

Chapter 8

FUNDING PLAN

INTRODUCTION

This chapter includes a summary of the work that was completed for the funding analysis of the Sonoma-Marin rail plan. A key element to the funding of the implementation of rail service will be contributions generated from a sales tax levied in Sonoma and Marin Counties. During the funding analysis, a primary concern for the SMART Commission was how to minimize the size of these contributions, while still moving forward with an effective implementation in a timely manner. This chapter includes a description of the Commission's methodology in accomplishing this goal.

The Commission decided on a start-up of the Preferred Alternative five years after voter approval of the sales tax in both counties. This approach would reduce contributions from a sales tax by moving implementation back by at least three years from the previously assumed start date of 2002, depending upon when the sales taxes are passed. The Governor's budget provision for \$37 million in additional funding would serve to further reduce sales tax contributions¹.

For this analysis, it was assumed that voter approval of the sales taxes in both counties would occur in 2000. As a consequence, start-up would occur in 2005, rather than 2002, as was the study's initial assumption for ridership, revenue, operating cost and capital cost analyses up to this point. If the sales taxes were approved in 2002 rather than in 2000, then the implementation of the service would occur in 2007.

BACKGROUND

In its initial analysis early in 2000, the Commission considered various options for funding the Preferred Alternative (described in Chapter 7). Funding options relied on various sources, including fare revenues, existing federal earmarks, and State Proposition 116 funds. The primary source of funds, however, was a 20-year ½-cent sales tax for both Sonoma and Marin Counties. Overall, sales tax contributions for rail would be less than 30 percent over the 20-year life of the taxes. Depending on the type of rolling stock used for the service, the Preferred Alternative would require nearly 40 percent of sales tax revenues during the first 12 years of the sales tax, although contributions or "drawdowns" would drop significantly in later years.

The project consultants cited other potential sources for funds that could reduce the sales tax contribution to the rail service. These included federal and state discretionary funds, a vehicle

¹ The Governor's budget also included \$60 million for NCRA. This sum may further reduce capital expenditures for the start-up of commuter rail operations.

registration fee, revenues generated from property development along the right-of-way, and revenues from the establishment of benefit assessment districts. While the funds that might be generated from these alternative sources could be substantial, the Commissioners focused on the contributions of the ½-cent sales tax as the primary source of funds. The Commission directed the consulting team to include federal and state discretionary funding in future financing scenarios. Further, it asked the consultants to explore variations on the Preferred Alternative to reduce the needed tax contributions.

To this end, the consultants explored four variations of the Preferred Alternative. The Preferred Alternative and four variations contained the same set of financing assumptions. Specifically, bonds are issued to cover capital costs prior to construction. Bonds are repaid using sales tax contributions. When compared to the Preferred Alternative, each of these variations represents a reduction in sales tax contributions for the rail service. In addition, the consultants developed three discrete funding *scenarios* for the Preferred Alternative. These scenarios also resulted in reductions to the sales tax drawdowns required for rail service.

PREFERRED ALTERNATIVE AND FOUR VARIATIONS

The funding analysis included evaluations of the Preferred Alternative and four variations. While the goal of service between Cloverdale and San Rafael remained the same for all alternatives, some had different assumptions of initial service routes, service levels, and start dates. As mentioned above, the four variations were developed in an effort to reduce costs and reliance on the county sales tax measures. In this analysis, the earliest start-up date assumed was in 2004, as compared with 2002. The later date was considered more realistic, given the likely requirements of an assessment of environmental impacts, track upgrades and manufacture of rolling stock. These alternatives included:

Alternative 1: This is the Preferred Alternative, which calls for service from Cloverdale to downtown San Rafael. A first phase start-up would be in 2004, with 45-minute headways during peak commute periods. It would include mid-day service. In 2011, a second phase would have 30-minute headways during peak periods and mid-day service.

Alternative 2: This is essentially the same as Alternative 1, except that it would exclude mid-day service during a first phase of operations from 2004 to 2010. In 2011, a second phase would begin 30-minute headways and mid-day service. The purpose of this alternative was to test the potential to reduce operating costs and the consequent demand for sales tax contributions by eliminating mid-day service during the first phase of implementation.

