City and County of San Francisco
Office of Contract Administration
Purchasing Division
City Hall, Room 430
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San Francisco, California 94102-4685

Agreement between the City and County of San Francisco and
Transportation Management & Design, Inc.
April 1, 2006

Appendix A
Services to be Provided by Contractor

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Project Definitions

AVL - automatic vehicle location
APC - automatic passenger counters
BRT – Bus Rapid Transit
CAC – Citizen Advisory Committee, one of the groups with City representation or project input
CEQA - California Environmental Quality Act
City – MTA, Controller's Office, and/or the Project Working Group
Controller's Project Manager – Corina Monzon or her designee
Contractor – Transportation Management & Design (TMD), including the seven subconsultant firms working under the oversight of TMD as the prime consultant
Contractor's Project Manager – Russell Chisholm of TMD
Controller's Office – City and County of San Francisco Controller's Office
Core Contractor's Team- Chisholm, Muller, Forgiarini, Pappas, Potts (TMD), Figone (CHS), Nelson, Walker (Nelson\Nygaard)
EAP – Early Action Plan
FTA- Federal Transit Administration
ITS - Intelligent Transportation System
MDC - Mobile Data Computer
MND - Mitigated Negative Declaration
MTA – City and County of San Francisco Municipal Transportation Agency
MTA Board - Municipal Transportation Agency Board of Directors
MTA Project Manager – to be determined by City
MTC – Metropolitan Transportation Commission
Muni – San Francisco Municipal Railway
NTD - National Transit Database
O&M - Operating and Maintenance
PAG – Policy Advisory Group, one of the groups with City representation or project input
Proposition E – Article VIIIA, City and County of San Francisco Charter
PWG – Project Working Group, one of the groups with City representation or project input
SAS - Service Analysis System, Contractor's transit service planning analysis tool
SEM - Structural Equation Modeling
SFCTA - San Francisco County Transportation Authority
SFGO – the City's new Integrated Transportation Management System led by the Department of Parking and Traffic (DPT)
SPT – Service Planning Tool
SPUR – San Francisco Planning + Urban Research Association
SRTP - Short-Range Transit Plan
Stakeholder Groups – PAG, CAC, and Technical/Regional Committee
Technical/Regional Committee – one of the groups with City representation or project input
TEP - Transit Effectiveness Project, the name of this project
TIFIA - Transportation Infrastructure Finance and Innovation Act
TNM – Traffic Noise Model
TP – Trapeze Plan, the transit service planning analysis tool being used by the City.
TPS - Transit Preferential Streets
Wage Order 9 - Industrial Welfare Commission # 9-2001 – Regulating Wages and Working Conditions in the Transportation Industry (Effective July 1, 2004 as amended)

Project Description

The Transit Effectiveness Project (TEP) is an effort by the Controller's Office and the MTA to conduct a comprehensive review of the City's current Municipal Railway (Muni) transit system and to recommend measures to make service more attractive to the public and more economical to operate. The TEP's purpose is to strengthen Muni's ability to respond to current travel needs, provide a blueprint for future service, apply best practices to service delivery, and promote the system's long-term financial stability.

Project Approach

Project Team

The Contractor's project team providing services under this Agreement for the Transit Effectiveness Project ("TEP") consists of a group of eight firms demonstrating their knowledge of the City and County of San Francisco's ("City's") Municipal Transportation Authority ("MTA") and its transportation markets, operating conditions, and policy environment. The Contractor shall be managed by the Contractor's Project Manager, Russell Chisholm.

Project Team Findings Review and Input

The Contractor will be expected to present its findings for review by four principal groups, each with City representation or project input. Each group is described further in the following task sections. These groups include: the Project Working Group ("PWG"), Policy Advisory Group ("PAG"), Technical/Regional Committee, and Citizen Advisory Committee ("CAC"). The PWG will provide oversight to ensure that the Contractor is meeting staffing, timeline, budget, and work product targets and deliverables described in this Appendix A and in Appendix B to the Agreement. In addition, the PWG will coordinate recommendations from the PAG and other groups or committees, as determined by the City in consultation with the Contractor, for presentation to the MTA Board of Directors ("MTA Board") regarding all aspects of the project.

Project Team Communication

The Contractor shall meet bi-weekly in San Francisco throughout the term of the Agreement. These meetings shall involve the PWG and/or MTA and the City and County of San Francisco's Controller's Office ("Controller's Office") , (collectively defined as "City"), and Contractor staff, including the Contractor's Project Manager, as determined by the City, in consultation with the Contractor. To encourage effective time utilization, these meetings will be prescheduled at a regular recurring time, as mutually agreed by the City and the Contractor. Scheduled off-week conference calls between the PWG and the Contractor will also be scheduled. The Contractor shall distribute bi-weekly progress reports to the City via a project management website (separate from the public website). The Contractor shall submit monthly project summaries with each invoice.

To minimize duplication of effort and maximize the consistency and continuity of previous efforts, the Contractor shall be expected to build on previous work done by the City and to use available data wherever feasible. The Contractor shall respond to the City's objective of conducting a two-step approach. The City's two-step approach consists of 1) an Early Action Process, which, as described in Tasks 6.1 through 6.3 below, shall be intended to provide more easily and quickly implemented recommendations, and 2) a Comprehensive Service Plan, which, composed of a range of tasks described in this Appendix A, comprise longer-term implementation recommendations. The Contractor will be expected to spend substantial time on-site in San Francisco with extensive hours in the field and in consultation with the City.

More detailed information on deliverable due dates and payments is included in Appendix B to this Agreement.

Work Plan

Task 1 – Visioning, Goal-Setting and Policy Framework

The Contractor's outcome for this task shall be to establish a policy framework that can guide the rest of the study. The Contractor shall explore and outline the tensions inherent in any service planning and effectiveness review, and will provide guidance to the MTA in developing a five-year vision for MTA service. The Contractor's process for developing the vision and goal-setting framework shall include collaboration and feedback by the City and the City's stakeholders, while allowing the project to move forward in a timely manner. The Contractor's work tasks shall move forward concurrently to expedite completion of the project.

Key steps for this Task shall include:

1.1 Review Previous Work

The MTA completed a "Mission Vision Values" process within the last two years that may provide relevant information to this task. As an initial step, the Contractor shall review all outcomes from the Mission Vision Values process and begin to outline issues that might be incorporated into the goals for this study.

Additional existing work to be reviewed by the Contractor in this task includes Proposition E requirements, MTA's performance reports, Short Range and Long Range Plans, and service planning/design policies that may be relevant to this study. The Contractor shall also review planning studies that have been previously performed by MTA or are currently underway, such as the Planning Operations Marketing Study, BRT for Geary and Van Ness, and Better Transit Connections for Balboa and Glen Park.

1.2 Stakeholder Interviews

One-on-one and/or small group interviews shall be completed by the Contractor early in the project before the first facilitated meeting of the Policy Advisory Group. Up to 20 stakeholder interview meetings shall be conducted by the Contractor, which shall be comprised of interviews with: members of the Policy Advisory Group, Project Working Group and the Citizen Advisory Committee, the Mayor, and up to four other key stakeholders. Additional stakeholders may include members of the Chamber of Commerce or other business oriented groups, members of the MTA's Citizens' Advisory Council or their organizations, and others designated by the Policy Advisory Group and Project Working Group. The Contractor's objective for these interviews will be to conduct a confidential conversation, to the extent allowed by law, on a wide range of topics, including:

- In what areas is MTA currently successful? What are the most important areas for improvement?
- Are there markets, which MTA does not serve well now that should be served? What are the growth markets in terms of geography, trip purpose, population market segment, and time of day?
- What can MTA and the City in general do to facilitate regional travel using transit?
- What are the things riders want most from MTA and how best to provide them?

- What are the things drivers and other employees want most from MTA and how best to provide them?

- Given the trade-offs inherent in service planning (e.g., speed versus stop spacing, transit priority versus moving traffic, frequent service on fewer routes versus shorter walk access), which should be MTA's top priorities?

- Are there infrastructure and fleet issues (vehicle types, passenger facility needs) that should be considered in the planning process?

- Are there examples of other properties that "get it right" that could serve as models for MTA in any key areas? Are there peer systems to which to compare MTA?

- What are the barriers preventing MTA from achieving its vision, and how can these barriers be mitigated?

- If a sustainable financial operation is a key goal, what are the most promising avenues for increasing revenue and/or reducing costs?

- Are there new funding measures that would have broad support in the City?

- Do MTA's existing service design policies provide the necessary guidance to redevelop the system?

The Contractor's objective for these interviews shall be a broad, freewheeling conversation that will be kept confidential during the process, to the extent allowed by law. To conserve resources, the Contractor shall make use of telephone interviews, and small group meetings where possible.

Interview outcomes shall be summarized but not attributed by the Contractor. Comments that are consistent in multiple interviews will be documented in terms of the number of persons commenting. This summary document shall be provided by the Contractor to the members of the Policy Advisory Group in advance.

1.3 Facilitated Stakeholder Input Process

Following the stakeholder interviews, the Policy Advisory Group, Citizen Advisory Committee, and Technical/Regional Committee ("Stakeholder Groups") will meet with the Contractor to review the results of the interviews and develop sufficient consensus to provide policy guidance to the Contractor. These meetings will be fully facilitated and documented by the Contractor, with topic areas and background information provided in advance to the Stakeholder Groups. The goal of these sessions will not be to achieve complete agreement from all participants, but to achieve consensus based on the 1-5 scale of consensus, as defined below:

1 = total agreement
2 = largely in agreement with some reservation
3 = questions requiring resolution
4 = not in agreement but will not block
5 = strong disagreement and will not consent

All recommendations shall be documented and brought back to the Stakeholder Groups by the Contractor to verify their agreement.

All policy guidance from the Stakeholder Groups will be accepted as recommendations by the Contractor to be reviewed with the Project Working Group. Where it was not possible to achieve consensus, the Project Working Group will be asked to provide guidance to the Contractor. Questions raised to the Project Working Group for its decision shall be raised by the Contractor "blindly" (i.e. without stating who is on which side of a given issue, or how many seem to be supporting one policy or another).

This policy guidance will form the basis for the development of criteria for evaluating the proposed service alternatives.

This task shall be designed by the Contractor as an iterative process, where each of the groups involved in defining and implementing policy are able to achieve consensus. Where there remain differences in policy direction, the Project Working Group will have the responsibility for defining the policy framework for the project and the Stakeholder Groups will have the lead in defining the best ways to implement policy.

1.4 Development of Vision and Policy Framework

The Contractor shall be guided by the "best practices" and peer review work being undertaken concurrently with this task. Once the policy framework has been established, the Contractor shall work with the Policy Advisory Group ("PAG") to brainstorm techniques that might be used to achieve MTA's goals. Prior to review by the PAG, all "best practices" shall be evaluated by the Contractor for potential application for MTA. The Contractor's outcome for this task shall be technically sound policies and practices that will assist the MTA with achieving its goals.

The vision, goals and policy framework for the study shall be documented, presented by the Contractor to the PAG, and shared with stakeholder groups for comment (Citizen Advisory Committee, Technical/Regional Committee) before being used in planning and policy decisions. It is envisioned that this framework will be shared by the MTA with the MTA Board to get a final policy level approval of these goals.

Once the policy for the study has been formally approved by the MTA Board, this framework will be posted at every public meeting by the City or Contractor, as determined by the City, and shall be used by the Contractor to drive its planning work and study recommendations.

Deliverables:

- *Stakeholder Meeting Summary*
- *Documentation of all Staff, Policy Advisory Group, Citizen Advisory and Technical/Regional Committee Meetings*
- *Study Policy Framework*
- *Assistance to MTA Planning Director in presenting the Study Policy Framework to the MTA Board*

Task 2 – Benchmarking and Best Practices

Performance goals and benchmarks for MTA service have been established through the MTA's Municipal Railway Short Range Transit Plan and Proposition E processes. The MTA reports regularly on the performance indicators required by Proposition E and will be concurrently

completing an audit of Proposition E data that evaluates the performance benchmarks required in the legislation. For this task, peer systems and systems demonstrating best practices in specific areas shall be identified by the Contractor. Using these systems, case studies shall be developed by the Contractor highlighting how adaptation of best practices can help MTA in achieving its short- and long-range goals. Task 2 shall be completed concurrently by the Contractor with Task 1, with the goals of understanding how MTA's performance compares with peer systems and how using proven industry policies and practices will assist MTA in improving transit effectiveness.

2.1 Summarize Performance Trends

The Contractor shall assume that comparing a given system against its own performance is in many cases more useful than making comparisons across systems, since each transit operator has a unique operating environment and set of circumstances. For this task, the Contractor shall summarize performance trends using data from Prop E reports, the SRTP, and other internal sources. The Contractor shall use its trend analysis to both evaluate the MTA's past performance over time, especially in light in intervening actions, and to forecast likely future performance if the system continues without change. For example: If reliability is a known problem, has the problem been addressed? What were the results observed once corrective action was implemented?

Going beyond data that is routinely reported, the Contractor shall look for alternative benchmarks or indicators that can help inform MTA on how it has been performing over given time periods. These indicators shall be summarized and made available to the Stakeholder Groups by the Contractor.

Because the Contractor members responsible for this task are also currently scheduled to conduct the Proposition E Quality Review, all data shall be collected simultaneously, minimizing the impact on staff and the re-creation of data between studies.

This task will not include original observations or additonal data collection, which shall be conducted by the Contractor in Task 4 of this scope.

2.2 Peer Analysis

In many ways, MTA is a system without direct peers. With motor coach (standard and articulated bus), trolley bus, cable car, light rail, and historic rail service, MTA operates more modes than most other transit systems in the country. In addition, the restricted service area and the costs of real estate result in physical and socioeconomic constraints that are nonexistent in most other properties. The density of riders throughout the service area requires relatively high frequencies throughout the system.

