN 146	Modification of Nextfare Central System to allow for segregation of facility specific data		661,520			
CN 147	Metro Green Line Fare Gating - Additional fire key switches		9,277			
CN 148	Fare Gating - Three additional emergency swing gates, change array at six stations		44,611			
CN 150.02	Install 2 TVM at East Portal Customer Center and Culver City Station		265,838			
CN 153A	Bus Division Vault Relocation - Group 1		418,191			
CN 153B	Bus Division Vault Relocation - Group 2		545,000			
CN 155	Allow for multiple use on a single TAP card for groups		70,301			
CN 156	Request for additional standard data reports		250,000			
CN 157	Strengthen swing gates to withstand customer use		300,000			
CN 158	Turnkey mobile validator system		3,000,000			
CN 160	Engineer and design features for handheld readers to check fares		687,560			
CN 162	Modify TAP vending machine to improve purchases		250,000			
Total	TAP System Enhancements	10/25/12	7,884,898	Yes	10/25/12	7,884,898

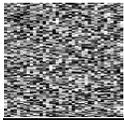


<b>Exhibit 8: Summary of Modifications Pending Board Approval Cubic Transportation Company</b>						
<b>Mod</b>	<b>Title / Description</b>	<b>Committee Report</b>		<b>Approved Per Board Minute as of 1/24/2013</b>		
		<b>Date</b>	<b>Value</b>	<b>Yes/No</b>	<b>Date</b>	<b>Amount</b>
TBD	Install 4 TVMs at El Monte Transit Center	1/17/13	610,000	yes	1/24/13	610,000
TBD	Additional contract modification authority for miscellaneous contract changes for the remainder of FY2013	1/17/13	500,000	yes	1/24/13	500,000
TBD	Annual contract modification authority for the life of the contract	1/17/13	500,000	yes	1/24/13	500,000
			<b>\$18,494,898</b>			<b>\$18,494,898</b>
<p>1. Per Contracting Officer, Modification 92 is not yet executed. Final amount is subject to resolution of audit findings. However, Notice to Proceed was already issued to Cubic.</p> <p>2. Change notice 148 was executed on February 4, 2013 as modification no. 96.</p>						



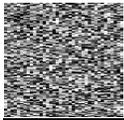
**Exhibit 9: Summary of Contract and Modifications**  
**ACS / Xerox**

Description		Board Date	Board Authorized Amount	Contract Amount	Remaining Board Authorized Amount
<b>Original Contract:</b>	Transit Access Pass Regional Customer Service Center and Financial Clearinghouse	2/23/06	61,068,980	\$31,572,127	29,496,853
<b>Amendment</b>					
1	Administrative Change: SP-09 same order of precedence as Reg. Requirements Add cost assumptions to SPs.			-	
2	Reduces DBE requirement to 6.26%			-	
3	Allocation of facility rent (billed amount based on actuals); Facility build-out, and Operation Support Redistribute Costs			-	
4	Fare Evasion Study (Sub: TMD)			78,427	(78,427)
5	Deductive change to reflect actual cost of fare evasion study ( Credit: \$17,684)			(17,684)	17,684
6	Printing of Mifare smart cards for Retirees and the dependents of current Metro employees			36,158	(36,158)
7	Purchase Contactless Smart Card Stock (Qty: 550,000)			500,000	(500,000)
8	Cancelled by Mod 12				
9	Cancelled by Mod 12				
10	Cancelled by Mod 12				
11	Cancelled by Mod 12				

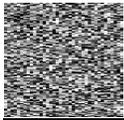


**Exhibit 9: Summary of Contract and Modifications**  
**ACS / Xerox**

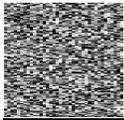
Description		Board Date	Board Authorized Amount	Contract Amount	Remaining Board Authorized Amount
12	Extend period of performance from July 1, 2011 to December 31, 2012; plus an additional six months from January 1, 2013 to June 30, 2013 on a month-to-month basis as necessary.	6/28/12	14,200,896	14,200,896	-
n/a	Increasing Contract Modification Authority for funding pending changes in the amount of \$500,000	6/28/12	500,000	-	500,000
n/a	Returning to the Board delegated authority for two options that will not be exercised (Option Period 1 and Option Period 2)	6/28/12	(24,182,212)		(24,182,212)
13	Add Temporary Staff for Spike in Card Processing for period October 22, 2012 to December 31, 2012			36,946	(36,946)
14	Add Temporary Staff for Spike in Call Volume for November 1, 2012 to January 31, 2013			39,577	(39,577)
15	Settlement of Contractor's Claim for reimbursement of various Envision Group Invoices			150,000	(150,000)
Totals			\$51,587,664	\$46,596,447	\$4,991,217



