DMJM HARRIS | AECOM

AECOM Consult, Inc.
3101 Wilson Boulevard, Suite 400, Arlington, Virginia 22201, USA
T 703.682.5074 F 703.682.5001 www.dmjmharris.com

Technical Memorandum

Date:	April 17, 2008
To:	Carolyn Gonot, VTA
From:	Nathan Macek, AECOM Consult
Subject:	VTA Measure A Financial Planning Structure and Process and Assumption Changes from Previous Plan

This memorandum outlines the financial planning structure and process being applied to develop a revised Santa Clara Valley Transportation Authority (VTA) revenue and expenditure plan and significant changes from the previous plan adopted June 2006. The objective of the VTA financial planning process is to analyze and demonstrate that VTA has the financial capacity, both capital and operating, over a 30-year period to build and operate the proposed Measure A projects.

VTA has undertaken development of a revised financial analysis tool to test the assumptions contained in the adopted Measure A Revenue and Expenditure plan, especially given changes over time in project cost, timing, and priorities, as well as the revised economic outlook. VTA has sought to apply a financial planning process that is compliant with FTA guidelines, which is especially important for Silicon Valley Rapid Transit (SVRT) project planning and other potential New Starts. In addition, this planning process and the model developed to reflect the process, builds in several features, which meet or exceed FTA requirements. Three features of note include:

- the ability to ensure consistency between capital cost, project opening date, operating level-of-service, operations and maintenance (O&M) cost, ridership, and fare revenue assumptions,.
- the incorporation of a comprehensive risk assessment that is able to evaluate a range of potential risk outcomes, and
- the ability to rapidly examine discrete project implementation scenarios which will be very useful to VTA as in the development of the “Portfolio of Plans.”

In brief, the model provides VTA the ability to examine a series of financing scenarios for the Measure A program based on a most likely set of cost and revenue projections, underlying policies on vehicle fleet management, implementation of construction projects, capital investment, operating efficiencies, fares and fare box recovery, project implementation schedules, and inflation. Many uncertainties can affect these scenarios, however. These uncertainties include factors beyond the control of VTA, its management, and governing board, such as, inflation and interest rates, construction and operating costs, ridership, and dedicated revenue growth.

FINANCIAL PLANNING STRUCTURE AND PROCESS

The analysis process first begins with a detailed base of information describing VTA’s current operating and capital plans, and “layers-on” the Measure A expansion projects and the balance of VTA’s capital program. This process is consistent with FTA’s *Guidance for Transit Financial Plans* issued in June 2000 and subsequent guidance at New Starts Workshops, as well as *Guidelines and Standards for Assessing Local Financial Commitment* issued by FTA in June 2007.

The financial analysis model integrates projections of expenses and revenues, both capital and operating, to assess financial capacity. The model addresses the capital cost, level of service and resulting operating and maintenance cost, ridership and resulting fare revenue, and grant implications of each “line-item” capital project or program.

The model applies a comprehensive economic projection of inflation and interest rates. The model has the ability to examine the impacts of alternative courses of action available to VTA management to assure the feasibility of a program of capital projects. These actions include:

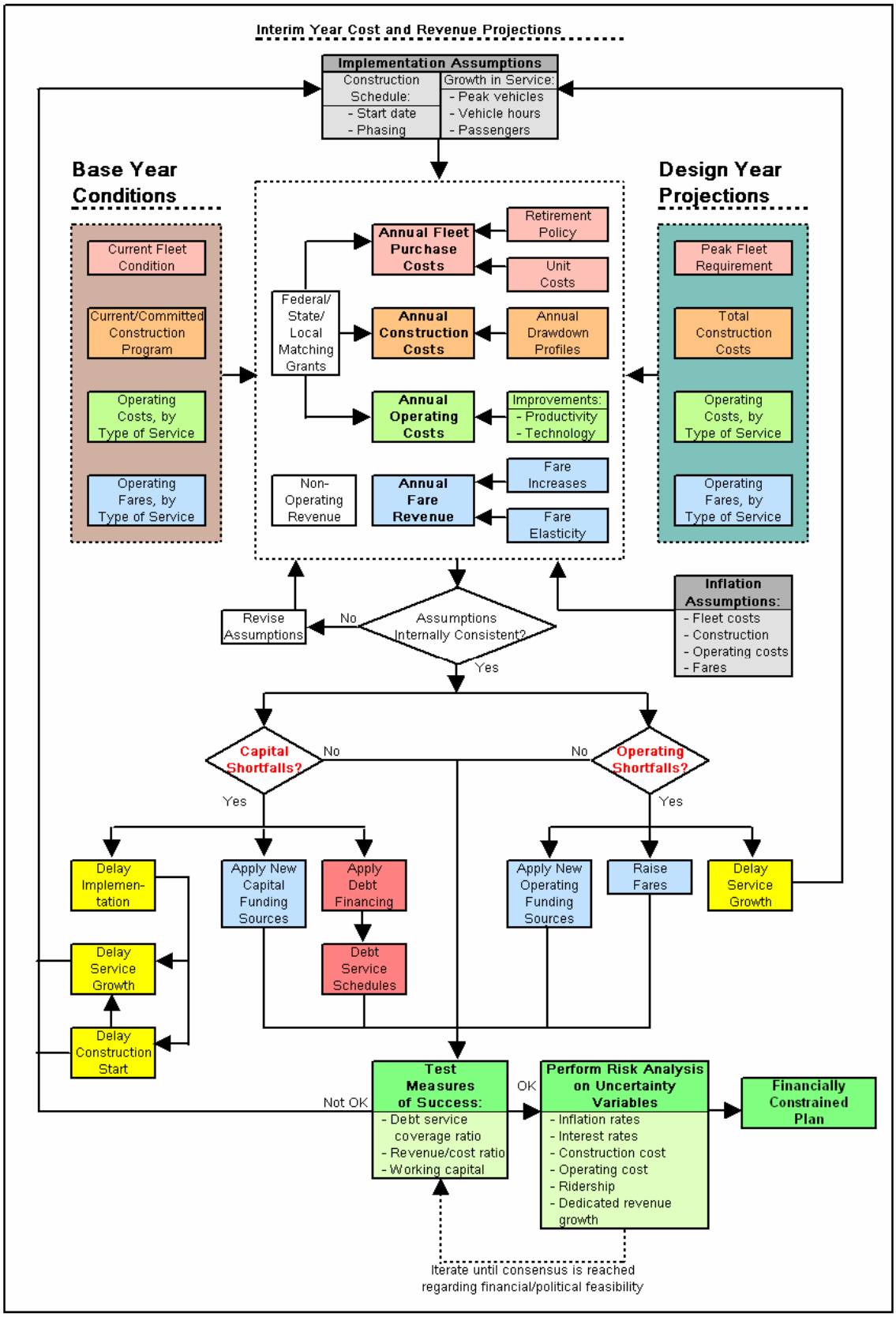
- Project implementation dates and rates of construction,
- Growth in existing service and year of introduction of new services,
- Pricing of transit services,
- Implementation of new revenue sources, and
- Application of grants to specific projects.

The model can be applied to examine alternative financing structures, including pay-as-you-go, conventional long-term bonds, short-term financing, and innovative debt structures including borrowing against future FTA Full Funding Grant Agreement funds for New Starts projects and borrowing from the Federal government, using TIFIA loans, and the use of private equity.

Finally, the model runs a sophisticated risk analysis on the base case whereby all potential sources of future uncertainty (interest rates, construction costs, revenues, etc.) are allowed to vary randomly and simultaneously within analytically and judgmentally derived "pessimistic" and "optimistic" ranges through the application of Monte Carlo simulation. Examining a few key indicators of financial health in the sources-and-uses analysis, such as debt service coverage ratios, demonstrates VTA's financial ability to undertake the Measure A program. The risk analysis shows the probability that these financial indicators will be within a given acceptable range.

Figure 1 summarizes the transportation financial planning structure. This analytical process emphasizes a comprehensive approach to the integration of expenses and revenues, both capital and operating, for major transportation investments and represents a prudent, businesslike approach to strategic financial planning.