Because MTA has few direct peers, the Contractor shall work closely with the Policy Advisory Group to determine how and where MTA's performance can be compared against peers. In some cases, it may be valuable to look at MTA's performance against similar size systems reporting National Transit Database (NTD) data. This is especially useful when arraying financial data to plot where a system falls in the distribution of national performance. In other cases, only certain peer systems, and perhaps only portions of certain peer systems can be reasonably included in a performance comparison.

The Contractor shall prepare a series of graphs comparing MTA's performance to the performance of all peers selected for each performance area, identified in consultation with the Policy Advisory Group. Where a subset of peers is chosen,

care shall be taken by the Contractor to ensure that the reader is aware of the underlying reasons why one peer might perform differently from another. For example, a system that covers a much wider service area and has longer average trip lengths would perform differently in a productivity measurement of passengers per revenue service hour than would be expected at MTA.

The Contractor's outcome for this analysis shall not be to determine the success or failure of the system but to see where it falls in the range of performance expected in similar settings. As with all comparative data, this analysis shall be provided to the Policy Advisory Group by the Contractor during the goal setting process.

2.3 Best Practices Analysis

During the course of goal setting and developing the policy framework for the study, best practices at other peer systems shall be identified by the Contractor. This shall cover a range of transit monitoring, financial, planning, and operating practices that affect transit system effectiveness and efficiency.

The Contractor shall complete brief case studies of each system identified as a "best practice peer" to determine how they manage performance in a given area, or how they implemented a program of particular interest. The focus of these best practice case studies shall be processes and ideas transferable to MTA.

2.4 Recommend Revised Benchmarks & Practices

While Proposition E identifies a number of key performance benchmarks, the Contractor, under this subtask, shall develop a refined list of benchmarks based on system trends, industry performance, and best practices. Where possible, the Contractor shall avoid benchmark changes that will require Charter amendments, but shall provide a succinct list of measures that should be tracked routinely to meet performance goals.

Deliverables:

- *Technical Memorandum: Existing Conditions – Performance Trends and Peer Review*
- *Technical Memorandum: Best Practices Analysis*

Task 3 – Market Assessment

The Contractor's Market Assessment shall evaluate the existing and potential markets for transit service in San Francisco. The work shall include investigating the characteristics and mode choice behavior of origin population market segments, the characteristics of destination attractions (e.g., commute, school, shopping, health, recreation), and the patterns and volumes of persons making those trips. Market assessment data can be used from a variety of sources, ranging from analysis of the San Francisco County Transportation Authority (SFCTA) travel model up to new transit market research data collection.

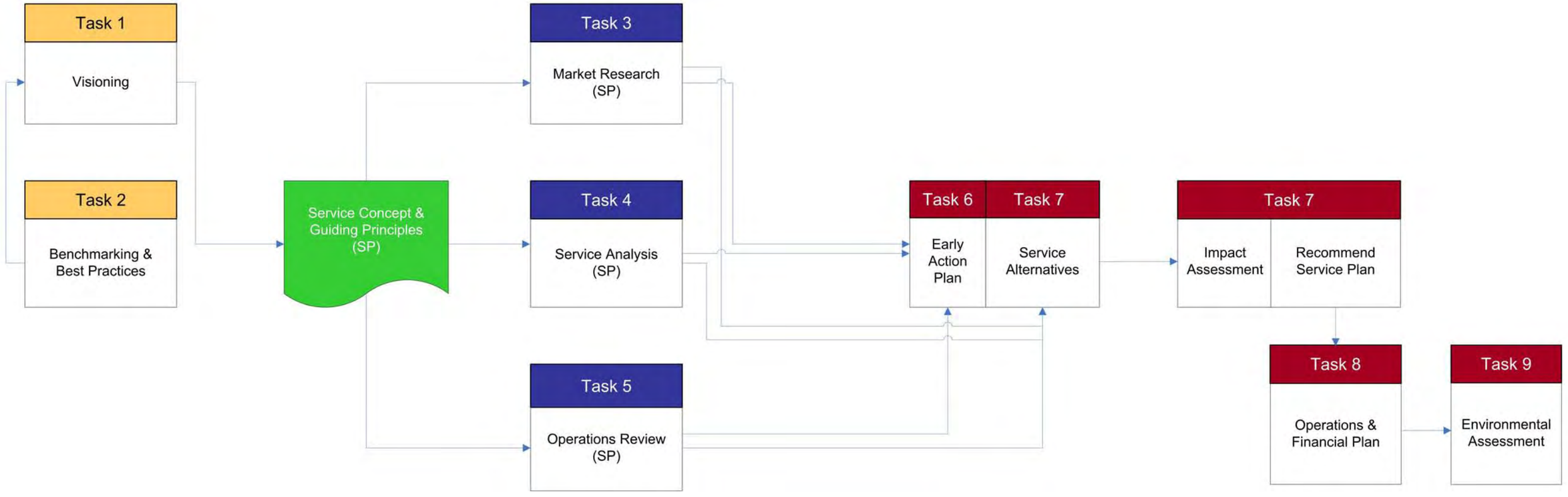
Each element of the market research work supports other tasks in the TEP. The flowchart on the following page details the interrelationships between the three principal analysis elements in Task 3 (3.1 Travel Demand Analysis, 3.2 Transit Market Research, and 3.3 Mode Choice Models) and the other work of the TEP.

3.1 Travel Demand Analysis

Analysis of SFCTA model trip tables and transit ridership

Currently, SFCTA staff are updating the travel model to reflect the recent MTA on-board survey results, and from other new transit and auto travel data. The new base year SFCTA model system is expected to be available by August 2006. The

San Francisco Transit Effectiveness Project



SP = Stakeholder Participation

Task 10: Stakeholder Participation

Policy Advisory Group

Monthly meetings; up to 18

The Policy Advisory Group will serve as a forum to discuss values and policy issues and to share findings throughout the study.

The PAG will provide policy direction in this project.

MTA Executive Director (Chair), Mayor's Office, BOS, MTA Board, Transportation Authority. Controller. TWU-250 A. TWU Local 200, Electrical Workers Local 6, MTA Citizen Advisory Committee, and MTC

Citizen Advisory Committee

Meetings at key milestones; up to 10

MTA Citizen Advisory Committee (Chair), MTA Accessibility Advisory Committee, SFCTA Citizen Advisory Committee, Rescue Muni, Transportation for a Livable City, SPUR, Senior Action Network, Bicycle Advisory Committee, Coalition of Neighborhoods, Pedestrian Safety Advisory Committee (PSAC), Sierra Club, SF Tomorrow

Technical/Regional Committee

Meetings at key milestones; up to 10

Technical Committee: Muni Operations, DPT Operations, Muni Accessible Services Staff, City Planning Department, Transportation Authority, Department of Public Works

Regional Committee: MTC, AC Transit, BART, SamTrans, Golden Gate, Caltrain, Water Transit Authority, Caltrans, Transbay Joint Powers Authority

Project Working Group

The Project Working Group will provide oversight to ensure that the project is meeting staffing, timeline, and budget targets. The PWG will coordinate recommendations from the PAG and other committees to the MTA Board regarding all aspects of the project.

MTA Board Chair or designee, MTA Executive Director, and Controller

The PWG will provide technical direction in this project.

Public

The broad public consists of: all transit riders (current and potential), local residents, visitors, commuters, all SF voters,

The public will continue to be informed and provided opportunities for input through several tools including: on-board surveys, web site, mail, and media coverage.

Contractor shall obtain trip tables and mode choice results from the SFCTA for use as input into the market assessment task.

SFCTA will provide mode choice output trip tables to the Contractor for use in evaluation current and future baseline travel and transit demand patterns. Trip tables shall be organized by the Contractor into work/school and other non-work trip purposes. The detailed trip tables shall be summarized by the Contractor to corridor/sub-area detail, with easy-to-understand maps and tables. This information shall be used by the Contractor to support the market research analysis and to help inform the City 's decisions on service plan changes.

Deliverables:

- *Market Assessment document including findings and guidance regarding travel demand and market segment opportunities to be addressed in the service redevelopment. Task 3.2 shall also provide parts of the market segment analysis.*
- *Maps and tables summarizing overall travel and transit ridership patterns for work and non-work trips throughout San Francisco and outlying communities for existing base year and future baseline alternatives.*

3.2 Transit Market Research

Basic analyses of modeled travel demand and transit usage are standard methods used to assess market conditions. However, important traveler attitudes, such as understanding the sensitivities to factors such as crowding and safety would be missed in an approach using only the SFCTA travel model data.

When transit market research is *not* performed, traditional market segments (i.e. groups of people with similar travel preferences) are most often based on geography (such as commute patterns) or socioeconomic characteristics (such as income groupings). However, a deeper understanding of why travelers choose a specific mode for everyday travel requires breaking away from these demographic stereotypes and analyzing instead the attitudes that drive each segment's mode choices. These attitudes often cut across social, economic, or geographic groupings. For example, a housekeeper earning minimum wage must own a car because public transit does not allow her to reach multiple destinations during the day. An executive with a simple commute to a downtown office tower will not take a bus because he has a strong desire for privacy and comfort.

Transit market research has proven extremely useful for transit planners by identifying the *potential* transit market. By gaining insights into the mix of service amenities required by non-riders or former riders, the Contractor will be expected to effectively plot strategies to increase MTA's market share.

There are three components to the transit market research approach:

- Data collection
- Market segmentation models
- Market research analysis

These are described as separate subtasks of the market analysis.

3.2.1 Data Collection

It is possible to conduct transit market analysis using data from previous surveys, but the existing survey data contains few San Francisco residents, and these travelers will not represent the population of San Francisco. The Contractor shall collect new survey data to support existing market research models . The Contractor shall collect this new data to ensure that traveler attitudes developed by the Contractor will be specific to San Francisco's unique population.

The Contractor shall collect the following data:

- Household travel survey with attitudinal questions; and
- Same household survey with stated preference choice experiments added to determine tradeoffs for mode choice.

Deliverables:

The Contractor shall collect 500 surveys of San Francisco traveler attitudes. These surveys shall include customized mode choice tests that evaluate travelers' willingness to change modes. Deliverables include draft and final survey instruments, data entry and geo-coding, and a technical report summarizing survey findings.

3.2.2 Market Segmentation Models

The purpose of identifying market segments is to understand the significant and critical attitudes of all potential riders toward their options for everyday travel and their choice behavior. The following work steps are required to complete this effort.

Update factor analysis. The Contractor's first step in developing the market segments will be to conduct a factor analysis to reduce the number of variables while retaining the explanatory information provided by each of these statements. The Contractor shall estimate coefficients and develop factors that are based on the survey data.

Segment the traveler market. The Contractor's objective for market segmentation shall be to identify distinct groups within the population that share the same set of values. A cluster analysis shall be conducted using the scores (i.e., coefficients) obtained from the confirmatory factor analysis. These scores shall be used to group together travelers on the basis of their similar attitudes. The Contractor shall identify the segments and their underlying demographic and attitudinal characteristics using the survey data.

Update Structural Equation Models (SEM). The Contractor's Structural Equation Modeling (SEM) shall jointly estimate statistical models between the attitudinal data collected in the survey and demographic data available from

the US Census. The Contractor shall estimate the coefficients and statistical measures of the models using the variables and model framework established in the factor analysis and market segmentation process.

Deliverables:

Market segmentation models shall be created to analyze San Francisco resident traveler attitudes with respect to riding transit. The models shall be documented in a technical report.

3.2.3 Market Research Analysis

The Contractor shall conduct a detailed analysis of residential locations of the most promising market segments, and of the travel patterns of these segments. Maps and tables of population concentrations for the promising markets shall be prepared to help the Contractor plan out service restructuring options.

Deliverables:

- *Technical memorandum documenting the formulation of the market segments, based on respondents' attitudes. This memorandum shall include sections on exploratory factor analysis and confirmatory factor analysis.*

- *Technical memorandum presenting the structural equation model market segmentation. This report shall cover three topical areas – overview of SEM, full application of SEM, and constrained SEM (depends on availability of data for future year forecasting). These sections shall also describe San Francisco's market segments, their socioeconomic profiles, and their attitudinal preferences.*

3.3 Mode Choice Models (optional task subject to the City's approval)

Market segmentation (described in Task 3.2.2, above) will identify unique attitudes and preferences between market segments and show the relative importance of these attitudes between the segments, but it will not provide quantitative measures and predict changes in ridership; mode choice models will. Under this task, the Contractor shall evaluate how changes in specific service characteristics will affect ridership. Transit Preferential Streets (TPS), for example, could improve travel time and reliability for buses operating on these routes. A mode choice model that includes a variable for travel time reliability could enable planners to quantify the ridership gains that TPS would attract.

The mode choice models will pivot off the existing SFCTA travel demand models and are specific for each of the market segments developed from the market segmentation models.

The Contractor shall use the choice experiment results to estimate segment-specific mode choice models (where there is sufficient statistical significance to estimate a unique choice model). For this effort, the Contractor shall use the segment-specific mode choice models to evaluate the quantitative trade-offs between transit service characteristics (e.g., wait time, in-vehicle travel time, number of transfers, etc.). While these mode choice models may be used to forecast route-level ridership, the Contractor's application in this effort shall focus on the differences in sub-area or system-wide ridership between scenarios.

The following work steps are required for this effort:

- Analyze survey results and estimate mode choice models. The Contractor shall use the survey results to develop statistical models that can forecast travel mode choice for work and non-work trips. The Contractor shall prepare electronic files with all data and statistical tests, and model documentation that describe development and use of the mode choice models.

- Prepare summary tables and technical memorandum. The Contractor shall prepare summary tabulations of variables and an accompanying technical memorandum to explain the methodology, results, and statistical parameters.

- Apply mode choice models to test sensitivity. The Contractor shall apply the mode choice models to evaluate the effectiveness of specific strategies to determine the sensitivity of the mode choice model to critical variables, such as reliability, seat availability, travel time, walk distance, and cost.

