

EXECUTIVE SUMMARY

This study had four basic objectives:

1. To determine economic feasibility of possible passenger rail services;
2. To determine economic feasibility of enhanced rail freight activity;
3. To compare potential rail versus existing and potential bus service operating costs and
4. Examine the long run potential of connecting passenger rail services.

The study, by R.L. Banks & Associates, Inc. (RLBA) and six subcontractors (Consultant Team), started in May 2002. The study addresses all elements of a comprehensive new-start public rail transportation plan: route and equipment selection, station characteristics, capital and operating costs, freight and passenger operations on shared track and environmental impacts..

Start-up capital costs range from \$99.4 million to \$138.6 million per stand-alone service option, or a total of \$216 million for all routes. There are significant capital cost reduction opportunities associated with implementing more than one commuter service and especially by operating commuter and visitor services over the same route(s).

All of the proposed services are technically feasible. They generally are less favorable in terms of cost effectiveness than existing and proposed commuter rail services surveyed. Those extant cost effectiveness measures all give great weight to ridership, thus the relatively modest ridership projections result in unfavorable comparisons.

Annual operating subsidy requirements would range from \$3.6 million to \$5.9 million per service were each service operated on a stand-alone basis (see Table ES-1). Considerable savings could be realized by operating more than one commuter service and especially by operating commuter and visitor services over the same routes.

Table ES-1
Projected Cost Effectiveness Measures, 2010
(Stand Alone Basis in 2002 Dollars)

| Measure | Capital Costs ^{a/} | Annual Unlinked Trips | Capital Costs per Unlinked Passenger Trip ^{a/} | Operating Expenses ^{b/c} | Projected Revenues | Required Annual Subsidy ^{b/} | Passenger Miles | Operating Expenses per Unlinked Passenger Trip ^{b/} | Operating Expenses per Passenger - Mile ^{b/} |
|---|-----------------------------|-----------------------|---|-----------------------------------|--------------------|---------------------------------------|-----------------|--|---|
| Suisun/Fairfield – Vallejo Commuter Service | \$99,427,000 | 454,046 | \$ 218.98 | \$4,760,000 | \$1,147,000 | \$3,613,000 | 7,423,953 | \$10.48 | \$0.64 |
| St. Helena – Vallejo Commuter Service | 138,600,000 | 519,808 | 266.64 | 6,931,000 | 1,000,900 | 5,922,000 | 4,881,000 | 13.33 | 0.96 |
| Suisun/Fairfield – Napa Commuter Service | 99,783,000 | 459,810 | 217.01 | 4,881,000 | 983,000 | 3,898,000 | 11,052,994 | 10.62 | 0.44 |
| Vallejo – Napa (Rutherford) Visitor Service | 117,600,000 | 139,520 | 842.89 | 4,017,000 | 439,000 | 3,578,000 | 4,632,064 | 28.79 | 0.87 |
| Suisun/Fairfield Napa Valley (Rutherford) Visitor Service | 113,571,000 | 112,480 | 1,009.70 | 4,246,000 | 354,000 | 3,892,000 | 4,454,208 | 37.75 | 0.95 |

Notes:

^{a/} Excludes acquisition cost of land for stations and rights-of-way.

^{b/} Excludes track access costs.

^{c/} Operating expenses include those associated with passengers on the two return trip trains from Vallejo to Fairfield/Suisun and Napa to Fairfield/Suisun

Source: RLBA.

Bus service to accommodate similar passenger volumes would be less expensive to operate than rail service but likely not as attractive to those in a position to choose between driving and using of public transportation

Map One on the next page shows the study area.