Figure 1. Components of Sources and Uses of Funds Analysis



FINANCIAL PLANNING DATA APPLICATION

The following three major categories of data are applied in the financial analysis:

1. *Construction Program***.** Annual costs for the transit facilities construction program which include:

   Capital expansion projects (Measure A Program)

   - Total construction cost in base year dollars
   - Distribution of annual construction costs, which is used when advancing or delaying project construction assumptions

   The remainder of the Capital Improvement Program

   - Total construction cost by project or major program in base year dollars
   - Distribution of annual construction costs, which is used when advancing or delaying project construction assumptions

   Buses and Rail Car Fleets. Fleet purchase assumptions include:

   - Characteristics of the Existing Fleet. For each sub-fleet (vehicles of a specific manufacturer and purchase year), data regarding number of vehicles and anticipated retirement year
   - Committed Purchases. For programmed purchases, the number, size, cost, and anticipated retirement year of each planned new sub-fleet
   - Proposed Future Purchase Parameters. For all future sub-fleets, average bus costs, useful life, and spare bus requirements.

2. *Operating Costs*. Incremental operating and maintenance costs associated with the baseline system, Measure A projects for which VTA is responsible for maintenance and operations expenses, and other operational initiatives and planned service expansion projects.
3. *Operating Revenues*. Growth in fare revenue projected based on a combination of operational initiatives underway, growth in service and travel demand forecasts for transit region-wide.

The projection of annual costs and revenues are defined by two sets of project implementation assumptions:

- *Construction Schedule*. Includes the start date and opportunities for construction phasing; and
- *Implementation of Transit Service*. Includes the forecast growth in annual miles and hours of service and growth in fleet size that, in turn, will drive growth in new vehicle costs, operating and maintenance costs, and operating revenues.

In addition to projecting a baseline rate of inflation, inflation assumptions are applied to construction and vehicle capital costs and for operating costs and revenues.

A sources-and-uses-of-funds analysis is then undertaken and the year-end balance is reviewed to determine in what years capital or operating fund shortfalls are predicted. The sources-and-uses-of-funds analysis and debt service computations are performed in year-of-expenditure dollars.

The financial analysis can explore potential remedies until no further capital and operating shortfalls remain. A series of financial feasibility tests are then examined to ensure that the financial plan is feasible and (if debt financing is applied) acceptable to the capital markets. These tests included:

- *Minimum Debt Service Coverage.* This factor is defined as the ratio of current year dedicated revenues and interest earned on debt service reserve funds divided by current year debt service payments. Simply stated, it is the minimum acceptable value in each year across the 30-year analysis period of the ratio of projected dedicated revenues divided by projected debt service. This is a conventional measure of financial feasibility. Higher values are better. The financial analysis assumes that revenues used to repay debt issued for implementation of the Measure A program are derived from dedicated funding sources. Under this financing structure, the following standards are observed:

  - Minimum debt service gross coverage ratio before operating subsidy needs: 1.3 for Measure A sales tax bonds and 3.0 for VTA 1976 ½-cent sales tax bonds

- Minimum net coverage ratio for all measures: 1.00 after operating subsidy needs.

- *Sufficient Year-End Balances.* The financial analysis was structured to ensure that a positive cash balance was always maintained and that this balance equaled approximately two months of operating costs plus approximately two months of locally funded capital expenditures.

FINANCIAL PLANNING ASSUMPTIONS AND COMPARISON

The model supporting development of the updated Measure A plan has been changed over the assumptions and structure used to produce the Measure A Revenue and Expenditure Plan approved by the VTA Board of Directors in June 2006 in the following key ways:

- *New financial plan base year*: The plan analysis begins in FY07 and runs through FY36. All base-year dollar figures are in FY07 dollars.

- *Revised inflation and interest rate projections*: Moody's Economy.com prepared a comprehensive set of inflation and interest rate projections for VTA in August 2007. This included projections of the local Consumer Price Index (the basis for estimates of "real inflation", energy prices (petroleum products, natural gas, and electricity), and construction prices. The financial plan applies the RS Means Construction Cost Index specifically for San Francisco Bay area construction prices. Interest rate projections include the Bond Buyer Index (which is a representative average of tax exempt municipal General Obligation debt), the Bond Buyer Revenue Bond index, and the full ladder of Federal Treasury bill and note rates from one-month to 30 years. Moody's Economy.com provided a baseline (or "most-likely") projection, and a pessimistic-to-optimistic range, which represented 80 to 85 percent of outcomes. The projections reflect future business cycles and address long-term trends in demographics, global market forces, productivity, and immigration.