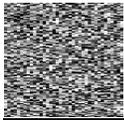
<b>Exhibit 10: Summary of Contract and Modifications Booze, Allen and Hamilton (BAH)</b>					
<b>Description</b>		<b>Board Date</b>	<b>Board Authorized Amount</b>	<b>Contract Amount</b>	<b>Remaining Board Authorized Amount</b>
<b>Contract Number:</b>	<b>PS-4610-1026</b>				
<b>Original Contract:</b>	UFS Implementation Management Services for period from April 9, 2001 to November 30, 2004	2/14/01	\$4,500,000	\$4,499,557	\$443
<b>Amendment</b>					
1	Add under CEO delegated authority, \$76,786, PGL UFS betterment oversite.		-	76,786	(76,786)
2	Revise DBE participation from 13.43 to 13.8%	9/27/03	128,842	128,842	-
3	Under Board authority, add \$2,996,458 for Regional TAP support.	3/25/04	2,996,458	2,996,458	-
4	Extend Period of Performance to 10-31-06		-	-	-
5	Revised Provisional OH Rate for Eigertech		-	-	-
6	Add funding under CEO delegated authority of \$23,214 for base contract support.		-	23,214	(23,214)
7	Add funding for on-going support Metro Orange Line, Contract Services and Metro base contract	9/27/05	1,300,393	1,300,393	-
8	Extend Period of Performance to 12-31-07			-	-
9	Execute Gating Study		400,000	399,059	941



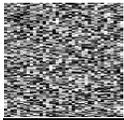
<b>Exhibit 10: Summary of Contract and Modifications Booze, Allen and Hamilton (BAH)</b>					
	<b>Description</b>	<b>Board Date</b>	<b>Board Authorized Amount</b>	<b>Contract Amount</b>	<b>Remaining Board Authorized Amount</b>
10	Extend Period of Performance to December 31, 2008			-	-
11	Gating Support for 24 months	2/28/08	1,000,000	1,000,000	-
12	Support regional integration of Local Transit Service Systems design and Municipal Operator TAP implementation oversight; Metrolink TAP integration; and Expo Fare Equipment & Systemwide Gating installation oversight	3/26/09	2,100,000	2,130,552	(30,552)
13	Correction of NTE amount			(30,552)	30,552
	<b>Totals</b>		<b>\$12,425,693</b>	<b>\$12,524,309</b>	<b>\$(98,616)</b>
<b>Contract Number:</b>	<b>PS41602581</b>				
<b>Original Contract:</b>	UFS Gating Technical Oversight for 365 calendar days after commencement date of July 1, 2010			\$499,639	\$(499,639)
<b>Contract Number:</b>	<b>PS4010-2178-11-08</b>	10/22/09	Bench Contract - \$20 million		
<b>Task Order No.</b>					
01	Universal Fare System TAP Support for period from November 15, 2010 to		\$500,000	\$495,196	4,804



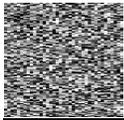
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<b>Description</b>		<b>Board Date</b>	<b>Board Authorized Amount</b>	<b>Contract Amount</b>	<b>Remaining Board Authorized Amount</b>
	November 30, 2011				
01A	Universal Fare System TAP Support for period from November 15, 2010 to November 30, 2011 - Reduction of scope and level of effort			-	
Totals			\$500,000	\$495,196	\$4,804



<b>Exhibit 11: Summary of Contract and Modifications CH2MHill</b>					
<b>Description</b>		<b>Board Date / Contract Date</b>	<b>Board Authorized Amount</b>	<b>Contract Amount</b>	<b>Remaining Board Authorized Amount</b>
<b>Contract No.:</b>	<b>PS4010-2178-16-05</b>	10/22/09	Bench Contract - \$20 million		
<b>Task Order No. 1</b>	Regional Fare Policy For TAP for period from May 9, 2011 to May 30, 2012	9/11/11	500,000	\$310,675	
<b>Modification No. 1</b>	Perform additional work in accordance with Metro TAP Program Call and Card Issuance Center Development (effective date March 16, 2012)	3/22/12		96,870	
	Total		\$500,000	\$407,545	\$92,455
<b>Task Order No.:</b>	<b>PS92402142-C14</b>	9/25/08	Bench Contract - \$5 million		
<b>Original Task Order:</b>	TAP Technical Support for period from January 17, 2012 to June 30, 2013	1/30/12	\$5,000,000	\$443,955	Note 1
<p>Note 1: \$5 million is for all task orders under this Bench Contract. This task order no. 14 is only one of the task orders issued.</p>					