Deliverables:

- *Mode choice models shall be created by the Contractor to analyze San Francisco resident travel patterns and predict the modal choices for these travelers, based on their attitudes and level of service characteristics. The models shall be documented in a technical report.*
- *Technical memorandum that describes mode choice methodology, results, and statistical parameters. The results from this report shall allow the reader to understand the trade-offs between the model parameters (such as the trade-offs between changes in travel time and travel costs).*
- *Electronic files with all final data and statistical tests. Model input and estimation ALOGIT files and shall be provided to SFCTA and MTA staff.*

3.4 Service Planning Support

The Contractor shall work with City staff to assess the market conditions for transit throughout the MTA service area. This assessment shall make use of the transit market research results prepared in Tasks 3.1 and 3.2 and shall be presented in a series of maps and figures illustrating how each travel market (usually defined as a corridor or a set of origins and destinations). The results will help organize and rank potential travel market opportunities. The information will give the Contractor and stakeholders a graphical understanding of the competitive conditions with which transit must contend to capture acceptable market shares.

The data comes from a combination of information from the SFCTA's travel model, as well as from new market research data. In consultation with agency staff, the Contractor shall use four key factors to assess the competitive conditions through the MTA service area:

- Land use/density.
- Market segment concentrations by neighborhood (this will show customer characteristics such as sensitivity to personal safety and need for travel time reliability).
- Transit time competitiveness (level of congestion and availability of transit priority treatment such as Transit Preferential Streets, signal priority, queue-jumping lanes).

- Parking (including both parking supply, which affects time spent searching for parking, and parking costs).

The objective of this exercise shall be to find the places that perform well in one or more of the above categories. Mapping shall be conducted to identify both the most promising origins and destinations (i.e. travel markets) and identify travel markets where transit will not capture significant mode share. The mapping shall be conducted on an ArcGIS platform with potential programming functionality added that would allow a user to test the sensitivity of changes in land use, transit priority treatments, and parking policies. This functionality may be included in the optional Service Planning Tool (described in the optional Subtask 7.4). This information, regardless of its incorporation into an automated software tool, will be helpful for the Contractor to plan out service restructuring options.

However, one important missing element is travel pattern information. SFCTA travel model trip tables can be used to identify travel patterns; unfortunately, the modeled trips will not have the customer characteristics, as developed through market research. Thus, only if market segmentation is performed, will it be possible to quantitatively link customer characteristics to travel patterns.

Thus, if mode choice analysis (optional Subtask 3.3) is requested by the City to be performed by the Contractor, as part of the market research, then the linkage between customer characteristics and travel patterns shall be made by the Contractor.

Deliverables:

From the market segmentation and mode choice models, detailed analyses used to support service restructuring options shall be prepared by the Contractor. This work shall be included in the Market Assessment document. This shall include findings and guidance regarding travel demand and market segment opportunities to be addressed in the service redevelopment.

Task 4 – Service Evaluation

Under this task, the Contractor shall build on previous MTA work using available service and operations data. The principal elements in the service analysis are analysis of service and operations data and conducting extensive fieldwork in collaboration with MTA.

4.1 Service Analysis

The need for detailed comprehensive analysis of MTA service efficiency and effectiveness will be paramount. It is anticipated that the following information will be needed from the MTA in fully assessing MTA service performance:

- Current MTA performance standards required by various funding sources and traditional MTA service measures will be included as well as measures identified in the benchmark and best practices work.
- Route segment, time of day, and day of week performance including productivity, loading, operating costs, revenue, and subsidy.
- Boardings, alightings, and load factors by stop by trip (trip segments exceeding capacity standards are identified).
- Maximum load points (by route, route segment, direction, and time of day).
- Passenger miles (by route, route segment, and time of day).

- Average passenger trip lengths.
- Average seat utilization.
- Schedule adherence at timepoints.
- Planned and actual running time between timepoints.
- Planned and actual headway intervals at timepoints.
- Planned and actual average passenger waits at timepoints.
- Area and sub-area network analysis of service frequencies by time of day and day of week to identify both the need for timed or un-timed transfer connections. At regional hubs this will include other transit system connecting route frequencies as well.

The Contractor shall provide the following:

- Network gaps shall be assessed by the Contractor through an analysis of service coverage and connections – the interconnection and coverage between MTA and other providers shall be reviewed as well.
- A two-part network analysis shall be undertaken by the Contractor to identify sub-regional areas with an (a) undersupply, appropriate supply, or oversupply of transit service and are (b) exceeding ridership generation expectations, meeting expectations, or underperforming expectations.
- Analysis of transfer data that will identify the major existing transfer movements and identify where regular street connections are meeting needs. For out-of-direction travel to hubs an assessment shall be conducted by the Contractor to identify the impact on riders.
- Major commute and other travel demand flows that were identified in the Market Assessment shall be compared by the Contractor with the existing service network. Network quality of service (travel time) indices shall be developed to assess the performance of existing MTA services in meeting major travel demand.

The Contractor's service analysis approach shall build on existing MTA performance, service, and ridership data and shall utilize the available Trapeze Plan (TP) tools. Where additional analysis capability is needed, the Contractor shall augment TP with its own Service Analysis System (SAS). For example, one area that will need a high level of analysis is service passenger loading – a common best practice involves managing service loads based on both actual load and the duration of standing until a seat is available. The Contractor shall utilize the existing Trapeze data augmented by Rucus data as needed to conduct a comprehensive service analysis.

4.2 Field Work

Extensive fieldwork by the Core Contractor's Team is planned, which shall include both transit riding and fieldwork in vehicles and on foot. It is anticipated that this will comprise one to three weeks in the field – members of the Contractor's staff and the City's staff with strong local knowledge (including MTA) will spend one week in the field with the rest of the Contractor, while those without MTA and local experience will spend an additional two weeks in the field. For effective discussions, significant MTA staff time is anticipated since many service and operating issues are best discussed in the field. This also allows for the maximum transfer of institutional knowledge during the fieldwork. Given that MTA staff time may be limited, the Contractor shall seek to work out compatible schedules with the MTA for joint fieldwork.

Specific goals of the fieldwork for the Contractor:

- "Be the customer" – experience the system from the customers' eyes.
- Learn the service, network, and area geography to complement the data analysis.
- Interact with operators and customers.
- Assess local access/egress conditions – this is important given the localized topography and weather issues in San Francisco.
- Assess local operating conditions, including delay produced from various sources (e.g., high ridership, slow boarding, traffic congestion, signals).
- Meet with operating and planning staff as part of internal stakeholder interaction.

Deliverables:

The major and minor findings shall be summarized by the Contractor in a Service Evaluation document and shall include the following:

- *Network and service tier level findings including area service performance, service quality, travel times and delay, service intensity and effectiveness, and any structural issues regarding ridership, vehicle loading, reliability and quality, gaps, bottlenecks, discontinuities, service tier interface, and regional and local connections.*
- *Route findings regarding service performance (e.g., effectiveness, efficiency, quality), ridership activity and loading by stop and trip, and schedule performance.*
- *The key findings and opportunities identified in the fieldwork shall be summarized as part of the Service Analysis.*
- *Specific opportunities to be addressed in the development of the service plan shall be* identified with early action candidates.

Task 5 – Operations Review

Operator labor is the largest item of expenditure for mass transit, and is particularly predominant in bus systems. A substantial portion of the wages are fixed at an irreducible minimum based on two documents that have been the subject of other, long term management improvement efforts at MTA: the labor contract and the schedule. Operator labor combined with platform mileage costs is the focus of Task 5.

The Contractor shall undertake an operational review of MTA scheduling and service implementation, including the development of strategies/actions to ensure service delivery efficiency, service reliability, and predictability.

5.1 Scheduling Review

A comprehensive review of MTA scheduling, including the Trapeze system shall be undertaken by the Contractor. The Contractor shall work with MTA staff to evaluate the following areas and include sample queries. Where Trapeze scenario testing is required, it is assumed that MTA staff will undertake this work. The Contractor shall be available to assist and to work closely with MTA staff throughout the task.

- Benchmarking of MTA peers regarding actual performance, practices, and measurement shall be undertaken by the Contractor recognizing that each system has unique circumstances. To address MTA's unique local conditions, the Contractor shall conduct a more thorough investigation of current practices and the opportunities for implementation of improvements.
- Implementation of the labor agreement and side letters; what are the impacts on service quality and operating efficiency? Specifically, has the agreement been implemented to MTA's best advantage in achieving operating and financial objectives?
- How are routes, schedules, and service spans determined; what are the respective roles of service planning, operations planning, scheduling, and operations staff? How are customer, operating, and budget needs addressed?
- What is the process for schedule writing? How are running times validated and/or calibrated using what data sets? What are the objectives in developing the schedules? When policy conflicts occur, how are they resolved? Are routes developed individually or as groups? What actions are undertaken to ensure that the schedules are efficient and effective?
- What is the process for vehicle blocking? How are the schedules optimized for blocking? How are routes and service assigned to the various bus garages? How are layover and recovery handled? Is Wage Order 9 considered at the blocking stage? Are scheduled trip times locked or can they be shifted to improve efficiency?
- How does MTA undertake crew scheduling? What are the primary issues in minimizing operator costs and assuring reliable delivery? How are the various parameters optimized for a final solution? How are overtime and operator work force sizing addressed? At what point is rostering considered?
- How is Trapeze used to support each aspect of the scheduling work? Is Trapeze fully operational and being used to the maximum advantage?

5.2 Service Management

MTA's high levels of service and ridership require a delivery approach that is responsive to the challenging operating environment. In particular, many customer complaints are oriented around a failure to deliver the service as scheduled. These issues include labor availability, vehicle availability, and field management issues. Operations labor efficiency and availability are addressed in Task 5.3. *The Contractor's focus for Task 5.2 shall be to assess existing practices for assuring that services are operated as scheduled and that proper response and recovery techniques are in place when unplanned events occur.* Building on the best practices and benchmarking, the areas to be considered shall include:

Policies and practices regarding service operation, including such issues as service pacing, stopping/curbing, vehicle leading/trailing, end-of-line departures, relief waits, layover and recovery, incident recovery, and protection/standby vehicles.

Street supervision – management of the operator group, including review of deployment strategies and intensity, roles in monitoring, mentoring, correction of service operations, other duties, and effectiveness.

Fleet Availability – daily vehicle availability will be reviewed in light of peak and off-peak schedule requirements.

Technology/communications – current policies, programs, and infrastructure availability and utility, suitability for functional effectiveness, and opportunities for improvement. This includes radio, farebox and media, AVL/APC, MDT messaging, voice annunciation, and coordination with the traffic manager/SFGO program, among others.

Deliverables:

- *The Contractor's outcome for Subtask 5.1 shall be a technical memorandum of immediate term actions for Task 6 together with short- and long-term recommendations for improvement.*
- *The Contractor's outcome for Subtask 5.2 shall be a technical memorandum of key findings and recommendations for improvement.*

5.3 Review Operating Division Management and Operator Staffing

The Contractor shall leverage its experience in quickly organizing the data collection in the context of information systems that differ from transit system to system. The Contractor shall assemble probative data that sheds light on the underlying economics of operator labor and the stochastic nature of dispatching decisions. The Contractor shall focus on the following questions:

- Is the system's ultimate pension liability increased more by hiring additional personnel or by paying senior operators more overtime?
- Is workers' compensation expense dependent entirely on the number of vehicle hours operated (and the duration of exposure to injury) or is it also affected by the number of operators employed to work those hours, thus correlating exposure with the size of the work force?
- What is the variability in operator attendance: are there large swings based on common activities, weather and health trends, or is the overall attendance level predictable based on historical patterns and known events?

The Contractor shall work closely with the City to accomplish the following tasks:

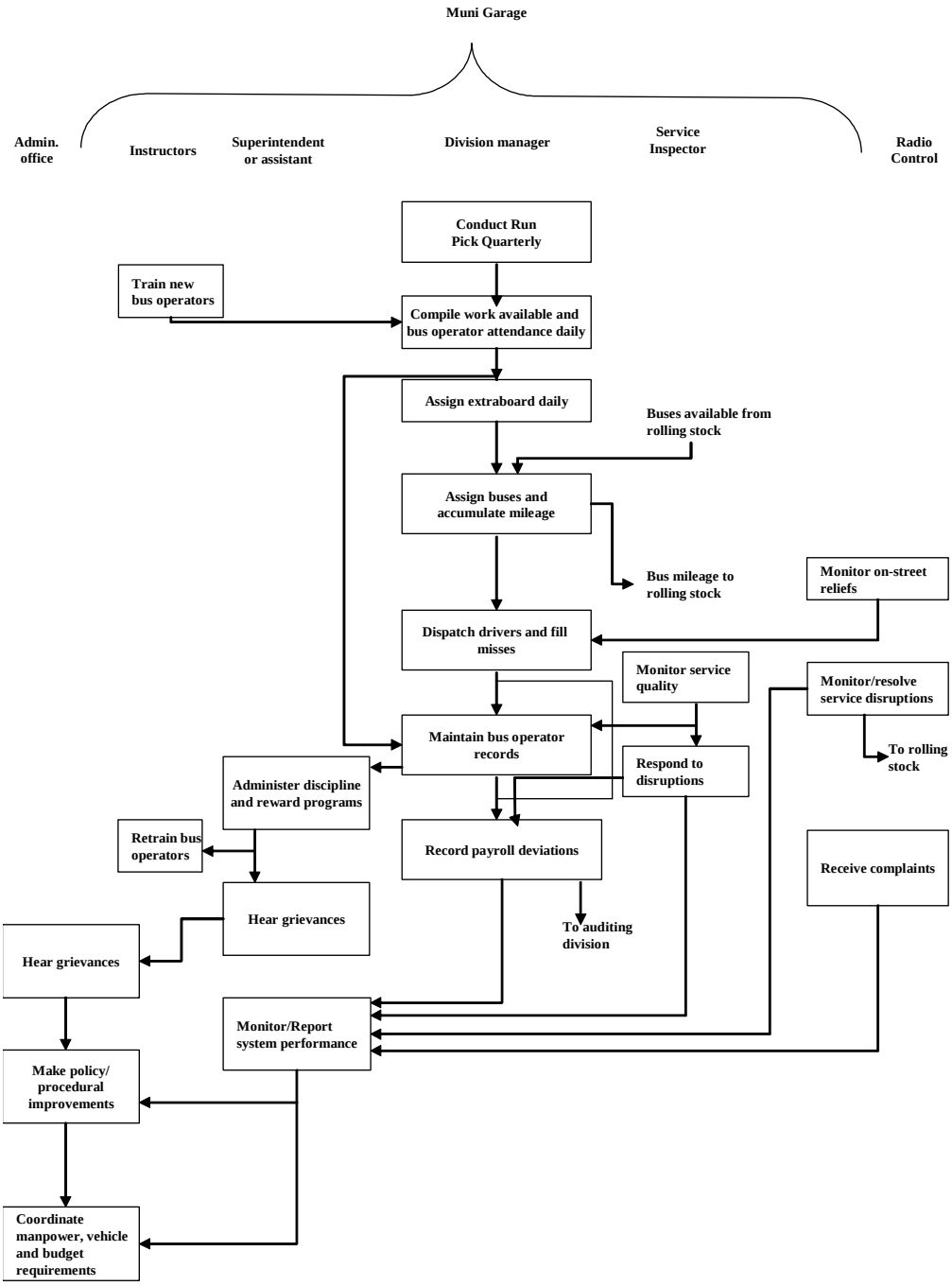
5.3.1: Develop Overall Operating Division Management Understanding
5.3.2: Compare Peer Best Practices
5.3.3: Review and Evaluate Division Activities
5.3.4: Evaluate Strategies, Policies, and Procedures and Recommend Improvement
5.3.5: Review, Evaluate and Recommend Changes to Information Systems
5.3.6: Prepare Operating Division Management Functional Analysis Report
5.3.7: Review Recent Turnover and Hiring History
5.3.8: Review Current Operator Work Force Planning Procedures
5.3.9: Review Work Force Calculation Strategies Against Peers
5.3.10: Review and Evaluate Interaction with Departments that Impact MTA Operator Planning
5.3.11: Recommend Data and Timelines for 12-Month MTA Operator Work Force Planning
5.3.12: Recommend Improvements to Information Systems
5.3.13: Prepare MTA Operator Work Force Planning Analysis Report