- *Revised projection of sales tax revenues*: The financial planning and analysis uses a November 2006 projection of Santa Clara County taxable sales from the Center for the Continuing Study of the California Economy through 2016. From 2017 onward, an August 2007 independent projection of sales tax revenues from Moody's Economy.com is applied. An optimistic and pessimistic range from these baseline projections was derived from the Economy.com forecast.

- *Application of Travel Demand Model Results*: The financial planning analysis projects fare revenue based on the ridership forecast developed in the travel demand analysis for the Silicon Valley Rapid Transit (SVRT) Project.

- *Operating and Maintenance Costs*: The financial planning analysis applies an O&M cost model developed for VTA by Connetics Transportation Group in May 2007 and calibrated to VTA's FY05 operating budget and staff positions. The O&M cost model utilizes a disaggregate and resource build-up structure, consistent with the approach suggested by FTA, which addresses cost by management center by object class and, for labor, by position. Line item costs are determined according to the quantity of service supplied and other system characteristics.

- *Risk Analysis*: The model applies a Monte Carlo simulation which replaces static point estimates of various risk variables with probability density functions representing the range and relative likelihood of future outcomes. These risk variables are fundamental input assumptions to the analysis. This includes application of baseline, optimistic, and pessimistic projections prepared by Moody's Economy.com of inflation rates for the Bay Area and national interest rates.

The tables in Attachment A present a side-by-side comparison of assumptions applied by VTA in its Measure A financial analysis and the revised Measure A financial analysis model developed by AECOM Consult. The VTA model was revised in 2007 to reflect actual sales tax receipts and shifted project schedules. The 2008 Revised Model column reflects the assumptions in the current working version of the model, which has been applied to determine major variances between these plans.

MAJOR REVENUE VARIANCES

The major revenue variances between the draft revised Measure A plan model and the VTA Board-adopted 2006 Measure A Revenue and Expenditure Plan and Long-Range Operating Forecast over the 30-year period of comparison (2007-2036) include:

- **Sales Tax Revenue:** The draft revised Measure A plan model projects ***$6.9 billion less*** sales tax revenue than the VTA plans.
- **Operating Grants:** The draft revised Measure A plan model projects ***$1.1 billion less*** in operating grants, including TDA, Section 5307 Preventative Maintenance, and State Operating Grants.
- **Operating Revenues:** The draft revised Measure A plan model projects ***$119 million additional*** operating revenue, including fare revenue and investment income.

The major variances are explained below.

Sales Tax Revenue

The draft revised Measure A plan model projects $1.87 billion less VTA ½-cent sales tax revenue, $1.82 billion less Measure A ½-cent sales tax revenue, and $3.20 billion less revenue from a new ¼-cent sales tax over the 30-year period of comparison (2007-2036), a total of $6.90 billion less sales tax revenue. Figure 1 summarizes differences between the sales tax revenue forecasts applied in the two projections.

Figure 1: Comparison of Sales Tax Revenue Forecasts ($ millions)

Revenue Source	2008 Draft Revised Measure A Plan Model	2006 VTA Adopted Measure A Plan and Long-Range Operating Forecast	Variance, 2008 vs. 2006 Plans (2007-2036)
VTA Sales Tax Revenue			
Capital	$0.00	$0.00	$0.00
Operating	$8,841.69	$10,707.66	($1,865.97)
Total	$8,841.69	$10,707.66	($1,865.97)
Measure A Sales Tax Revenue			
Capital	$7,107.80	$8,598.76	($1,490.96)
Operating (18.457%)	$1,608.83	$1,946.30	($337.47)
Total	$8,716.63	$10,545.06	($1,828.43)
New ¼-Cent Sales Tax Revenue			
Capital	$939.05	$2,035.70	($1,096.66)
Operating	$3,190.67	$5,295.29	($2,104.61)
Total	$4,129.72	$7,330.99	($3,201.27)
Total Capital Revenue	$8,046.85	$10,634.46	($2,587.62)
Total Operating Revenue	$13,641.19	$17,949.25	($4,308.05)
Total Sales Tax Revenue	$21,688.04	$28,583.71	($6,895.67)