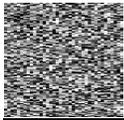


<b>Exhibit 12: Summary of Contract and Modifications CH2MHill</b>					
<b>Description</b>		<b>Board Date / Contract Date</b>	<b>Board Authorized Amount</b>	<b>Contract Amount</b>	<b>Remaining Board Authorized Amount</b>
<b>Original Contract</b>	Rail Vehicle and Rail Systems Engineering and Consulting Services Bench	3/27/08; 5/1/08	Bench Contract - \$10 million	n/a	
<b>Modification No.:</b>					
1	Deleted all Browz requirements	12/9/09		n/a	
2	Extended period of performance to this contract for one year from May 1, 2011 to April 30, 2012	4/5/11		n/a	
3	Added Alinc Inc. to the list of approved subcontractors	10/5/11		n/a	
4	Extended period of performance to this contract for one year from May 1, 2012 to April 30, 2013	4/11/12		n/a	
<b>Task Order No.:</b>					
A6	Provide consulting services for TAP Rail Systems Operations and Engineering Support (Tasks 1 to 5) for period from December 8, 2011 to June 30, 2013	12/8/11	1,000,000	\$695,347	304,653
A7	Engineering support for Metrolink TAP integration with Metro Rail System (Group B Task 6) for period from December 8, 2011 to June 30, 2013	12/8/11	1,000,000	75,770	924,230
	<b>Totals</b>		2,000,000	771,117	1,228,883



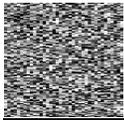
**Exhibit 13: Follow-Up on Prior Review Report Recommendations**

Prior Review Recommendation		Status	Actions Taken	Recommendation – Actions to be Completed
1	LACMTA should immediately convene a planning process to review, document and adopt guiding principles, clear and achievable objectives and measurable success criteria for the program and publish a formal Program Charter document. Once adopted, these guiding principles, objectives and success criteria should form the basis for management decisions related to staffing, budgets, contracts and other operating decisions.	In Process	<ul style="list-style-type: none"> <li>Amended the Regional Operating &amp; Business Rules in 2009 to address TAP enabled Muni and non-TAP Munis comments.</li> <li>Adopted the Regional Operating &amp; Business Rules as guiding principles.</li> <li>Identified and approved staffing budgets, contracts, and operating decisions through the annual budgeting process.</li> </ul>	<ul style="list-style-type: none"> <li>Identify clear and achievable objectives with measurable success criteria for the program.</li> <li>Publish a formal Program Charter document.</li> <li>Review the annual budgeting process to ensure that staffing budgets, contracts and other operating decisions fulfill the objectives and success criteria.</li> <li>Review and update the Regional Operating &amp; Business Rules on a regularly basis to address issues and concerns from the TAP enabled Munis and non-TAP Munis.</li> </ul>
2	An integrated program management plan identifying all remaining projects, tasks required to meet objectives, task dependencies, resource needs and schedules should be developed for completing the program. This Program Plan should form the basis for program management staffing and budget planning.	In Process	<ul style="list-style-type: none"> <li>Submitted budget requests as part of the annual budgeting process.</li> </ul>	<ul style="list-style-type: none"> <li>Identify all remaining projects, tasks required to meet the objectives, task dependencies, resource needs and schedules for completing the program.</li> </ul>



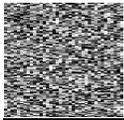
**Exhibit 13: Follow-Up on Prior Review Report Recommendations**