Alternative 3: This alternative would operate initially between Santa Rosa and downtown San Rafael. A first phase would begin in 2004. It would have 45-minute peak period headways and would exclude mid-day service. In 2011, a second phase would expand the service to Cloverdale, with 30-minute peak period headways and mid-day trains – the same level of service as for Alternatives 1 and 2. This alternative would require a maintenance yard in Santa Rosa, as opposed to Cloverdale, as is assumed for Alternative 1. The purpose of this alternative was to test the potential to reduce operating and capital costs and the consequent demand for sales tax

contributions by limiting service to peak commute periods between Santa Rosa and San Rafael during the first phase of implementation.

Alternative 4: This is essentially the same as Alternative 3, except that it would include mid-day service from the 2004 start-up. The purpose of this alternative was to test the incremental effect on Alternative 3 of including mid-day service during the first phase of implementation.

Alternative 5: This alternative would initiate with service between Cloverdale and downtown San Rafael in 2011. From its inception, it would have 30-minute headways and mid-day service. Essentially, it is the same as the Alternatives 1 and 2 from 2011 on. The purpose of this alternative was to test the effects on sales tax drawdowns by delaying implementation of service until 2011.

A summary of the Preferred Alternative (Alternative 1) and the four variations (Alternatives 2 through 5) appears in Table 8-1 below.

**Table 8-1
Comparison of Five Alternatives
Sonoma Marin Rail Service**

	Length	Phase I Start Date	Service Type	Phase II Expansion	Service Type
Alternative 1	San Rafael – Cloverdale	2004	45-min headways and midday service	2011	30-min headways and midday service
Alternative 2	San Rafael – Cloverdale	2004	45-min headways and no midday service	2011	30-min headways and midday service
Alternative 3	San Rafael – Santa Rosa	2004	45-min headways and no midday service	2011 to Cloverdale	30-min headways and midday service; limited service to Cloverdale
Alternative 4	San Rafael – Santa Rosa	2004	45-min headways and midday service	2011 to Cloverdale	30-min headways and midday service; limited service to Cloverdale
Alternative 5	San Rafael – Cloverdale			2011 start date	30-min headways and midday service

OPERATING RESULTS AND CAPITAL REQUIREMENTS

In order to calculate funding requirements, the consultants first had to define the revenues, operating costs and capital costs for each of the alternatives. This work for the Preferred Alternative was done initially last year on the basis of a start-up in 2002. For the funding analysis, these numbers were restated on a year-by-year basis, with service beginning in 2004 and continuing through 2020 (the end year for the funding analysis).

Each alternative has a distinct set of operating assumptions, as shown in the alternative descriptions above. These assumptions generate distinct operating results and capital requirements. These are discussed below. All revenues, capital costs, and operating costs were estimated in constant 1999 dollars, with no adjustment for inflation.

Alternative 1: In 2004, the Preferred Alternative has the highest revenues and the highest farebox recovery ratios of all alternatives. These ratios appear in Table 8-2 below. The superior

results are functions of greater ridership traveling longer distances. For this comparison, operating costs were calculated based on the use of conventional and DMU technology. After 10 years, the Preferred Alternative shows farebox recovery ratios of 33 to 36 percent (depending on the rolling stock technology), which compare favorably with mature commuter and transit services. In terms of capital requirements, five train sets would be needed in 2004, and two more by 2011 to support the service expansion. Also needed for start-up are 11 stations, repairs to five bridges, upgrades to 68 route miles of track, and a CTC signaling system.