CHAPTER 1 – STUDY SCOPE, MANAGEMENT, SCHEDULE, PUBLIC INPUT PROCESS, AND PRESCREENING OF OPTIONS

Chapter 1 consisted of six basic elements:

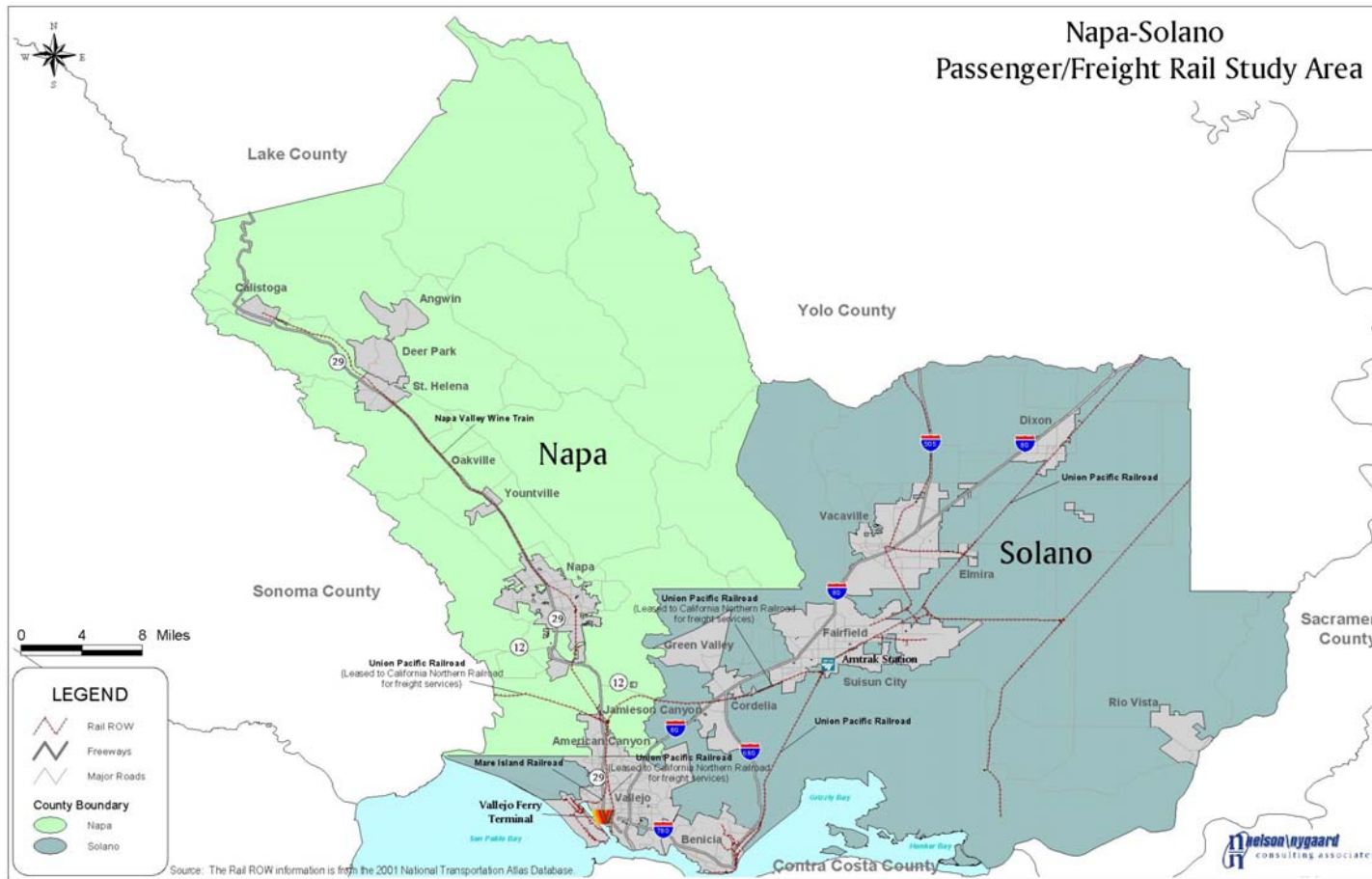
- Producing a final Scope of Work and Project Schedule, Including Milestones;
- Establishing processes by which to obtain citizen, agency and organization input to the study;
- Attending monthly meeting of the Rail Technical Advisory Committee (RTAC), quarterly meetings of the Rail Policy Advisory Committee (RPAC) and other meetings as necessary;
- Interviewing selected stakeholders;
- Conducting public meetings, three early in the study to obtain input to shape the study and two after completion of the Draft Final Report to obtain public comments and
- Conducting a prescreening of rail passenger service options to concentrate the balance of study resources on options considered most likely to be feasible and cost-effective.