Prior Review Recommendation		Status	Actions Taken	Recommendation – Actions to be Completed
	The plan should be a multiyear plan founded on reaching the success criteria identified above.			
3	The program management team should be assigned to projects and tasks identified in the program plan based on the experience and expertise of each team member. The program manager should continue to report to an executive that is a direct report to the CEO. The executive leadership team should clearly and consistently demonstrate support for completing the program and the continuous measurement of progress against defined business objectives.	In Process	<ul style="list-style-type: none"> <li>Published TAP working documents and assigned staff to specific issues.</li> <li>The program manager continues to report to an executive that is a direct report to the CEO.</li> </ul>	<ul style="list-style-type: none"> <li>Prepare a schedule identifying the program management team, projects and task from the program plan, and assignment to each team member based on their experience and expertise.</li> <li>Develop procedures for continuous measurement of progress against defined business objectives.</li> </ul>
4	A detailed operating strategy and cutover plan should be prepared for the support of TAP/UFS. This should document the responsibilities and training of operations	In Process	<ul style="list-style-type: none"> <li>Met with the impacted departments regarding their staffing requirements to support TAP.</li> <li>Drafted TAP Integration Plan.</li> </ul>	<ul style="list-style-type: none"> <li>Review TAP Integration Plan to ensure the following items are included:               <ul style="list-style-type: none"> <li>Responsibilities and training of operations support personnel, stakeholders and</li> </ul> </li> </ul>



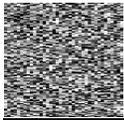
**Exhibit 13: Follow-Up on Prior Review Report Recommendations**

Prior Review Recommendation		Status	Actions Taken	Recommendation – Actions to be Completed
	support personnel, stakeholders and other users, the long-term roles for contractors and the program office, the expected annual staffing requirements and operating costs. Based on this plan, key team members from operating organizations should be identified to support testing, training and deployment activities to enhance knowledge transfer outside of the program management team and contractors.			<p>other users, the long term roles for contractors and program office;</p> <ul style="list-style-type: none"> <li>○ Expected annual staffing requirements and operating costs;</li> <li>○ Key team members from operating organizations to support testing, training and deployment activities to enhance knowledge transfer outside of the program management team and contractors.</li> </ul> <ul style="list-style-type: none"> <li>● Finalize TAP Integration Plan.</li> </ul>
5	The program and project management tools should be enhanced to include standard approaches and artifacts common to projects of this size and duration. Experience with PMBoK and other project management disciplines should be incorporated into the team.	In Process	<ul style="list-style-type: none"> <li>● Consultants working on the program have training in PMBoK information and PMI certification.</li> </ul>	<ul style="list-style-type: none"> <li>● Identify the program and project management tools appropriate for the projects of this size and duration.</li> <li>● Provide training to staffs on PMBoK and other project management disciplines.</li> </ul>
6	Based on the development of the Program Charter and full	In Process	<ul style="list-style-type: none"> <li>● Reported to the Board the executed contract</li> </ul>	<ul style="list-style-type: none"> <li>● Perform a full assessment of tasks, contracts and</li> </ul>



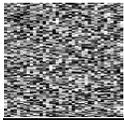
**Exhibit 13: Follow-Up on Prior Review Report Recommendations**

Prior Review Recommendation		Status	Actions Taken	Recommendation – Actions to be Completed
	program plan described in the earlier section, perform a full assessment of tasks, contracts and deliverables, schedules and costs and develop and maintain an estimation to complete process including contingencies. Report Estimate to Complete (ETC) and budgets in regular management reports to leadership.		modifications and anticipated changes.	<p>deliverables, schedules and costs based on the Program Charter and Integrated Program Management Plan.</p> <ul style="list-style-type: none"> <li>• Develop and maintain an estimation to complete the process including contingencies.</li> <li>• Report estimate to complete and budgets in regular management reports and to the Board.</li> </ul>
7	Review and confirm the schedule for completing development and testing of the clearing, settlement and distribution process and develop a plan and schedule for participation of the Municipal Operators in acceptance testing.	Completed	<ul style="list-style-type: none"> <li>• The clearing, settlement and distribution process is already in the operational stage.</li> <li>• TAP Municipal Operators already participated in the process.</li> <li>• Non-TAP Operators have submitted the Request for Mobile Validators and plans are underway for TAP equipment to be installed.</li> </ul>	None.
8	Confirm in writing the individual implementation plan for each Municipal Operator or other regional	In Process	<ul style="list-style-type: none"> <li>• Confirmed in writing from non-TAP operators to commit to be TAP enabled.</li> <li>• Issues are being addressed</li> </ul>	<ul style="list-style-type: none"> <li>• Execute the formal MOUs to each operator when distributing the equipment and/or funds to the operators to be TAP</li> </ul>



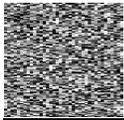
**Exhibit 13: Follow-Up on Prior Review Report Recommendations**