5.3.1 Develop Overall Operating Division Management Understanding

The Contractor shall request from MTA and review the following documents:

- Existing written policies on daily operating division operations;
- Current organizational chart;
- MTA Labor Agreements;
- Recent history of operating division management staffing;
- User documentation of automated systems used in operating division management; and
- Sample operating division management statistics including unscheduled pay-by-pay type over the course of a year as well as for sample days, “protection” and “missed trip” data, and operator attendance data.

The Contractor shall prepare a flowchart of MTA operating division management. The flow chart below, prepared for another agency, serves to illustrate the boundaries and some of the major phases of the operating division management processes. The boundaries of this project shall be set using a similar flow chart, the terminology shall be revised to correspond to MTA’s terminology, and the MTA processes shall be analyzed to depict them accurately. This flow chart, and more detailed charts analyzing the major processes within operating division management, shall be the basis for some of the work in Task 8.3.3.



The Contractor shall review the labor contract provisions and past practices with operations personnel to determine constraints on the vacation scheduling process (which affects the ability to plan the annual work force cycle) and extraboard constraints (which affect the ability to plan the weekly and daily workforce cycles).

The Contractor shall review the MTA operator attendance records to assess the attendance at MTA and to make recommendations regarding the attendance reporting system.

5.3.2 Compare Peer Best Practices

The Contractor shall assemble a list of ten to 20 candidate peer systems in US and Canada as candidates for peer comparisons. The Contractor shall review and prioritize the list with the City. The assembly of the list and prioritization shall be based on similarity of size, mode, labor environment, service configuration, as well as on subjective impressions of cost-effective operating division management.

The peer systems shall be contacted at the top levels of operations or executive management to secure their cooperation in the peer comparison effort; each participating system shall be assured of receiving a copy of the result. The cooperation of six to ten systems shall be secured. The Contractor shall prepare a written survey instrument regarding the phases of operating division management and the key options and shall distribute the instrument to participating systems. Following receipt of the completed surveys, the Contractor shall follow up each survey with a telephone interview to thank the participant and to clarify and amplify the operating division management policies and procedures reported.

The results shall be compiled in tabular format for distribution to the participants.

5.3.3 Review and Evaluate Division Activities

The Contractor shall conduct a series of interviews and/or workshops with MTA staff in order to assemble a process flow chart, as illustrated above. The interviews shall lead to additional data requests and data analysis. Among the objectives of these interviews shall be assessing the following issues:

Operational Priorities: Do the priorities of Operating Division Management on issues such as the degree and expense of protection for service reflect the system policies?

Current Plan Goals, Standards, Programs, and Projects: Are the issues and opportunities raised in the analysis and interview process being effectively addressed by the Division? Are the Divisions plans well understood throughout the operating divisions?

Working Environment: Are division employees proud of their work and the results of their work? Do they understand and have confidence in management's policies and goals? Do they believe that management takes their views and concerns into account?

Resources Available: Based on the cost and service impact of the activities and gauged by the peer comparisons, has MTA deployed the most cost-effective level of resources:

Staffing: Are there adequate or excessive personnel to cost-effectively process and analyze data necessary for operating division management decisions? Are there adequate personnel to perform the daily requirements of the Division as well as to monitor service and make optimal responses to emergent needs?

Information Systems: Given the state of the art of information technology and transit dispatching and timekeeping software, are the current technologies available to operating division management close to the most cost-effective level?

5.3.4 Evaluate Strategies, Policies, and Procedures and Recommend Improvement

The Contractor shall develop through the course of these interviews and analyses a series of recommendations for improvement in operating division management. These recommendations shall deal with the following and other issues as they arise:

Ratio of Management Support Staff to Operators: In addition to shift coverage requirements that may affect MTA and its peers, particularly at smaller operating divisions, is there adequate supervision to ensure quality service delivery in the long run? Is MTA as efficient as its peers in operating division supervisory ratios are?

Methods to Attract and Retain Operators: The entire industry faces tight labor markets and many of the part-time programs developed during the 1980s are being drastically curtailed, restructured, or abandoned. Restructuring of part-time work and compensation based on the specific labor markets available, employee retention programs, recruiting bonuses, and innovative practices that have succeeded at peer systems shall be reviewed for applicability to MTA.

Methods to Increase Efficiencies of Daily Service Commitment: Are there scheduling practices that could cost-effectively improve the dispatching result (e.g., increasing minimum piece length or balancing the a.m. and p.m. need for extra operators).

Methods to Better Manage Overtime and Non-Productive Time: As illustrated by the curves depicted under the operator staffing discussion, below, minimizing the combined cost of overtime and non-productive time is a key objective of both operator staffing and daily extraboard management. Are protection ("stand-by," "on-call," "reserve") operators scheduled at the optimal times? Are dispatchers able to efficiently "set forward" small numbers of operators to defer an operator shortage and deliver promised service? Are there an adequate number of operators who are generally seeking work at overtime rates?

Develop Vacation Scheduling and Extraboard Practices: In addition to the daily cycles of Operating Division Management, there are seasonal cycles involving the extra operators days off and the scheduling of vacations that affect the cost of overtime and non-productive time, as well as service quality. These issues overlap with the operator staffing analysis. Does Operating Division Management have adequate data and analytical tools to project understaffed and overstaffed periods of time and to make the best vacation and days-off decisions?

Methods to Increase Daily Face Time with Operators: "Only the worst operators get management's attention" is a familiar concern and the high ratios of operators to supervisors result in workforce alienation that is particularly costly in today's tight labor market. In response to these concerns, the Contractor shall examine operator evaluation and counseling processes, team-building processes, and remodeling of the work assignment counters.

5.3.5 Review, Evaluate and Recommend Changes to Information Systems

The Contractor shall consider the potential improvements from analyzing wages by detailed payroll categories, fringe benefit costs, and attendance records that demonstrate the need to maintain a reliable information network. The Contractor shall evaluate MTA information system (both manual and automated) based on criteria including the:

- Ability to consolidate data and write reports in a timely manner;
- Ability to compare results to performance measures;
- Increase in the likelihood of prompt corrective action; and
- Extent of integration with Human Resource, Radio Control, Fleet Assignment, and Payroll Databases.

Based on MTA's current Information Technology platform and documented plans, the Contractor shall make recommendations for information system functional requirements.

5.3.6 Prepare Operating Division Management Functional Analysis Report

The Contractor shall prepare an Operating Division Management report that addresses:

- The flow chart analysis of the existing Operating Division Management Activities and the potential revisions during the course of the interviews, data collection, and analyses described above; and
- The analysis underlying potential improvements during this process.

Potential improvements and recommended additional analysis shall be selected for recommendation in the draft report and the analysis and explanation shall be refined in a manner suitable for presentation to City staff.

5.3.7 Review Recent Turnover and Hiring History

The Contractor shall review operator recent turnover and hiring history. This review shall identify specific hiring trends or uncover current recruiting policies that have lead to inconsistent operator performance. In particular, the matriculation pattern of part-time operators shall be reviewed. The Contractor shall review the pattern to identify issues such as loss of investment in Commercial Driver's License or other training due to:

- Rapid turnover in new hires;
- Inability to attract quality part time employees due to a competitive labor market;
- Difficulty in matriculating quality full-time employees due to a requirement to work as a part-time employee; and
- Ineffective use of part time employees due to the work assignment process.

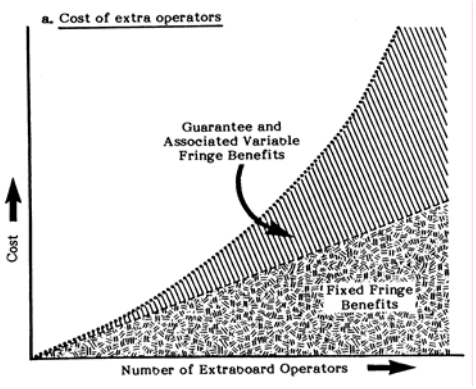
5.3.8 Review Current Operator Work Force Planning Procedures

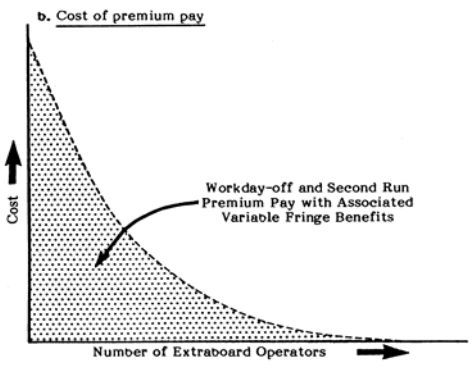
The Contractor shall review MTA current workforce planning and assignment procedures. This shall involve interviews with the employment function in human resources, discussion of the optimal operator training class size, an analysis of the processes currently used to determine when and how many operators to hire, and a discussion with operations personnel of the methods used to schedule operator vacations.

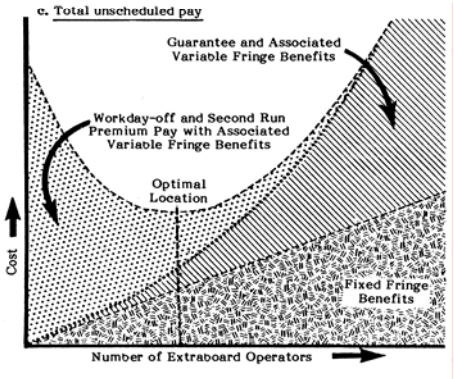
The Contractor shall coordinate this analysis with Tasks 5.3.1 through 5.3.6. In addition to the process for planning hiring decisions, the impact of shorter-term planning involved in extraboard management shall be analyzed. Assessment of the open work, procedures for granting discretionary days of leave, for assigning or requiring overtime work as "in-addition" or off-day work, and for making the extraboard assignments shall be reviewed.

5.3.9 Review Work Force Calculation Strategies Against Peers

The most economical number of operators across any given period of time (e.g., fiscal year) can be determined as the number of operators that would minimize the combined cost of (a) fixed fringe benefits and allowed time (which increases as the number of operators increases) and overtime premium with its variable fringe benefits (which decreases as the number of operators increases). It is also possible, and increasingly frequently the case that the fixed fringe benefits are so expensive, that fulfilling work with overtime premium is always less expensive than hiring additional operators. In this case the practical limit on reducing the work force size is often determined by the necessity to keep the work force interested in working overtime to avoid situations where assignments cannot be filled practically. The following diagram illustrates this economic relationship.







Subject to discussion with the City and the City's approval, the Contractor shall select peer systems considered appropriately comparable to the City's system for comparability analysis and surveys. The Contractor's written survey instruments shall be integrated so that systems responding to surveys can allocate the responses based on their own organizational structures. Follow-up telephone interviews by the Contractor shall clarify and supplement the procedures used by peer systems for operator work force planning.

The Contractor shall integrate the data collected in the prior tasks and shall assess the optimal number of operators for MTA first on a strictly financial basis, and then, if necessary, taking into account the operating impact of the financial optimum.

In addressing the optimal number of operators, the Contractor shall take into account less straightforward issues that affect the truly optimal number of operators, including:

Relationship to Service Plan and Budget: An increasing overall budget and service plan, together with the limited throughput capability of the recruiting, hiring, and training programs may require a gradual build-up of operators to prepare for a material service implementation; conversely, a proposed reduction may require an early phasing out of operators, incurring some overtime cost to avoid lay-offs and the resulting costs and liability.

Variability in Data for Budgeted Work Force Modeling: The ability of any system to optimize the work force is limited by the quality and variability of the data available, and the Contractor shall be reviewing the information system from this perspective. In addition, the uncertainty of attendance is a significant factor in work force planning; to the degree that variability in attendance cannot be managed, work force planning must deal with the low-side and high-side variations in operator availability.