Table 8-2
Farebox Recovery Comparison
Service Alternatives

	Rolling Stock Types	Farebox Ratio 2004	Farebox Ratio 2014	Capital Costs (million)
Alternative 1	Conventional	23%	33%	\$ 158.5
	DMU	24%	36%	\$ 162.5
Alternative 2	Conventional	20%	33%	\$ 158.5
	DMU	21%	36%	\$ 162.5
Alternative 3	Conventional	15%	28%	\$ 141.5
	DMU	16%	31%	\$ 145.5
Alternative 4	Conventional	18%	28%	\$ 141.5
	DMU	19%	31%	\$ 145.5
Alternative 5	Conventional		33%	\$ 158.5
	DMU		36%	\$ 162.5

Alternative 2: In absolute terms, this alternative has a lower operating cost in 2004 because it has no mid-day service. However, it also has fewer revenues for the same reason. The bottom line is that its farebox recovery ratio declines relative to Alternative 1. The elimination of mid-day service between 2004 and 2010 does not generate a reduction in capital costs. For example, all five train sets are needed to support commute services starting in 2004. As a result, total capital costs are identical to Alternative 1.

Alternative 3: This alternative serves the shorter San Rafael to Santa Rosa market through 2010, and has no mid-day trains in 2004. As a result, its revenues are significantly less than Alternatives 1 and 2. Operating costs are also less, but its farebox recovery ratios are comparatively low at 15 to 16 percent, depending on the rolling stock type. While these ratios improve considerably over time, they are still below Alternatives 1 and 2 in 2014. The later-year result is due to the establishment of a maintenance facility in Santa Rosa, which limits service north of Santa Rosa when compared to Alternatives 1 and 2, where a maintenance facility in Cloverdale is assumed. With less service, revenues are lower and farebox recovery drops. Relative to Alternatives 1 and 2, capital costs are lower in 2004, as fewer train sets, stations, track upgrades, and signals are required for the shorter route. However, these costs increase substantially as the service expands to include Cloverdale, 30-minute headways, and mid-day service in 2011.

Alternative 4: Because of the inclusion of mid-day service in 2004, this alternative has slightly better farebox recovery ratios in 2004 than Alternative 3. As it presents the same service level as

Alternative 3 in later years, its farebox ratios in 2014 are identical. The timing and the amount of capital costs for this alternative are identical to Alternative 3 as well.

Alternative 5: As this alternative presents the same service level as Alternatives 1 and 2 from 2011, its farebox recovery ratios from 2011 are identical to those of Alternatives 1 and 2. Capital costs will also be identical, although the timing of these costs will of course differ, given its later start date.

FUNDING ANALYSIS

This section presents the results of 20-year (2001-2020) cash flow analyses for the Sonoma Marin rail project. Table 8-3 compares the outcomes of the five implementation alternatives, using one set of financing assumptions. These financing assumptions rely upon revenue bonds and sales tax revenues for most capital and operating costs. For all of the following analyses, DMU vehicles are assumed.

Financing assumptions include:

- For the first four alternatives, two bonds are issued (one in 2003 and another in 2010) to meet capital costs. The amount bonded is the maximum amount possible, based on the amount of sales tax revenue available to make debt service payments. For the fifth alternative, in which revenue service does not begin until 2011, only one bond is issued, in 2010.
- Sales tax revenue is allocated to the project in distinct phases. For the first four alternatives, the highest amount of sales tax revenue is allocated from 2001 to 2012. Beginning in 2013, the allocation drops to an amount needed to cover the remaining debt service costs and operating shortfall. (For Alternative 5, in which there are no service enhancements planned after start-up in 2011, the drawdown remains at its highest point until 2014, and falls afterwards.) In this analysis, the amount of sales tax drawdown does not vary by year within each phase. Sales tax revenue not needed for the operating shortfall is used to establish a small capital fund.

Alternative 1 incurs the highest total costs of any of the five alternatives, because it has the highest operating costs (\$132.9 million through 2020). As a result, it requires the largest percentage of sales tax revenue: 38.3 percent on average between 2001 and 2012, and 26.6 percent on average for 20 years. The additional \$5.6 million in operating costs needed for mid-day service through 2020 is paid for by both higher farebox revenue (\$3.4 million) and an increased sales tax draw (\$2.3 million).

Alternative 2 varies from Alternative 1 only in not providing mid-day service during Phase I operations (from 2004 to 2010). Hence operating costs are lower (\$127.3 million) than in Alternative 1; capital costs are identical (\$162.5 million). Alternative 2 requires a 38 percent sales tax drawdown to 2012, and an overall drawdown of 26.4 percent on average over 20 years, slightly below Alternative 1.