Prior Review Recommendation		Status	Actions Taken	Recommendation – Actions to be Completed
	partner including identification of issues and an action plan for addressing them. Obtain and document executive leadership agreement for these plans. Publish the plans and the key criteria for success and track against these plans.		at the TAP Working Group meetings.	<p>enabled.</p> <ul style="list-style-type: none"> <li>• Publish the plans and key criteria for success and track against these plans.</li> </ul>
9	Once the implementation of TAP/UFS is complete, initiate an annual, independent review of the clearing, settlement and distribution process.	Not Yet started	None.	<ul style="list-style-type: none"> <li>• Schedule an annual, independent review of the clearing, settlement and distribution process.</li> </ul>
10	The TAP/UFS application contains a significant amount of information related to usage. A process for obtaining and analyzing this information to evaluate trends in revenue and changing use of fare media in relation to key economic indicators should be implemented. Until more detailed information is available, analysis of actual fare evasion based on site	In Process	<ul style="list-style-type: none"> <li>• Generated ad hoc reports to analyze the impact of TVM conversions and gate locking.</li> <li>• Prepared monthly TAP Operations Reports to see the sales trend of fare media.</li> <li>• Established Performance Metrics.</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct site studies of actual fare evasion.</li> <li>• Report to the Board regularly on fare enforcement.</li> </ul>

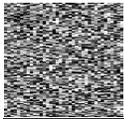


**Exhibit 13: Follow-Up on Prior Review Report Recommendations**

Prior Review Recommendation		Status	Actions Taken	Recommendation – Actions to be Completed
	studies may best assist in determining the relative causes for declines in revenue.			
11	<p>Review the Cubic Transportation and ACS contracts to determine what controls are required by the contracts.</p> <ul style="list-style-type: none"> <li>o Examine vendor documentation to determine what controls are in place.</li> <li>o Compare against similar systems to determine where gaps may exist.</li> <li>o Establish monitoring and enforcement mechanisms (e.g. service levels) to sustain performance of the system as designed.</li> </ul>	In Process	<ul style="list-style-type: none"> <li>• Incorporated financial penalties to Cubic's contract for non-performance.</li> </ul>	<ul style="list-style-type: none"> <li>• Incorporate financial penalties to ACS/Xerox contract for non-performance.</li> <li>• Identify the controls required by the contracts and determine whether these controls are in place.</li> <li>• Compare these controls against similar systems to determine where gaps may exist.</li> <li>• Monitor and enforce contract terms for non-compliance.</li> </ul>
12	Develop documentation of and test key fare collection controls to increase stakeholder confidence that the fare collection system is operating effectively.	In Process	<ul style="list-style-type: none"> <li>• Drafted policies and procedures on fare tables.</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare flow charts</li> <li>• Finalize policies and procedures</li> <li>• Test and document key fare collection controls and compliance to policies and procedures</li> </ul>
13	Establish reoccurring program reviews with	Completed	<ul style="list-style-type: none"> <li>• Implemented monthly program reviews by a group</li> </ul>	None.

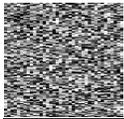


<b>Exhibit 13: Follow-Up on Prior Review Report Recommendations</b>				
<b>Prior Review Recommendation</b>		<b>Status</b>	<b>Actions Taken</b>	<b>Recommendation – Actions to be Completed</b>
	prioritized scope and focus.		of Muni Agencies and Metro who are TAP enabled. <ul style="list-style-type: none"><li>• Prepared monthly TAP Operating Group Agenda.</li></ul>	

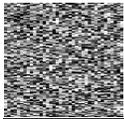


<b>Exhibit 14</b>			
<b>Summary of Recommendations and Management Responses</b>			
<b>No.</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>Page</b>
<b>1</b>	TAP Program management should consider closing-out the current contract with Cubic and issuing new contracts for future work required.	<b>Concur – On-going</b> TAP will work with Metro Procurement to review the current contract and evaluate, in process and future work. We will work together to evaluate moving towards closing out the contract, and will do that which is in the best interest of Metro and the program.	<b>20</b>
<b>2</b>	TAP Program management should follow through on plans to use the additional Board authority for miscellaneous changes to the Cubic contract to cover previous contract modifications that exceeded Board approved amounts.	<b>Concur – On-going</b> TAP Management is using the additional Board authority for miscellaneous changes to the Cubic contract to cover previous contract modifications that exceeded Board approved amounts.	<b>20</b>
<b>3</b>	TAP Program management should seek board direction to re-allocate the remaining MTA Board authorized funds.	<b>Will be handled by Metro's policies and procedures.</b> Project LOP value not used will be handled through Metro's policies and procedures.	<b>20</b>
<b>4</b>	TAP Program management should work with other appropriate Metro departments to include a tracking number in the FIS system for each modification that has a dollar value.	<b>Concur</b> TAP Program management will encourage and work with the correct Metro department to evaluate/adopt this recommendation..	<b>21</b>