Part-Time, Nine-Hour, Ten-Hour Shifts: While the role of part-time operators has become a standard feature in work force planning, non-standard shifts are still encountering a variety of approaches. (For example, 10-hour shifts and 10-hour shift proposals at comparable county transportation agencies have yielded direct ways of taking these factors into account in the work-force planning based on the availability of these run types).

Non-Scheduled Work: Training requirements, alternative duty as supervisor fill-ins or for other departments, charter work, "complementary tour" assignments, are all realities of transit service that are a basic part of the operator attendance and utilization data routinely collected; these must be treated as operator requirements, or a policy decision must be made to modify the assignments to non-scheduled work.

5.3.10 Review and Evaluate Interaction with Departments that Impact MTA Operator Planning

The Contractor shall conduct interviews and/or workshops to address the following:

Service Planning and Scheduling: which not only dictates the basic schedule to be operated by regular operators, but can also severely impact unscheduled cost by the efficiency and balance of the open work that is left for extra operators;

Human Resources: which is the basic link to operator recruits, and can often find itself unable to fill an operator requirement even if more than sufficient advanced notice was available; furthermore, human resources can affect the basic economics of operator staffing through the cost of benefits often under the control of human resources such as health insurance;

Finance: which is often responsible for providing information about costs that are essential to good operator planning;

Vehicle Maintenance: which may affect operator staffing (and more acutely, Operating Division Management) through vehicle unavailability or delayed availability;

Customer Service: which require operators for non-scheduled work;

On-Street Supervision: which may require operators for non-scheduled work and may also initiate disciplinary proceedings that affect operator availability;

Marketing: which addresses recruitment and advertising; and

Radio Control Supervision: which have a direct impact on operator staffing through requiring operators for non-scheduled work, making reassignments on the road to cover emergent situations, requesting operators to remain available on the road after their scheduled runs, etc.

5.3.11 Recommend Data and Timelines for 12-Month MTA Operator Work Force Planning

Based on the potential for improvements identified in the preliminary and on-site phases, the Contractor shall prepare an overall operator staffing process that shall be in an easily maintained format so that it can be used by Operations and Human Resource personnel and can be kept up to date. The guidelines shall include a flow chart similar to the Operating Division Management flow chart in format, and shall also provide the data and templates to perform operator-staffing computations as new cost data and operator attendance data are collected for the process.

5.3.12 Recommend Improvements to Information Systems

The Contractor shall recommend improvements in the information system that shall provide the data necessary for optimal work force planning. The ability to analyze labor contract, fringe benefit costs and attendance records again reinforces the need to implement a reliable information network. Direct communication lines among departments shall produce a feedback-loop that enhances service delivery. To illustrate, service planners can directly benefit from this loop by monitoring fringe benefit cost trends that may be associated with increased extraboard use

5.3.13 Prepare MTA Operator Work Force Planning Analysis Report

The Contractor shall incorporate the timelines, information system recommendations, and overall process recommendations in a draft report. In addition to these procedural elements, the report shall include the following tasks:

Define Parameters for Optimal Staffing Mix of Full-Time, Part-Time and Extra Operators: The Contractor shall analyze the constraints on operator planning and hiring and shall determine the factors that shall change over time at MTA to alter the optimal staffing mix (e.g., changes in total service hours, changes in a.m. or p.m. peak pieces of work, changes in fringe benefit costs, or changes in attendance patterns).

Develop Optimal Planning and Hiring Practices: The Contractor shall formulate a system for tracking the parameters, the operator staffing, and the resulting costs and service impacts, and for supporting MTA staff in making optimal hiring decisions. The timing and size of new operator classes shall be suggested by the system's presentation of data for further analysis and adjustment by management. Probable periods of understaffing and overstaffing shall be presented in the data.

Develop Vacation Scheduling and Extraboard Practices: The data presented by the Contractor's system shall also suggest vacation scheduling across the year and permit MTA to assess the implications of alternative vacation schedules. Extraboard management practices will be supported, particularly by the projection of understaffed and overstaffed periods of time. As discussed under Operating Division Management, above, this is the sub-process where Operating Division Management and Operator staffing overlap most noticeably. The Contractor shall coordinate the discussion of these practices in the manner best suited to MTA's organizational allocation of these sub-processes.

5.4 Review Absenteeism

The Contractor shall work closely with the City to accomplish the following tasks:

5.4.1: Conduct Transit Peer Review
5.4.2: Understand and Document MTA Absence
5.4.3: Prepare Assessment of Absence Issues
5.4.4: Analyze Patterns, Incentives, and Controls
5.4.5: Identify Opportunities for Improvement
5.4.6: Prepare and Present Cross-functional Attendance Improvement Program

5.4.1 Conduct Transit Absence Rate Peer Review

The Contractor shall survey peer property attendance rates (i.e., survey ten agencies with the goal of obtaining six usable responses). This shall include the following activities:

- Identify candidate systems and contacts
- Obtain agreement to participate
- Draft survey
- Issue survey
- Follow-up
- Compile results

To accomplish this expeditiously, absence rates shall be surveyed only for rail and bus operators. Data shall be collected in the form immediately available from responding systems, resulting in some comparability of major categories of absence, but also some variance in definitions and in the scope of total absence rate estimates.

5.4.2 Understand and Document MTA Absence and Controls

The Contractor shall review the absenteeism problem at MTA, MTA attendance systems and attendance record keeping, and programs in place currently to reduce absenteeism. The Contractor shall interview dispatchers at various MTA operating divisions, HR managers, and finance managers. The Contractor shall review relevant labor contract provisions, benefit programs, and discipline/reward systems, prior studies on absenteeism at MTA, at other transit agencies. The Contractor shall also review the following general references for potential application at MTA:

- J.K. Chadwick-Jones, Nigel Nicholson, and Colin Brown. Social Psychology of Absenteeism. 1982. Praeger Publishers.
- MacDorman & Associates; Absenteeism Study of the Mass Transit Administration prepared for the Department of Transportation, State of Maryland, September 1984
- Paul S. Goodman, Robert S. Atkin, and Associates. Absenteeism. 1984. Jossey-Bass Inc. Publishers.
- Peat, Marwick, Mitchell & Co. Study of Operator Absenteeism and Workers' Compensation Trends in the Urban Mass Transportation Industry. March 1980. Prepared for The Port Authority of Allegheny County.
- Peat, Marwick, Mitchell & Co. Technical Memorandum No. 2, Preliminary Analysis of the Port Authority of Allegheny County Transit Absenteeism and Worker's Compensation Survey. October 1979
- Schappi, John V. Improving Job Attendance. 1988. The Bureau of National Affairs, Inc.
- Urban Mass Transportation Administration (UMTA); Transit Management Division. Transit Employee Attendance Management, Volume II of Transit Attendance Management Information System. June 1986.

5.4.3 Prepare Assessment of Absence Issues

The Contractor shall synthesize the analysis and shall identify the opportunities for improvement. Each opportunity shall be described, the magnitude shall be assessed, and uncertainties affecting the opportunity and required analysis shall be outlined. A summary assessment of the operator absence cost at MTA shall be discussed.

5.4.4 Analysis of Patterns, Incentives, and Controls

The more detailed analysis called for in task 5.4.3 shall be carried out by the Contractor. Typical tasks shall include analysis of the extent and apparent cause of pattern absence (such as absence on days preceding or following specific holidays, absence ending on days preceding a scheduled day off, shifts in categories of absence, etc). Also, the effect of benefit and discipline incentives, as well as the effectiveness of control programs, shall be analyzed.

5.4.5 Identify Opportunities for Improvement

The Contractor shall define the determinants of absenteeism that shall form the basis of the improvement program at MTA. This definition shall address:

- Management control tactics
- Incentive to work
- Attenuation of absence inducements
- Supervision
- Job characteristics
- Recruiting
- Ability to attend
- Information system
- Labor Agreements
- Incentive to work
- Attenuation of absence inducements
- Job characteristics

5.4.6 Prepare and Present Cross Functional Attendance Improvement Program

Attendance improvement generally requires attention in more than one functional area – e.g., changes in discipline programs must often be accompanied by changes in benefit policies or reward programs before they are effective. The Contractor shall document the findings of this review in a technical memorandum and shall provide an electronic copy to the MTA Project Manager and Controller's Project Manager.

5.5 Review Application of Trapeze Automated Dispatch Software

The work on Task 5.5 will be scheduled to coincide with the implementation of the Trapeze dispatch system. The Contractor shall work closely with both the City and MTA to accomplish the following tasks:

5.5.1: Interview Dispatch and Payroll Staff
5.5.2: Assemble Data from Trapeze System
5.5.3: Analyze Data and Review Unscheduled Overtime
5.5.4: Prepare and Present Report

5.5.1 Interview Dispatch and Payroll Staff

The Contractor shall meet with MTA dispatch staff to gain an understanding of how the Trapeze automated dispatch software is applied on a day-to-day basis to fill open work. This discussion shall focus on the:

- Extent to which available manpower is applied and total payhours, overtime, and guarantee time are minimized;
- Level of documentation provided; and
- Level of reliance on the automated system to find optimal solutions.

The Contractor shall also meet with MTA Payroll staff to gain an understanding of the extent to which the Trapeze automated dispatch software is directly applied in the computation of operator payhours for payroll purposes.

5.5.2 Assemble Data from Trapeze System

The Contractor shall request that the MTA provide documentation regarding the application of the Trapeze automated dispatch software. This information shall include documentation of the dispatch assignments made to fill open work at sampled garages during sampled time periods. The Contractor and MTA staff shall mutually agree on the format of the data to be provided and the sampled locations and dates.

5.5.3 Analyze Data and Review Unscheduled Overtime

The Contractor shall analyze the documentation of application of the Trapeze automated dispatch software to determine the extent to which operator payhours and headcount is being optimized using current practices.

5.5.4 Prepare and Present Report

The Contractor shall document the findings of this review in a technical memorandum and shall provide an electronic copy to the MTA Project Manager and Controller's Project Manager.

Task 6 – Early Action Projects

The Early Action Projects are intended to identify specific policies and practices, service network and route adjustments, and service scheduling and operational changes for expedited implementation potentially with the September or December 2006 service changes.

Tasks 6 and 7 shall start concurrently with the early action items identified in the first round. These early action items shall be service or operational issues where the need for changes is highly evident from the data, are supported by policies and best practices, and have consensus support on recommendations. The principal criteria for selecting early action items will be (a) financial subsidy relief, and (b) address acute operational or customer problems.

6.1 Bus Stop Analysis

The Contractor shall conduct an assessment by major line of the time and cost savings associated with the elimination of bus stops (this includes all Muni lines with daily ridership of 10,000 or more).

6.2 The Early Action Plan (EAP)

The Contractor's Early Action Plan shall be comprised of the following elements:

Service Plan – Under the EAP service element, the Contractor shall identify candidate MTA transit services for expedited changes. The changes shall range from service levels (frequencies and spans), routes and route segments, new service patterns (short turns, branches, through-routes and interlines), and minor area route restructuring, among other methods of improving service effectiveness. Ideally, these changes should not require extensive public discussion or major implementation effort.

Operations Plan – The Operations element of the EAP shall focus on immediate opportunities to make significant improvements in service reliability, effectiveness, and efficiency. The candidate changes should not require extended discussion and should be easy to implement.

6.3 Other Early Action Items

Any other specific policies and practices, service network and route adjustments, and service scheduling and operational changes that are identified after the EAP but before the preferred service alternative is developed.

Deliverables:

- *The recommended projects shall be documented with supporting data in a Technical Memorandum or short standalone report. An assessment shall be included to identify ridership, revenue, operating, and capital cost impacts.*

Task 7 – Recommended Service Plan

7.1 Development of Alternatives

The Contractor shall develop and evaluate potential transit service network and route restructuring alternatives based on:

- Task 1 vision, goals and policy framework
- Task 2 benchmarking and best practices peer analysis
- Task 3 market assessment
- Task 4 service evaluation
- Task 5 operations review

Task 7 shall be undertaken in concurrence with Task 6. While the Contractor, under Task 6, is charged with identifying candidates for early action, under Task 7, it shall identify positive changes in the network, service tiers, routings, schedules, and operation that will better meet existing and potential customer needs and desires within sustainable funding levels.

The Contractor shall develop several alternatives for the City's evaluation. Typically the alternatives do not involve completely different networks and services, but have common elements.

The Contractor shall coordinate the actual development of alternatives at brainstorming sessions held over 9-12 days (likely three rounds of 3 to 4-day working sessions). The first session shall involve just the Core Contractor's Team, as defined below, followed by one or two rounds of sessions with participants from the core team and the Project Working Group ("PWG"). The Core Contractor's Team shall include:

- Chisholm, Muller, Forgiarini, Pappas, Potts (TMD)
- Figone (CHS)
- Nelson, Walker (Nelson\Nygaard)

During the roundtable sessions the vision, goals, and policy framework and the findings of the market assessment, service evaluation, and operational review shall be presented for the PWG. The entire set of working data will be available for reference and research by the PWG during and prior to the working sessions. Following the stakeholder comment period, the PWG will be reassembled for a 1-3 day working session to make any necessary refinements in the preferred service plan.

7.2 Preferred Service Alternative

The Contractor, under the preferred service alternative noted in Subtask 7.1, shall consider a broad range of changes in service and operation. The options shall range from traditional local and express bus and shuttle services to innovative flexible route and schedule services, Transit Preferential Streets (TPS), the use of ITS to improve the quality and quantity of bus service (AVL messaging, next bus display signs), alternative operating strategies (headway interval based schedules on high frequency lines).

- Complete service network and route description and set of service parameters for each route or service by day of the week, including service spans, frequencies by time period, timed transfers, vehicle requirements by time period, service hours and miles, roundtrip running times, trip distances, and interlining combinations.
- A full set of draft vehicle schedules shall be developed for all routes using the MTA Trapeze system. The draft schedules shall demonstrate operational feasibility and provide reliable operating costs and vehicle requirements. The Contractor shall assist MTA staff in completing this work.
- Maps (ArcGIS) and alignment descriptions of all route alignment changes shall be prepared. Any changes in operating policies and practices that are required to implement the service shall be identified.
- Any supporting passenger and operating facilities changes that are proposed shall be described.
- Costs for both operations and capital improvements shall be estimated per Task 8.2.3 based on specific service requirements.
- Network ridership and revenue shall be estimated using SFCTA model per Subtask 7.5.