Alternative 3 does not have mid-day service for the period from 2004 to 2010. Therefore it has lower operating costs (\$120.3 million) than Alternative 4 (\$123.6 million). Capital costs are substantially lower than Alternatives 1 and 2 (\$145.5 million for Alternative 3, compared to \$162.5 million for Alternatives 1 and 2). Sales tax contributions are 31.4 percent for the 12 years between 2001 and 2012, and 22.6 percent overall in the 20 years.

Alternative 4 has slightly higher operating costs than Alternative 3, because it provides mid-day service. This difference is paid for through higher farebox revenues (\$34.5 million, as opposed to \$32.3 million in Alternative 3) and increased sales tax drawdown (\$89.1 million, as opposed to \$88 million in Alternative 3). The total sales tax drawdown to 2012 is 31.5 percent, and 22.7 percent overall over 20 years.

Alternative 5 is the lowest cost alternative, because service does not begin until 2011. Capital costs are the same as Alternatives 1 and 2 at \$162.5 million, while operating costs are only \$80.3 million to 2020. Much of the costs in this alternative are paid for by interest earned over the period before service begins in 2011, and the total debt service is only \$5.9 million, since only one bond is issued. The total sales tax drawdown to 2012 is 19.9 percent, and 16.6 percent over 20 years.

Table 8-3 shows a comparison of total project costs and revenues for the five alternatives.

FUNDING SCENARIOS FOR ALTERNATIVE 1 (PREFERRED ALTERNATIVE)

The Commission reviewed three different financing scenarios for Alternative 1, the Preferred Alternative. The financing scenarios were developed for comparison purposes. They illustrate the potential for lower sales tax contributions to the rail project over time. Assumptions for each financing scenario are as follows:

Scenario 1: Two Revenue Bonds/Sales Tax Revenue

Under this scenario, two bonds are issued, in 2003 and 2010, to cover capital expenses. The amount borrowed is based on the amount of additional capital required for the project. All capital costs are incurred by 2003, and service begins in 2004. Sales tax drawdowns in Scenario 1 are slightly lower than in the Preferred Alternative.

Table 8-4 shows a comparisons of total project costs and revenues between the three financing scenarios.

Scenario 2: Federal Earmarks/Two Revenue Bonds/Sales Tax Revenue

This scenario assumes \$30 million in federal or state earmarks are authorized for the project. (Approximately \$5.5 million has already been earmarked for transit agencies and counties, bringing the total amount earmarked for the project to \$35.5 million.) This scenario assumes that \$18.2 million is available in 2003, and the remaining \$17.3 million in 2004.

Revenue bonds would still be required for the project. Two bonds are issued, in 2003 and 2010, to cover additional capital expenses. As in Scenario 1, the amount borrowed is based on project need, not on the sales tax revenue. Capital costs are incurred over a three-year period (2002-04), with some planning and design work taking place in 2001. Service begins in 2005, and expansion occurs in 2011. As a result primarily of federal earmarks, sales tax drawdowns are significantly lower than in the Preferred Alternative.

Scenario 3: Federal Earmarks and Pay-as-You-Go Financing

In this scenario, the \$35.5 million in federal earmarks remain as in Scenario 2. However, no bonds are issued; the entire project is financed out of sales tax revenue and accumulated interest. It was assumed that the project would not draw down more than 20 percent of total sales tax revenue in any given year. Capital costs are incurred over a three-year period (2006-08), with some planning and design work taking place in 2004-05. Service is initiated in 2009, with enhancements in 2019. This scenario represents the lowest level of sales tax drawdowns.