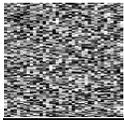
Exhibit 14 Summary of Recommendations and Management Responses			
No.	Recommendation	Management Response	Page
5	TAP Program management should work with MTA Accounting staff to correct the expenditure period recording error.	<p><b>The Operating results for the fiscal year were not impacted.</b></p> <p>Cubic submitted an invoice for the Gating project in August 2009 for the period covering 2/1/2009 to 7/31/2009. It should be noted that the invoice was received by Metro Accounts Payable on August 27, 2009, well after the Accounting Department's FY09 final closing. (See attached FY09 Year End Accrual Memo)</p> <p>The charges in question of approximately \$700,000 were for a Cubic subcontractor, Robnett Electric, Inc. The invoices were recorded in August 2009 of FY2010. Each year in June, the project staff makes very effort to get vendors to submit all charges up to June 30th of the respective year.</p> <p>Both UFS and TAP projects were current at end of FY2009. As these were capital charges, the operating results for the fiscal year were not impacted.</p>	21
6	TAP Program management should work with other appropriate Metro departments to direct staff to scan pertinent documents required to support billing amounts into FIS.	<p><b>Concur</b></p> <p>TAP Program management will encourage and work with the correct Metro department to evaluate/adopt this recommendation.</p>	22



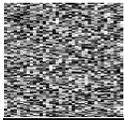
<b>Exhibit 14</b>			
<b>Summary of Recommendations and Management Responses</b>			
<b>No.</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>Page</b>
<b>7</b>	TAP Program management should work with MTA Accounting staff to correct the expenditure period recording error.	<p><b>Amount was booked at time of settlement.</b>            During FY2010, there were disputes between Metro and ACS over a portion of the monthly invoice charges. During this time, four monthly invoices from ACS (March to June 2010) had amounts that were in dispute. The invoices involved were TAP-BASE 050B to 054B.            At that time, it could not be determined how much if any would ultimately be paid. The disputed amounts were not settled and paid until June 2011, which was over one year from the time of the original invoices. The final settlement amount was \$236,000. That amount was booked at time of settlement.</p>	<b>23</b>
<b>8</b>	TAP Program management should work with transit operators throughout the region to develop and publish new business objectives and system functionalities for TAP and regional electronic fare collection, as well as specific timelines and measureable success criteria.	<p><b>Concur</b>            TAP Program management will encourage and work with the TAP Participants to evaluate/adopt this recommendation..</p>	<b>31</b>



<b>Exhibit 14</b>			
<b>Summary of Recommendations and Management Responses</b>			
<b>No.</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>Page</b>
<b>9</b>	The TAP Program should work with other appropriate Metro departments to develop and implement an ongoing approach and system for tracking and reporting on the impact of TAP on fare media fraud, forgery, fare evasion and fare revenue.	<b>Concur</b> TAP is proud to be a tool to improve fare evasion prevention, and will work with the multiple Metro departments who are responsible for this item. OMB, in conjunction with Transit Security, is tracking the aforementioned areas. TAP will continue to provide the TAP data to OMB and Transit Security. In addition, key performance metrics on fare enforcement and fare per boarding are presented to the Board monthly. OMB and Transit Security will continue to track and monitor these areas. While TAP cards have mitigated problems related with forgery and fraud, TAP cards on Metro's system still requires adequate fare enforcement.	<b>33</b>
<b>10</b>	TAP Program management should develop and implement an ongoing approach and system for evaluating and reporting on the impact of TAP on passenger fare payment time, related bus dwell time, and overall impact on system efficiency.	<b>Concur</b> TAP is proud to be a tool to improve bus loading dwell time. TAP Program management will encourage and work with the correct Metro department to evaluate/adopt this recommendation.. Evaluating the impact of TAP on buses is difficult as there are many variables. Almost 30% of boardings are cash boardings, so while TAP cards may have reduced passenger fare payment time, there are still a large amount of passengers that pay cash that would adversely impact the system efficiency.	<b>34</b>