7.3 Assessment of Transit Preferential Streets (TPS)

7.3.1 TPS Assessment

Transit Preferential Streets (TPS) techniques refer to a broad set of technologies and approaches intended to speed transit and improve reliability through cost effective improvements to the street environment through which buses operate. Examples already in use in San Francisco include provision of transit lanes (with-flow or contraflow), loading bulbs, loading islands, priority signals, queue-jump signals, stop-sign removals, stop signs replaced by traffic signals with prioritization, etc. In the context of this task it could also include prepayment of fares and/or all-door boarding to reduce on-street loading delays with minimal fixed infrastructure, such as typically afforded by proof-of-payment fare collection.

The Contractor shall prepare up to four generic characterizations of typical San Francisco street environments encountered by Muni's core transit services, and identify (a) what TPS techniques could reasonably and realistically be applicable to each, and (b) what operational benefits of each technique could reasonably be expected in the context. The Contractor shall also assess the capital/operational costs associated with each technique, and provide assessments of the bus operations effectiveness and cost-effectiveness of each. Extensive consultation with MTA staff is expected throughout this effort. The Contractor shall spend up to four days on-site

working on the characterizations of typical street environments collecting information via digital-photography, video and hand-drawn sketches. MTA staff is welcome to spend time on the field with the consultant at all times. Street environments and bus operations will be analyzed and evaluated for the appropriate TPS techniques. A technical memorandum summarizing TPS application findings capital/operating costs and cost-effectiveness and efficiency analysis shall be developed.

7.3.2 TPS Conceptual Design (optional subtask)

In consultation with MTA staff, the Contractor shall propose two major routes or major route segments for the development of conceptual designs and application of TPS techniques; consistent with the analyses under Subtask 7.3.1 and including projected costs and benefits. A showcase application of about 10 miles has been assumed including detail for up to 20 bus stations and/or intersections. Conceptual designs are to be based on detailed aerial photography and/or as-built street design CAD drawings. Up to four additional days of fieldwork have been budgeted to document the street environment for the development of renderings and conceptual designs. A draft design document shall be prepared for consultation with MTA staff. A final document shall be prepared incorporating MTA feedback.

7.4 Service Planning Tool (optional task subject to the City's approval)

Task 7.5 describes the approach and work plan for estimating ridership, revenue, and other impacts for the various network alternatives through the use of a Service Planning Tool, defined as an easy to use almost real-time estimation tool for small area service alternatives, specifically one that can estimate impacts of various corridor options under the TPS program.

If the City opts usage, the Contractor shall develop an interactive Service Planning Tool (SPT) to provide reliable ridership estimates that reflect the customer-oriented service changes to be proposed. The SPT shall be based on software developed by the Contractor for San Mateo, San Diego, Santa Clara, and Chicago for use in comprehensive operational analyses. The SPT is based on an Arc-GIS platform and shall incorporate the mode choice models developed in this study. This tool shall allow transit planners at MTA to reconfigure transit service anywhere in the region and estimate the change in ridership. It shall be sensitive to the geographical concentration of specific market segments.

The SPT shall provide changes in ridership given changes in the service characteristics (e.g., reliability, wait time, price, etc.), network structure (e.g., exclusive right of way, number of transfers, etc.) or customer experience (e.g., real-time arrival information, seat availability, etc.). The SPT shall generate near instantaneous changes in riders and thus allow users to conduct iterative testing of different service characteristics or more aggressive improvements of a single characteristic.

The following work steps shall be required for this effort:

- Prepare the SPT using the market segmentation and mode choice models. The framework of the SPT developed for other areas shall be used to customize this tool for San Francisco, based on the market segmentation and mode choice models developed for the this project.

- Prepare GIS data, market segmentation results and travel demand model output. The SPT requires detailed GIS data that is available from the

SFCTA's existing datasets. These data include a full inventory of roadway and transit networks, socioeconomic data by census blocks, and a land use layer that provide land use type, density, and other attributes (e.g., pedestrian environmental factors). The Contractor shall use the SFCTA's travel demand model trip tables (origin–destination matrices) for base year and the baseline horizon year as the source for SPT pivot-point analyses. The pivot-point analyses will also require level-of-service characteristics (e.g., frequency wait time, in-vehicle time, cost, etc.) from the travel demand model.

- Train MTA staff in the use of the SPT. The Contractor shall provide technical assistance and training of MTA staff for the use of the ArcGIS mode choice application tool (SPT). The Contractor designed and implemented the SPT in the ESRI ArcGIS 8.3 environment and wrote source codes for the tool's analytical functions in Visual Basic. It is helpful for MTA staff to have some background in ArcGIS, but this does not exclude transit planners who are willing to obtain some outside instruction in the program. It will not be necessary to have programming experience.

Deliverables:
Customized service planning tool that can be used interactively by MTA staff to evaluate potential ridership changes resulting from changes in level-of-service, market segments, or service amenities.

7.5 Network Ridership Impact Analysis

Under this task the Contractor shall determine the changes in ridership due to service planning alternatives. If the mode choice model is developed using the market research data, then this task shall involve testing the service plan alternatives across all variables. If the mode choice model is not developed in this project, this task shall involve running the existing SFCTA mode choice model and determining ridership changes due to changes in travel times and cost, but shall not include any changes in ridership due to differences in market segments or attitudinal factors such seating, safety, reliability, etc.

In this task, transit service proposals shall be tested using the existing SFCTA travel demand model along with the new market research mode choice model, applied in a pivot point fashion. If the new market research mode choice model is not available, the existing SFCTA mode choice model shall be used. The primary difference is that the SFCTA mode choice model cannot predict changes in ridership due to differences in market segments or attitudinal factors.

The focus of this work shall be on estimating changes in transit trips from the mode choice model and changes in ridership from the transit assignment. The Contractor shall provide services on three sub-tasks:

- Coding of the transit networks of proposed service plan alternatives;
- Application of the new market research mode choice model, and;
- Analysis that compares base year transit boardings from the current SFCTA model, new riders from the market research model, and observed ridership data to make adjustments of forecast ridership.

The Contractor shall take the lead in coding the transit networks of proposed service

plan alternatives, and shall do the bulk of work required for coding transit networks. SFCTA staff will review the network coding and run the SFCTA travel models. The City may direct the Contractor to analyze at least one proposed service plan substantially different from current services. The Contractor shall work cooperatively with SFCTA staff to ensure that travel model runs can be expeditiously completed.

A total of six model runs shall be evaluated by the Contractor using the SFCTA model system in combination with the new market research mode choice model:

- one base year model run,
- one future year no-project scenario,
- three initial service restructuring plans (if the service planning tool is developed, these initial plans will not be completed since the application of the SPT will be used to develop the preferred service plan), and
- one preferred service plan.

The three initial service plans shall be evaluated by the Contractor (ridership will be but one criterion), and a refined or preferred service plan shall be established. Once this final plan has been finalized, the final alternative using the SFCTA model shall be tested and reported.

The Contractor shall review the SFCTA model forecasts to analyze how service changes impact ridership. If the market research mode choice model is also developed, the Contractor shall analyze how changes to the amenities of the service impact ridership, as well as how targeting service changes for specific market segments will impact ridership. Modeled transit ridership data shall be analyzed by comparing base year model volumes to observed transit ridership data and adjusting future year ridership data by route group, and by sub-areas within San Francisco.

Deliverables:

- *Task 7 shall be presented in a report that details the service alternatives, the evaluation process, and the selection of the preferred alternative with appended materials detailing the key elements.*
- *The Contractor, working directly with the SFCTA travel modeling group, shall prepare and evaluate a total of six model runs; one base year model run; one future year No-Project scenario, three preliminary service restructuring plans, and the refined/preferred plan. A technical report shall be prepared that details the ridership forecasts of all model runs.*
- *Assistance to MTA staff in presenting the Recommended Service Plan to the MTA Board.*

Task 8 – Operations & Financial Plan

8.1 Develop, Apply and Document Operating and Maintenance Cost Model

The development of a service plan for MTA requires that the financial impacts of service changes be fully understood by the City. On the expense side of the analysis, the development and application of an operating and maintenance (O&M) cost allocation model shall provide such projections. O&M cost models associate cost drivers related to the level of service provided to specific elements of cost. For example, revenue hours of service drive the wages and fringe benefits of vehicle operators and street supervision; revenue vehicle-miles drive the wages and fringe of vehicle mechanics and front line supervision, parts, and fuel. Appropriate detail should be applied to distinguish costs by mode (motor bus, trolley bus, light rail) and by vehicle sub-fleet (vehicles of the same age and manufacturer). O&M cost models

should also reflect the backlog of state of good repair investment (or level of deferred maintenance) and the impacts of future infrastructure investment on O&M costs.

The Federal Transit Administration requires that a resource build-up model be applied as the basis for projecting the operating and maintenance (O&M) costs used in the analysis that demonstrates the financial capacity of grantees to undertake New Starts projects. The model must reflect recent actual cost experience and be driven by the level of service indicators derived from and consistent with the travel demand analysis.

While comprehensive in scope, the development of the O&M cost models is based largely on off-the-shelf data supplemented with information from knowledgeable MTA staff members. The development of the models should complement the budget-making process and the models should validate to current operations.

The following tasks shall be undertaken by the Contractor:

8.1.1 Assemble Data and Conduct Kick-Off Meeting
8.1.2 Meet with MTA Operating and Administrative Departments
8.1.3 Analyze Transportation Function
8.1.4 Develop O&M Model
8.1.5 Validate O&M Model
8.1.6 Run Cost Estimates for Alternatives
8.1.7 Prepare and Present O&M Cost Report
8.1.8 Analyze Maintenance Function
8.1.9 Analyze Non-Operating Staffing
8.1.10 Revise O&M Cost Model Report

8.1.1 Assemble Data and Conduct Kick-Off Meeting

The Contractor shall request the following off-the-shelf data to be provided by MTA:

- Detailed operating budget and the underlying level of service assumptions upon which the budget is based
- Organization chart indicating the number of staff by job title in each management or cost center
- Wage or salary rates and fringe benefit rates by job title
- Most recent two years of National Transit Database reports
- Recent O&M cost models developed by MTA or consultants

The Contractor shall review the data provided by MTA and identify additional data as necessary. The Contractor shall then attend a kick-off meeting with the MTA Project Manager, Controller's Project Manager and MTA staff to discuss the objectives of the development of the O&M cost model, to identify key staff contacts and to identify additional documentation that shall be required to develop the O&M cost model.

8.1.2 Meet with MTA Operating and Administrative Departments

The Contractor shall coordinate with the MTA Project Manager and Controller's Project Manager to set up meetings with key MTA operating and administrative departments. The purpose of these meetings shall be to discuss:

- Current budget and staffing

- Level of service assumed in current budget and staffing
- Level of infrastructure investment assumed in current budget and staffing
- Trends in training and supervision and impacts on service reliability and performance
- Trends in infrastructure investment and impacts on service reliability and performance
- Anticipated level of infrastructure investment

The Contractor shall meet with MTA departments and identify supplementary documentation to be provided by MTA staff for the development of the O&M cost model. The Contractor shall prepare memoranda summarizing each meeting and identifying the supplementary documentation to be provided.

8.1.3 Analyze Transportation Function

The Contractor shall analyze the data and information provided by MTA in Tasks 8.1.1 and 8.1.2 regarding the costs for vehicle operators and street supervision. The analysis shall focus on several factors, including:

- Relationship of pay hours worked to pay hours scheduled
- Relationship of revenue hours to pay hours
- Variances in the above between garages, modes, type of service, times of day, and days of week
- Impact of level of supervision
- Impact of supporting automated systems in management of dispatch function

8.1.4 Develop O&M Cost Model

The Contractor shall develop a resource build-up O&M model for each transit mode operated by MTA using the data collected above. For each MTA cost center, costs shall be allocated to one or more driving variables representing the level of service operated by MTA. These levels of service variables include, by mode:

<u>All modes:</u>

- Peak vehicles
- Vehicle revenue-miles
- Vehicle (or train) revenue-hours
- Maintenance facilities
- Passengers

<u>Light rail:</u>

- Route (or track)-miles, possibly by vertical alignment (e.g., street operation, surface reservation, subway)
- Stations (and/or manned entrances) and stops/shelters

The development of the O&M models shall address elements of costs that are fixed and relatively independent of the level of service operated. This shall include many headquarters functions and other administrative activities.

The Contractor shall document the initial structuring of the O&M cost model in a draft technical memorandum and provide a copy in electronic form to the Controller's Project Manager and MTA Project Manager for review by Controller and MTA staff. The MTA Project Manager will consolidate its internal review in written form in a single electronic or hard copy of the draft

and provide this review to the Contractor. The Contractor shall meet with MTA staff to review the draft and receive additional comments.

The Contractor shall revise the model on the basis of the review, revise the technical memorandum, and provide a copy of the revised O&M cost model spreadsheet and technical memorandum to the MTA Project Manager.

The O&M Cost Model and Financial Plan shall be developed using Microsoft Excel software.

8.1.5 Validate O&M Cost Model

The Contractor shall validate the cost model with prior year NTD cost and statistics data to determine how well the cost model replicates actual prior year costs. Adjustments shall be made to account for inflation and organizational changes. Structural modifications shall be made to the O&M cost models in order to develop model results that are consistent with operating experience.

The Contractor shall document the validation process in a technical memorandum and shall provide a copy to the MTA Project Manager in electronic form.

8.1.6 Run O&M Cost Estimates for Alternatives

The Contractor shall apply the O&M cost model to the level of service statistics describing each of the modes operated by MTA.