The draft revised plan model is based on FY07 actual receipts and assumes no growth FY08 or FY09, consistent with the current economic outlook. The 2006 adopted Measure A plan is based on projected FY07 revenue and assumes 4.8 percent annual growth in FY08 and FY09. Both apply a CCSCE forecast pre-2016, but the draft revised plan model is based on a revised 2007 forecast provided by VTA. Beyond the CCSCE forecast period (post-2016), the 2006 adopted Measure A plan assumes a significantly higher rate of growth in sales tax revenue (4.75%) than the draft revised plan, which is based on an Economy.com forecast (averaging 3.2% annually between 2017 and 2036). This low rate of growth in Santa Clara County sales tax receipts is consistent with Economy.com's low forecast inflation beyond 2017.

Operating Grants

The draft revised plan model projects $1.1 billion less in operating grants, including TDA, Section 5307 Urbanized Area Formula Program funds applied to Preventative Maintenance expenses, and State Operating Grants (including STA, AB434 and Prop 42 STA funds). Figure 2 summarizes differences between the operating grant revenue forecasts applied in the two projections.

Figure 2: Comparison of Operating Grant Forecasts

Revenue Source	2008 Draft Revised Measure A Plan Model	2006 VTA Adopted Measure A Plan and Long-Range Operating Forecast	Variance, 2008 vs. 2006 Plans (2007-2036)
TDA	$4,214.91	$5,032.60	($817.69)
FTA Sec 5307 Preventative Maint.	$372.26	$706.48	($334.22)
State Operating Grants	$627.70	$593.12	$34.58
Total	**$5,214.87**	**$6,332.20**	**($1,117.33)**

The draft revised plan model assumes a slower growth rate for TDA revenues in the long term consistent with the sales tax forecast described above. The draft revised plan assumes decreased application of Section 5307 grants to Preventative Maintenance, and higher State Operating Grants, consistent with the VTA adopted Budget and Short Range Transportation Plan Operating Forecast adopted by the VTA Board in December 2007.

Operating Revenues

The draft revised plan model projects $119 million additional operating revenues, including fare revenue, investment income, advertising income, other income, and one-time revenue. Figure 3 summarizes differences between the operating revenue forecasts applied in the two projections.

Figure 3: Comparison of Operating Revenue Forecasts

Revenue Source	2008 Draft Revised Measure A Plan Model	2006 VTA Adopted Measure A Plan and Long-Range Operating Forecast	Variance, 2008 vs. 2006 Plans (2007-2036)
Fare Revenue	$3,281.34	$3,278.69	$2.65
Investment Income (Enterprise Fund)	$111.73	$141.00	($29.26)
Advertising Income	$81.13	$57.99	$23.14
Other Income	$196.95	$86.50	$110.45
One Time Revenue	$12.13	$0.00	$12.13
Total	**$3,683.28**	**$3,564.18**	**$119.10**

The draft revised plan model fare revenue forecast is based on the AECOM Consult travel demand forecast of ridership. Both the draft revised plan model and the VTA 2006 Long-Range Operating Forecast assume inflationary increases in fares every 2 years.

Investment income is lower in the draft revised plan model as the average annual cash balance is lower in the draft revised plan. The draft revised plan model applies an Economy.com projection of 3-month T-Bill rates (annual average 4.3%) to Enterprise Fund cash balances, consistent with recent experience. The 2006 Long-Range Operating Forecast assumes 3% investment income on the average Enterprise Fund balance.

Advertising income and other income are higher in the draft revised plan as it assumes inflationary growth in these revenues; the VTA 2006 Long-Range Operating Forecast assumes none. The draft revised plan model applies one-time revenue in FY07 consistent with VTA's FY07 Preliminary Actuals; no such assumption was made in the 2006 Long-Range Operating Forecast.