There are a number of assumptions common to all three financing scenarios:

- The main objective of the financing scenarios was to reduce the sales tax drawdown to the lowest possible amount, while not allowing the project to go into deficit in any particular year.
- The rate of sales tax drawdown is fixed for the first 10 years under Scenarios 1 and 2. It may change beginning in 2011 with service enhancements, depending on the amount of debt service or capital costs needed. After the service enhancements take effect, the sales tax drawdown is reduced so that it covers operating shortfall only.
- For the scenarios that include bond issuance, it was assumed that the total amount borrowed included a reserve fund of 10 percent, as well as issuance expenses and bond insurance. Interest rates were assumed at 5.1 percent for the 10-year bonds and 4.8 percent for the five-year bonds. (These figures are based on February 2000 California general obligation municipal bond rates.) Bonds are assumed to be term bonds, not serial.
- Funds not spent at the end of a fiscal year are assumed to earn 5 percent in interest annually.
- Scenarios 2 and 3 required that some capital expenditures be shifted to later years, to avoid deficits. In these cases, capital costs are assumed to rise by 1 percent annually to reflect the additional costs of stretching construction out over more years.
- When service enhancements are made, it is assumed that operating costs rise by 5 percent, while farebox revenues rise by 15 percent from the previous year.
- All figures are in 1999 dollars.
- Finally, the financing scenarios assume that there is no capital fund accumulated at the end of the project. It may be advisable to include a small capital fund to cover unexpected expenses, as well as to begin earning interest to be used on future capital expenditures.

The above financing scenarios were applied to Alternative 1. As can be seen in Table 8-4, sales tax drawdowns for Scenarios 2 and 3 are lower. A similar analysis was conducted for Alternative 3, with service between Santa Rosa and San Rafael at start-up. Because Alternative 3 has lower capital and operating costs at start-up (functions of its shorter initial route), its sales tax drawdowns would be less somewhat less than Alternative 1. At the same time, it would have lesser ridership and, consequently, revenue and farebox recovery would be less.

SUMMARY

As shown in Table 8-4, sales tax drawdowns over the 20-year period vary from a high of 26.6 percent to a low of 14.5 percent. The total drawdown varies with four main factors:

- **The Availability of Federal and State Earmarks:** Federal earmarks would reduce borrowing requirements and consequently sales tax drawdowns. The financing scenarios are very sensitive to the amount and timing of earmarks.
- **Variations in Levels of Service:** Service levels drive capital and operating costs, as well as revenues. Because Alternative 3 has a lesser requirement for rolling stock than Alternative 1, it has less capital costs. However, it will also have fewer trains per day north of Santa Rosa (a function of positioning a maintenance facility in Santa Rosa). As a result, it will have less ridership and revenue, and a lower farebox recovery ratio.
- **Spreading Capital Costs over Time:** When capital costs are more evenly spread between the two phases of capital investment (as in Alternative 3), borrowing costs decline. This is because the first bond is issued for a lower amount, resulting in lower debt service and, therefore, a lower sales tax draw over the first 10 years.

The Revenue Service Date: The longer the revenue service date is delayed, the lower the sales tax drawdown is required. This is because the later start date allows for the accumulation of interest on sales tax set asides for this project which can be used to defray project costs.

Following a review of the three financing scenario options, the Commission reaffirmed support for the Preferred Alternative, under the assumptions contained in Scenario 2, with a start date five years after voter approval of a half-cent sales tax. The project recommendation assumes a start-up date of 2005, if the sales taxes are passed in both counties in 2000, and relies upon two revenue bonds to maintain on-going expenditures during the construction phase. This scenario requires 21.4 percent of sales tax revenues over the 20-year life of the tax. On average the project will require approximately 29 percent of the annual sales tax revenues between the high expenditure years of Financial Year (FY) 1 to FY 12.

It should be noted that the Governor's Traffic Congestion Relief Plan (July, 2000) allocated \$37 million from the General Fund to the Sonoma – Marin rail project. The \$37 million per se was not factored into Scenario 2, as calculations were performed prior to approval of the Governor's budget. However, the calculations did include \$30 million for proposed Federal and State earmarks – a number that approaches the allocation in the Governor's budget. In effect, with the

Governor's budget, the Federal and State earmarks have been achieved. Nevertheless, all potential federal and state funding should be pursued.

A detailed cash flow analysis of the Preferred Alternative under Scenario 2 is contained in Table 8-5.