8.1.7 Prepare and Present O&M Cost Report

The Contractor shall prepare a draft report documenting the data, assumptions, analytical methodology, results, and conclusions of Tasks 8.1.1 through 8.1.6. The report shall be prepared in a manner consistent with professional practice in the area of financial planning for major urban transportation investments and shall meet the expectations of FTA. The Contractor shall submit a draft of the report in electronic form to the MTA Project Manager for review. The City will assemble written comments into a single hard copy or electronic copy and provide these comments to the Contractor. The Contractor shall then meet with the MTA Project Manager to review the draft report and discuss the comments. The Contractor shall then revise the draft and submit a final report.

A presentation summarizing the data, assumptions, analytical methodology, results, and conclusions of the financial plan shall be prepared and a presentation to the MTA Project Manager, Controller's Project Manager, MTA management, oversight agencies, and/or other stakeholders at the direction of the MTA Project Manager and Controller's Project Manager.

8.1.8 Analyze Maintenance Function

The Contractor shall analyze the data and information provided by MTA in Tasks 8.1.1 and 8.1.2 regarding the costs for maintenance of rolling stock and facilities.

The analysis shall focus on several factors, including:

- Relationship of pay hours, parts, and fuel to level of service for rolling stock maintenance
- Variances in the above by vehicle sub-fleet and by garage

- Impact of infrastructure investment on unit costs for on-going maintenance
- Impact of level of training and supervision
- Impact of work order maintenance information system in analysis and management of maintenance activities

8.1.9 Analyze Non-Operating Staffing

The Contractor shall analyze the data and information provided by MTA in Tasks 8.1.1 and 8.1.2 regarding the costs for non-operating staffing, including various management and administrative functions.

The analysis shall focus on several factors, including:

- Identification of fixed and semi-fixed positions that are not expected to change as level of service changes
- Impact of investment of new management systems on staffing requirements

8.1.10 Revise O&M Cost Report

The Contractor shall revise the Task 8.1.7 report to include the data, assumptions, analytical methodology, results, and conclusions of Tasks 8.1.8 through 8.1.9. The Contractor shall submit a draft of the report in electronic form to the MTA Project Manager and Controller's Project Manager for review. The City shall assemble written comments into a single hard copy or electronic copy and provide these comments to the Contractor. The Contractor shall then meet with the MTA Project Manager and Controller's Project Manager to review the draft report and discuss the comments. The Contractor shall then revise the draft and submit a final report.

8.2 Develop Operations Plan

The Operations Plan shall be developed for the preferred alternative developed under Tasks 7.1 to 7.2 and include necessary service details (route alignments, frequencies, spans, service type) together with required staff, vehicle, passenger facility, and operating facility resources for input into the Financial Plan. The Contractor shall assist MTA with the development of operating schedules for all services using Trapeze in order to confirm operating feasibility and required vehicle and labor resources. The Contractor shall prepare half of the expected operating schedules (approximately 35 routes) for all three service days. Any recommended changes in operating policies and practices shall also be identified as part of the Operations Plan.

The Operations Plan shall include implementation phasing that will be developed collaboratively with the PWG and PAG.

8.3 Develop Financial Plan

The Contractor shall prepare a sources and uses of funds analysis that integrates projections of expenses and revenues, both capital and operating. The financial plan shall support both near-term decision-making regarding immediate service planning and fare policy initiatives as well as long-term decisions addressing both level of service and capital investment. The Contractor shall examine a range of existing and potential new funding sources and various financing structures, including pay-as-you-go, short-term debt, and long-term debt. The Contractor shall consider both conventional financing structures and innovative financing approaches being advanced by the US Department of Transportation. The analysis shall be undertaken in recognition of uncertainties associated with inflation, interest rates, project costs (in base year dollars), ridership and fare revenue, dedicated state and local funding, Federal formula funding, and Federal New Starts/Small Starts funding.

The Contractor shall work closely with both the City to accomplish the following tasks:

8.3.1: Review Financial Analysis Scope & Structure with the City
8.3.2: Assemble Capital Expense Data
8.3.3: Assemble Ridership and Fare Revenue Data
8.3.4: Assemble Non-Farebox Revenue Financing Data
8.3.5: Assemble Debt Program Data
8.3.6: Structure Initial Financial Analysis Model
8.3.7: Review Initial Financial Analysis Model with the City
8.3.8: Revise Financial Analysis Model and Develop Financial Plan
8.3.9: Conduct Financial Plan Workshop
8.3.10: Revise Analysis and Prepare Financial Plan
8.3.11: Prepare and Present Financial Plan Report

8.3.1 Review Financial Analysis Scope & Structure with the City

The Contractor shall conduct one half-day workshop with City staff to review scope and structure of the financial analysis. The workshop shall bring together stakeholders and key project decision-makers to address the objectives of the financial analysis vis-à-vis the current stage of project planning, the data requirements, the analytical techniques to be applied, the types of financial performance indicators to be derived, and the types of decisions that shall be required as the financial planning work progresses.

The Contractor shall prepare a technical memorandum summarizing the discussion and findings of the workshop and shall provide a draft in electronic form to the MTA Project Manager and Controller's Project Manager. The Contractor shall discuss the draft with the MTA Project Manager and Controller's Project Manager and revise the draft as necessary.

8.3.2 Assemble Capital Expense Data

The Contractor shall review for completeness and accuracy the following information provided by MTA regarding the MTA Capital Program for current and proposed transit services:

- Routine reinvestment in transit infrastructure
- Bus and rail fleet management plans
- Construction costs, by geographic segment and by cost component (e.g., right-of-way, construction, equipment, soft costs), including total cost, and annual drawdown

- Separate cost elements that might be financed differently (e.g., rolling stock and other equipment)
- Alternative annual construction costs drawdown schedules that represent alternative procurement approaches (e.g., on traditional design-bid-build, design-build, etc.)
- Construction schedules representing alternative phased implementation schemes

The Contractor shall summarize the data and manner in which it shall be applied in the analysis in a technical memorandum and shall provide a copy of the memorandum in electronic form to the MTA Project Manager and Controller's Project Manager.

8.3.3 Assemble Ridership and Fare Revenue Data

The Contractor shall review for completeness and accuracy the following information provided by MTA and SFCTA regarding project ridership and fare revenue:

- Current data regarding ridership and fare revenue by market where markets are defined on the basis of mutual agreement by the Contractor and MTA in terms of transit mode, line, fare medium, or other service or demographic factors
- Projected ridership and fare revenue for existing and proposed services. This information shall be the result of the travel demand analysis and shall include projections for the opening year and design year and possibly for interim milestone years.

The Contractor shall summarize the data and manner in which it shall be applied in the analysis in a technical memorandum and shall provide a copy of the memorandum in electronic form to the MTA Project Manager and Controller's Project Manager.

8.3.4 Assemble Non-Farebox Revenue Data

The Contractor shall review for completeness and accuracy the information provided by MTA regarding the non-farebox revenue data:

- City general fund revenues
- City parking revenues
- Sales tax revenue
- Non-farebox operating revenues: parking, advertising, concessions, school contracts, real estate operations
- State/Regional Funding
- 5307 Urbanized area formula grants
- 5309 Fixed Guideway Modernization grants

The Contractor shall review near-term projections of the sales tax applied by the City and SFCTA. The Contractor shall develop a long-range sales tax revenue model that is consistent with the macroeconomic forecasts of inflation and interest rates that shall be applied in the financial analysis.

The Contractor shall review potential funding sources based on current work with SPUR to develop a list of potential funding sources for enhancing MTA's revenue. This information shall form the basis of this task, which shall identify a wide range of potential funding sources, the amount of revenue

that could be generated from each source, the likelihood and process for receiving funds, and the degree of support for funding.

The Contractor shall summarize the data and manner in which it shall be applied in the analysis in a technical memorandum and shall provide a copy of the memorandum in electronic form to the MTA Project Manager and Controller's Project Manager.

8.3.5 Assemble Debt Program Data

The Contractor shall review for completeness and accuracy the information provided by MTA and SFCTA regarding the debt program:

- Each outstanding series of debt including, for each series annual principal and annual interest payments remaining, debt service reserves, premiums for early defeasance, and costs of issuance
- Official Statements for each series of outstanding debt and any prior financial plan projections.

The Contractor shall summarize the data and manner in which it shall be applied in the analysis in a technical memorandum and shall provide a copy of the memorandum in electronic form to the MTA Project Manager and Controller's Project Manager.

8.3.6 Structure Initial Model

The Contractor shall modify the AECOM Consult financial analysis model structure to create a customized Excel model for MTA. The model shall address the full range of operating, capital, and debt issuance costs for which the MTA is responsible. The Contractor shall populate the model with the operating and capital expense, ridership and fare revenue, and other dedicated data assembled in Tasks 8.1.2 through 8.1.5. The Contractor shall test the model with alternative project implementation schedules and financing structures.

The Contractor shall summarize the input data and tabular and graphical reports of the model in a technical memorandum and shall provide an electronic copy to the MTA Project Manager and Controller's Project Manager. The review in Task 8.2.7 shall address this technical memorandum.

8.3.7 Review Initial Financial Analysis Model with the City

The Contractor shall meet with the MTA Project Manager, Controller's Project Manager and MTA to review the financial analysis model developed in Task 8.3.6. The Contractor shall review the overall financial analysis approach, the structure of the model, input screens, tabular computations and results, and graphical outputs underlying assumptions, and tabular and graphic reports. The focus of the review shall be to structure the financial analysis to demonstrate the financial capacity of MTA to successfully implement and operate the project.

The Contractor shall document the findings of this review in a technical memorandum and shall provide an electronic copy to the MTA Project Manager and Controller's Project Manager.

8.3.8 Revise Financial Analysis Model and Develop Financial Plan

On the basis of the comments received in Task 8.3.7, the Contractor shall revise the financial analysis model structure, data, and computations, as necessary. The Contractor shall apply the model to examine alternative scenarios and develop a financial plan that balances the political imperative to implement new transit services as quickly as possible against the fiscal reality that MTA revenue sources are constrained.

Specifically, the Contractor shall examine the following:

Examination of alternative financing structures: Including use of short-term instruments (e.g., tax-exempt commercial paper), long-term instruments (e.g., conventional tax revenue bonds, fare revenue bonds), innovative instruments (e.g., certificates of participation, TIFIA loans), leases

Examination of alternative project implementation schedules: Recognizing that with dedicated funding already in place, MTA can improve its financial situation by slowing down construction

Examination of alternative rates of growth of existing services: Recognizing that slowing down growth in the operating budget preserves cash for the capital program and improves financial capacity

Examination of alternative fare increase scenarios: While the design year fare must match the assumption in the travel demand analysis, MTA has some discretion in how fast the fare grows to that level. The Contractor shall examine the trade-offs between the political imperative to keep fares low and the financial necessity to raise fares quickly.

Examination of uncertainty: The Contractor shall undertake a Monte Carlo simulation to examine the "downside" of the financial plan, that is, the probability that MTA shall not have the financial capacity to undertake the project. The Contractor shall identify an implementation scenario that results in a relatively small probability of failure and shall identify management actions that could be taken, once the project is underway, to reduce the probability of failure even further.

To accomplish this, the Contractor shall purchase an economic forecast of inflation rates (consumer price index, electricity prices, petroleum prices, natural gas prices, construction costs) and interest rates (short-term and long-term). The forecasts shall include baseline, optimistic, and pessimistic forecasts. The Contractor shall also develop optimistic and pessimistic forecasts of the following uncertainty variables:

- Project construction cost, in base year dollars
- Length of construction period
- Annual cap on FTA New Starts funds
- Growth in unit grant amounts for FTA Section 5307 Urbanized Area and 5309 Fixed Guideway Modernization grants
- Ridership
- Fare elasticity
- Sales tax revenue

The Contractor shall examine various responses that management can take to preserve the financial viability of the project. These include adjusting the project implementation schedule and staging, service growth, fare increases, and financing structure.

The Contractor shall determine where the financial plan is most vulnerable to uncertainty and what management actions shall be the most effective in assuring that the project can be implemented.

The Contractor shall document the results of the analyses in this task in a technical memorandum and provide a copy in electronic form to the MTA Project Manager and Controller's Project Manager. The City will provide the Contractor a consolidated set of written comments in a single electronic copy or hard copy of the memorandum. The Contractor shall revise the draft memorandum and provide the MTA Project Manager and Controller's Project Manager a final version. The MTA Project Manager will distribute the final memorandum to the participants of the Task 8.2.9 workshop in advance of the workshop.

8.3.9 Conduct Financial Plan Workshop

The Contractor shall assist City staff in conducting a one-day workshop on the development of the financial plan. The workshop shall include representatives of the various stakeholders in the planning process including MTA, SFCTA, MTC, Caltrans, FTA, and other agencies, as identified by the City.

In advance of the workshop the Contractor shall develop draft PowerPoint presentation materials that address the following:

- Overview of the financial plan
- Overview of the financial planning process, focusing on the City's interest in establishing a sound foundation for transit investment and FTA's expectation in order to receive a "highly recommended" rating on New Starts projects
- Overview of national experience regarding transit funding sources and identification of potential local revenue sources, including size of tax base, historic and projected rates of growth, potential annual revenues at representative rates of taxation, and borrowing capacity against these revenue streams
- Overview of national experience regarding transit financing structures and identification of potential short- and long-term financing approaches; the costs, staff requirements, and implementation times…
- Assumptions and sources of information applied in the analysis
- Tabular and graphical summaries of the financial analysis results
- Results of the analysis of uncertainty

The Contractor shall review the draft presentations materials with the MTA Project Manager and Controller's Project Manager and modify the materials as required.

Along with staff, the Contractor shall present the PowerPoint presentation and lead the workshop participants through a discussion of potential revenue sources. The goal of the discussion shall be develop a "short-list" of revenue sources to be investigated further in the financial analysis.

8.3.10 Revise Analysis

On the basis of inputs received in Task 8.2.9, the Contractor shall revise the financial analysis model and examine not more than eight alternative scenarios addressing:

Implementation schedule: including project initiation and completion dates, interim staging, and levels of transit service

Transit fare pricing: including possibility of dedicating portions of transit fares to support operations

Dedicated funding sources: including increments of existing sources or new sources of funding

Financing structure: including short- and long-term structures and innovative structures promoted by the US Department of Transportation

Implementation approach: including design-build-operate-maintain and other structures that might provide for shifting risk to the private sector and speeding construction.