<b>Exhibit 14</b>			
<b>Summary of Recommendations and Management Responses</b>			
<b>No.</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>Page</b>
<b>11</b>	TAP Program management should work to identify current and potential uses of the TAP data and information, and should work with regional transit agencies to increase the accessibility and usefulness of this information, and provide case studies and examples of how this data can be used to improve and better understand customer behaviors and target marketing efforts, and to improve transit system operations and efficiency.	<b>Concur – On-going</b> TAP is proud to be a tool for data, and we are listening and responsive to the needs of our MUNI partners.	<b>36</b>
<b>12</b>	TAP Program management should develop and implement an ongoing approach and system for collecting, analyzing, and using customer feedback and satisfaction information to identify benefits of the system to customers, determine levels of satisfaction, and target system improvements to customer priorities.	<b>Concur – Ongoing</b> TAP Program management has become more focused on customer satisfaction. Efforts to improve our Ticket Vending Machines are already underway to make it easier for our customers. Marketing campaigns are already underway to better assist our customers. Focus groups are being held to understand our customer needs and overall satisfaction with TAP. TAP Program management will encourage and work with the correct Metro department to evaluate/adopt this recommendation..	<b>37</b>
<b>13</b>	TAP Program management should work with other appropriate Metro departments to develop and implement an ongoing approach and system for evaluating and reporting on the impact of TAP on cost of fare media, distribution, collection, and counting.	<b>Concur</b> TAP Program management will encourage and work with the correct Metro department to evaluate/adopt this recommendation..	<b>37</b>



<b>Exhibit 14</b>			
<b>Summary of Recommendations and Management Responses</b>			
<b>No.</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>Page</b>
<b>14</b>	TAP Program management should continue to build on the positive direction and momentum gained over the past several months, and continue to move TAP toward regional integration.	<b>Concur – On-going</b> The TAP Municipal Operator Working Group will continue to meet and work toward regional integration.	<b>40</b>
<b>15</b>	TAP Program management should continue to work with municipal operators on TAP to improve the financial clearinghouse function and with operators that have not yet implemented TAP to increase their understanding of the financial clearinghouse and address their concerns.	<b>Concur – On-going</b> TAP is proud of the detailed work done on clearing and settlement, and we are listening and responsive to the needs of our MUNI partners who are currently on TAP. In addition, a TAP Municipal Operator Working Group was established to work through all Municipal Operator concerns. A Workshop specifically for Financial Clearinghouse will be scheduled to address any other municipal operator concerns.	<b>42</b>
<b>16</b>	The TAP Program should move forward with implementing the Oversight Committee and the annual independent review for the financial clearinghouse function.	<b>Concur – On-going</b> TAP is proud of the detailed work done on clearing and settlement, and we are listening and responsive to the needs of our MUNI partners who are currently on TAP. In addition, a TAP Municipal Operator Working Group was established to work through all Municipal Operator concerns. A Workshop specifically for Financial Clearinghouse will be scheduled to address any other municipal operator concerns.	<b>43</b>

<b>Exhibit 14</b>			
<b>Summary of Recommendations and Management Responses</b>			
<b>No.</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>Page</b>
<b>17</b>	TAP Program management should work with regional transit agencies to review and revise the TAP rules and memoranda of understanding to ensure they are fully understood and agreed to, and concerns are adequately addressed.	<b>Concur – On-going</b> A TAP Municipal Operator Working Group has been established and TAP Operating Rules will be discussed at a future workshop.	<b>44</b>
<b>18</b>	TAP Program management should work with regional transit agencies to review and revise the current and future approach to allocating TAP Program and Service Center operations costs, and ensure they are fully understood and agreed to, and concerns are adequately addressed.	<b>Concur – On-going</b> TAP has an open partnership with all of the participating TAP agencies. The TAP Program has fixed Annual costs, which, to date, have never allocated outside of Metro. TAP will continue to work with all regional transit agencies to ensure their understanding and address any concerns.	<b>45</b>
<b>19</b>	TAP Program management should work with regional transit operators to identify the potential ongoing capital, operating, and maintenance costs related to TAP and TAP equipment, and provide technical assistance to those agencies that request such assistance.	<b>Concur – On-going</b> The TAP Municipal Operator Working Group was established to work through all Municipal Operator concerns. This group will continue to meet and work toward regional integration. A Workshop was held on May 30, 2013 to discuss Mobile Validators, including technical issues, costs, and timeframes.	<b>46</b>