8.3.11 Prepare and Present Financial Plan Report

The Contractor shall prepare a draft final report documenting the data, assumptions, analytical methodology, results, and conclusions of Tasks 8.2.1 through 8.2.10. The report shall be prepared in a manner consistent with professional practice in the area of financial planning for major urban transportation investments. The Contractor shall submit a draft of the report in electronic form to the MTA Project Manager and Controller's Project Manager for review. The MTA Project Manager will assemble written comments into a single hard copy or electronic copy and provide these comments to the Contractor. The Contractor shall then meet with the MTA Project Manager and Controller's Project Manager to review the draft report and discuss the comments. The Contractor shall then revise the draft and submit a final report.

The Contractor shall prepare a presentation summarizing the data, assumptions, analytical methodology, results, and conclusions of the financial plan and shall make one presentation to the City, MTA, oversight agencies, and/or other stakeholders under the direction of the MTA Project Manager and Controller's Project Manager.

Deliverables:

- *Financial costing model including methodology and background materials.*
- *Operations Plan presenting the planned services, resource needs, policy and practice changes, and implementation phasing for the preferred service alternative.*
- *Financial Plan presenting the data, assumptions, analytical methodology, results, and conclusions based on the Operations Plan.*

8.4 Schedule Development Support

The Contractor shall provide support to MTA in the development of the operating schedules for the preferred service alternative. Working in concert with MTA staff, the Contractor shall draft some 35 bus operating schedules for weekday, Saturday, and Sunday service (approximately half of the existing schedules). The Contractor shall work directly in the MTA Trapeze system and use running times proposed by MTA staff. In addition, the Contractor shall support MTA efforts in blocking, run-cutting, and rostering the preferred service alternative.

Deliverables:

- *Draft weekday, Saturday, and Sunday operating schedules for up to 35 bus routes in Trapeze.*
- *Support for blocking, run-cutting, and rostering.*

Task 9 – Environmental Assessment

The Contractor shall prepare an environmental assessment of the recommended service plan. The scope of the analysis will emerge following discussions with City staff. This scoping discussion will address the key issues to be assessed, any methodological approaches desired by the City, and the type of environmental document (for example, a Categorical Exemption, Negative Declaration, or Environmental Impact Report). There is a CEQA statutory exemption for transit agency responses to revenue shortfalls (see CEQA Guidelines Section 15285). If the recommended service plan can be cast as the result of a fiscal emergency, then CEQA does not apply.

Assuming that some environmental documentation is warranted, this scope of work assumes that environmental clearance can be achieved with a Negative Declaration or a Mitigated Negative Declaration (MND). The environmental document will address all issues identified in the CEQA Environmental Checkllist, as reflected in Appendix G of the CEQA Guidelines. While all issues will be discussed, based on other similar studies, Contractor shall focus on how the service plan affects existing traffic, air quality, noise, and visual conditions.

Aesthetics – The degree of visual degradation is a function of the sensitivity of the area, the availability of scenic views, the quality of the streetscape and landscaping, and the amount of existing overhead wires or street furniture. At this stage, it is unknown whether the recommended service plan may involve the construction of new overhead lines, the installation of bus shelters, or other new facilities; restructuring routes, operating hours, and headways are not expected to have an environmental effect. If such facilities are to be provided, Contractor shall describe the visual setting and the extent to which these facilities could substantially degrade the visual character of the area, based on the factors identified above.

Air Quality – If service is increased along certain corridors or routes, Contractor shall estimate the changes in emissions along these segemnts and citywide using URBEMIS 2002, and discuss the potential for air quality impacts, particularly for receptors that are vulnerable to changes in air quality. By contrast, reductions in service would be expected to result in reduced emissions of air pollutants.

As part of this analysis, changes in exposure to diesel fuel emissions shall be reported by the Contractor in narrative form. A health risk assessment is not assumed to be necessary for the environmental assessment.

Biological Resources – The recommended service plan shall be evaluated by the Contractor for its potential to disturb sensitive biological resources. The service plan could affect biological resources if it involves new facilities; restructuring routes, operating hours, and headways are not expected to have an environmental effect. The existing biological resources in the vicinity of any proposed facilities are not expected to be sensitive, but this shall be confirmed by the Contractor based on the service plan and limited field checks. At this stage, it is expected that standard mitigation measures would ensure protection of sensitive plant and wildlife, particularly birds protected by the California Fish and Game Code and the Migratory Bird Treaty Act.

Cultural Resources – The recommended service plan shall be evaluated by the Contractor for its potential to disturb historic properties or archaeological resources. The service plan could affect cultural resources if it involves new facilities; restructuring routes, operating hours, and headways

are not expected to have an environmental effect. The existing cultural resources in the vicinity of any proposed facilities are not expected to be sensitive, but this shallbe confirmed by the Contractor based on the service plan and limited field checks. Contractor shall consult local inventories of historic resources to determine whether such properties exist in the vicinity of the facilities. Direct impacts, such as removal of historic properties, are not expected; indirect impacts, however, can result from changes to the visual, auditory, or circulation setting of the property. Impacts shall be noted if the recommended service plan altered the setting in a manner that compromised the historic context.

Geology, Soils, and Seismicity – The recommended service plan shall be evaluated by the Contractor for its potential to alter geologic conditions or to expose workers, vehicles, and the public to increased hazards. If the recommended service plan addresses only restructuring routes, operating hours, and headways, the plan would not have an environmental effect related to exposure to geotechnical, seismic, or soil hazards. Additionally, any facilities constructed or installed as part of the recommended service plan would be expected to comply with standard building and health and safety codes, so that the environmental assessment would likely conclude that potential geoseismic or soil hazards would be less than significant.

Hazards – The recommended service plan shall be evaluated by the Contractor for its potential to expose workers or the public to contaminated sites or to result in accidental releases of hazardous materials. If the recommended service plan addresses only restructuring routes, operating hours, and headways, the plan would not have an environmental effect related to exposure to hazardous materials or waste. Additionally, any facilities constructed or installed as part of the recommended service plan would be expected to comply with standard building and health and safety codes, so that the environmental assessment would likely conclude that potential hazards from contaminated soil or groundwater would be less than significant.

Hydrology – The recommended service plan shall be evaluated by the Contractor for its potential to alter drainage, runoff, or groundwater. If the recommended service plan addresses only restructuring routes, operating hours, and headways, the plan would not have an environmental effect related to exposure to flood risks. Standard mitigation measures could be recommended if there were a potential for impacts to water quality.

Land Use and Planning – The recommended service plan shall be evaluated by the Contractor for its potential to alter existing or planned land uses or divide an existing community. Contractor shall review the City's General Plan to determine whether the recommended service plan might conflict with goals and policies that were adopted to avoid or mitigate potential environmental impacts. In addition, if new facilities are proposed, the extent to which those facilities diminish circulation, reduce or interfere with interaction among neighboring land uses, or impede the ability of existing land uses to function will be documented.

Noise - The recommended service plan shall be evaluated by the Contractor for its potential to alter the ambient noise environment. If service is increased along certain corridors or routes, Contractor shall estimate the additional noise levels along these segments and discuss the potential for noise impacts, particularly for receptors that are vulnerable to changes in the noise environment. Contractor shall use Traffic Noise Model (TNM) software to estimate the change in noise levels and will compare these changes to significance standards developed by the Federal Transit Administration. By contrast, reductions in service would be expected to result in a reduced level of noise exposure.

Population and Housing – The recommended service plan shall be evaluated by the Contractor for its potential to induce substantial population growth or displace population or housing. If the plan involves only route restructuring or changes in operating hours or frequency, then no population and housing impacts would be expected.

Transportation - The recommended service plan shall be evaluated by the Contractor for its potential to alter traffic operations, parking and loading supply, and transit service. Information for the environmental document shall be obtained from the Contractor's traffic consultant. Service reductions would result in less congestion, but a diminution in the frequency, accessibility, and convenience of transit services.

Utility and Services – The recommended service plan shall be evaluated by the Contractor for its potential to increase the demand for public services or utilities, which in turn would lead to the expansion of existing infrastructure. No impacts to public services or utilities are expected as a result of the recommended service plan.

Subject to the City's request and approval, the Contractor shall identify some of the alternatives considered by the planning team, the City, and the stakeholders, as well as the operational, economic, and environmental pros and cons of each alternative to help validate the desicion-making process and to inform the community of the tradeoffs in arriving at the recommended service plan.

Deliverables:

- *Contractor shall submit a preliminary draft of the environmental assessment to the City for review and comment. Following revisions to the document and the City's final approval, Contractor shall produce a screencheck version prior to producing the public review version. Contractor shall attend one public hearing to hear comments on the MND.*

- *Following the public hearing, Contractor shall prepare responses to substantive comments received on the MND and finalize the document.*

- *This scope of work assumes that the City will handle responsibllity for noticing, distribution/mailings, and public meetings for the environmental assessment review and presentation process.*

Task 10 – Stakeholder Participation

10.1 Mailing List

The Contractor shall prepare a brief outline, recommending the contents and structure of a project mailing list. Once approved by the City, the Contractor shall populate the database, drawing on existing mailing lists provided by the MTA, various Contractor members, and, to the extent feasible, from the Transportation Authority and other sources. At a minimum, the list shall include all local and regional public agencies and elected officials, citywide special interest organizations, neighborhood and merchant associations, local media, interested individuals, people who have attended recent MTA meetings or events, and others as determined by the City. The Contractor recommends that the City use local and neighborhood media and other means to notify residents citywide and has not assumed any citywide mailings as part of the its scope or budget.

10.2 Informational Materials and Notification

The Contractor shall prepare, produce and distribute a variety of informational materials throughout the project to inform people about the study, current activities, ways to participate, and specific meeting dates and locations. Key materials (as determined by the City) shall be translated by the Contractor into Spanish and Chinese.

The Contractor shall deliver the following:

10.2.1 Fact sheets/newsletters

This shall include an initial informational piece to be distributed at meetings, posted on MTA's web site, and mailed along with meeting notices. It will explain the purpose of the study, what the process involves, key milestones, and how people can participate. The Contractor shall prepare newsletters (or updating bulletins) at milestones, mutually determined by the City and Contractor and approved by the City. These newsletters shall be mailed to the entire mailing list, posted on the web site, and made available at all stakeholder and public meetings. The Contractor shall produce up to six newsletters.

10.2.2 Web site

The Contractor shall design and host a project web site to be linked to MTA's existing site (www.sfmuni.com) and MTA's site (www.sfmta.com). The site shall include information about the study and provide opportunities for easy online comment. Like public comments received in other forums, online comments shall be considered at the various input stages of the project by the Contractor.

10.2.3 Media outreach

Press releases: The Contractor shall prepare and coordinate with MTA in distributing news releases at key points as determined by the City and to help advertise public workshops by preparing artwork and coordinating ad placement in select local and neighborhood newspapers.

Advertisements and bill inserts: The Contractor shall develop a brief plan recommending cost-effective print advertising opportunities. Per MTA's approval of this plan, the Contractor shall prepare artwork and coordinate ad placement in select local and neighborhood newspapers to help announce the public workshops and opportunities for public comment. The

Contractor also recommends that MTA seek opportunities to place free ads on bus shelters and transit vehicles. The Contractor shall assist in the development and preparation of artwork for these ads as well. In addition, the Contractor shall explore opportunities for including information about the project in the SF Public Utilities Commission's (SFPUC) water/sewer bill inserts.

10.2.4 Community Group Presentation

The Contractor shall prepare an informational presentation that MTA staff and Contractor members can use to brief neighborhood groups and other organizations. The presentation shall be updated by the Contractor as needed throughout the project and shall include speaker notes to help ensure consistent delivery and messages.

10.3 Stakeholder Facilitation

The Contractor shall provide MTA specialized support to facilitate and document meetings of the Policy Advisory Group, Technical/Regional Committee, and the Citizen Advisory Committee. Services shall include preparation of agendas, guidelines on roles and responsibilities, and other "process" materials to ensure meetings are productive and effective. The Contractor shall provide professional facilitation, recording, and documentation at each meeting. For purposes of this scope and estimate, the Contractor assumes MTA staff will handle meeting logistics (notification, securing sites) and the following numbers of meetings will occur:

- Policy Advisory Group: Monthly; up to 18
- Technical/Regional Committee: At key milestones; up to 10
- Citizen Advisory Committee: At key milestones; up to 10

10.4 Public Workshops and Community Briefings

10.4.1 Public Workshops

The Contractor shall help MTA plan, schedule, organize, conduct and summarize up to three public workshops at milestone points, as determined by the City. To maximize the opportunity for public participation and provide the most flexible format for all interested parties, the Contractor recommends holding each meeting in three different locations in the City and scheduling each as a series of three, two-hour drop-in sessions over a six-hour period. Services provided by the Contractor shall include coordination of all logistics, notification, onsite support (set up, facilitation, recording), and documentation.

10.4.2 Community Briefings

The Contractor shall support MTA, as necessary and as determined by the City, in conducting presentations and briefings at neighborhood organizations and other interest groups.

Deliverables:

- *Outline of mailing list structure*
- *Electronic copy of draft mailing list, mailing list updates, and final mailing list*
- *Electronic copy of draft and final newsletters/fact sheets; printed copies of final newsletters/fact sheets (up to 6)*
- *Outline of web site, and operational, online web site*
- *Media plan*

- *Draft and final press releases (up to 6)*
- *Draft and final artwork for newspaper ads, and possible bus shelter ad and water bill insert (exact number to be determined as part of media plan)*
- *Draft and final PowerPoint presentation and periodic updates*
- *Agendas and summaries for PAG, Technical/Regional Committee, and CAC meetings*
- *Public workshop logistics plan*
- *Materials, handouts, supplies for public workshops*
- *Invitations/notices to public workshops*
- *Summaries of public workshops*