<b>Exhibit 14</b>			
<b>Summary of Recommendations and Management Responses</b>			
<b>No.</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>Page</b>
<b>20</b>	TAP Program management should ensure that obstacles to TAP implementation for each transit agency are substantially resolved prior to funding of TAP equipment purchases.	<p><b>Concur – In Process</b></p> <p>In March 2013, the Board approved the purchase of new TAP technology devices for new Municipal Operators joining TAP. A signed Memorandum of Understanding (MOU) with each of the new Municipal Operators will be required upon acceptance of the new TAP equipment.</p> <p>Workshops are held with the operators/agencies focusing on this new equipment and TAP will continue to work with each of the operators/agencies to ensure that all issues are resolved.</p>	<b>46</b>
<b>21</b>	TAP Program management should work with regional transit operators to develop and implement a revised and consistent interagency transfer policy for the region.	<p><b>Concur – In Process</b></p> <p>TAP management has prepared a Draft Interagency Transfers Policy that is being reviewed by the Municipal Operators in the TAP Working Group. As this is a policy issue for the region, the policy will be presented to the appropriate groups (BOS, General Managers, TOG) for review and approval.</p>	<b>47</b>
<b>22</b>	TAP Program management should work with regional transit operators to identify and implement improvements to data reporting capabilities on an ongoing basis.	<p><b>Concur – In Process</b></p> <p>TAP Program management is addressing transit operators' requests for report modifications. In October 2012, the Board approved Cubic Change Notices to proceed with report modifications requested by transit operators. TAP will continue to work with all transit operators.</p>	<b>48</b>

Exhibit 14 Summary of Recommendations and Management Responses			
No.	Recommendation	Management Response	Page
23	TAP Program management should complete its efforts to review and revise how TAP support services are provided.	<b>Concur – In Process</b> The TAP Service Center responsibilities are currently under review with plans for a complete overhaul of these functions.	49
24	TAP Program management should work with regional transit operators to identify and implement improvements to the TAP marketing and information campaigns.	<b>Concur – On-going</b> A Regional TAP Marketing group was established and chaired first by Foothill, then Santa Clarita, and now Culver City. These sub-committees used TAP funded resources to develop hundreds of materials, many free to the agencies. Recently Metro has been providing TAP marketing resources for the agencies.	50
25	TAP Program management should identify and evaluate options for increasing stakeholder involvement in TAP planning and decision making and present these options to the Metro Board for consideration.	<b>Concur – Completed and On-going</b> The TAP Municipal Operator Working Group was established and this is one of the forums for the Municipal and Transit Operators to be involved in the planning for the regional system. In addition, with the reorganization and increased staff, Metro will be able to work more closely with the Municipal Operators in addressing their concerns. The Board is presented TAP updates every month at the Executive Management Committee.	51

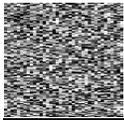


Exhibit 14 Summary of Recommendations and Management Responses			
No.	Recommendation	Management Response	Page
26	TAP Program management should move forward with implementation of the proposed revised organization structure.	<b>Concur – On-going</b> The proposed organizational structure is still a work in process. We will continue to evaluate the needs of the program and determine the appropriate resources needed as Municipal Operators join TAP.	54
27	TAP Program management should move forward with plans to replace consultant staff with full-time Metro employees.	<b>Concur – In Process</b>	55
28	TAP Program management should move forward with plans to convert temporary staff position to full-time Metro employee positions.	<b>Concur – In Process</b>	56
29	TAP Program management should move forward with plans to augment the TAP Program staff to address staff shortages.	<b>Concur – Completed and On-going</b> In March 2013, the Board approved to amend the FY13 budget to add FTEs to support the TAP Reorganization, Integration and Expansion Plan. Additional staff to focus on expansion will be presented to the Board for approval.	57

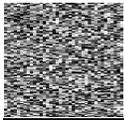


Exhibit 14 Summary of Recommendations and Management Responses			
No.	Recommendation	Management Response	Page
30	TAP Program management should complete the implementation of open recommendations made in the previous review of TAP report.	<b>Concur – On-going</b> The previous review of the TAP program was dated 2009. While many of the recommendations are still applicable, the TAP program continues to evolve and thus our path forward to address the recommendations may change. However, we will continue to work toward completing recommendations, with the intent to deliver a regional fare collection system that satisfies the region and provides appropriate controls, oversight, and transparency.	57