Key findings from the private sector stakeholder interviews are:

Market Potential & Service Characteristics for Commuter Rail

The commuter market is preferred by the Napa contingent for the most part, if it proves to be cost-effective. There is the need for both intra-regional rail for those who work in Napa County but live in Solano County as well as inter-regional rail (including connections to Sacramento, the Bay Area, San Francisco, BART, BayLink, and the 101 corridor). Specific stops were requested at several points.

**Map One
Study Area**



Map One
ES-4

Market Potential & Service Characteristics for Visitor-Serving Rail

Stakeholders had differing opinions regarding the value of tourists and visitors. All Solano participants and several Napa participants see visitor-serving rail as a good possibility. Some saw the need to better manage the tourist trade, and were concerned that the railroad not just serve tourists. Others recognized the possibility of better connections between and among tourist and visitor destinations:

Market Potential & Service Characteristics for Freight Rail

With traffic congestion creating problems for truck movements in the region, freight rail is seen as desirable, but many doubt whether it can replace shipping by trucks to a significant degree.

Primary Planning Issues to Be Considered

Stakeholders shared concerns about noise, lights, traffic, parking, safety, productivity, property encroachment, crossings, funding, connectivity, price, management, preserving the right-of-way, paying for it now (rather than waiting for it to be more expensive later), low density, not using or taking any land from existing vineyards, extending rail only up to (and not beyond) St. Helena, using existing track, and the growth-inducing nature of rail. Many felt the need for a modal shift from trucks and automobiles to rail in order to alleviate traffic congestion, reduce air pollution and make better connections. It is clear that Napa Pipe Company operations must be avoided.

Information Needed in order to Properly Evaluate the Options

Most stakeholders felt that cost was one of the key factors needed to evaluate the options. Other factors included: service, regularity, reliability, price, managing capacity, levels of controls, and traffic reduction (the degree to which freight traffic could be shifted from truck to rail, and the number of automobile trips that would be replaced by rail).

Key findings from the public sector stakeholder interviews are as follows:

- Napa County communities generally support rail but are divided on whether to pursue tourist-focused or commuter-focused services. St. Helena and American Canyon support commuter rail over tourist rail. St. Helena is strongly opposed to tourist rail, while American Canyon simply thinks it is a less viable option. On the other hand, the Cities of Napa and Calistoga favor tourist rail

over commuter rail. The City of Napa views tourist rail service (with a station in downtown Napa) as an important component of its downtown revitalization and economic development efforts;

- Solano County communities are less supportive of and less interested in a Napa/Solano rail service than Napa County communities. In part, this is due to the perception that the majority of Solano County residents commute to jobs in the East Bay and the Tri-Valley. More people are interested in rail service to the East Bay or San Francisco than they are service to Napa County or between Vallejo and Suisun City/Fairfield and
- In both counties, the impression was that the public would not be willing to finance any type of rail project unless it could be demonstrated that it would induce substantial benefits by significantly reducing congestion or providing a faster and more convenient transportation alternative.

The first three public meetings were held in St. Helena, Napa and Vallejo on September 7th and 9th, 2002 following announcements mailed to over 200 individuals and agencies, advertisements in local daily and weekly newspapers and public service announcements on local radio stations.

Key findings from the public meetings are as follows:

- there is substantial support of the study effort and interest in determining the feasibility and cost-effectiveness of potential rail passenger services;
- the most common concern raised at the St. Helena meeting was that efforts to reconstruct the abandoned right-of-way would have a negative impact on property or business;
- common concerns raised at the Napa meeting included the cost of mitigating environmental impacts associated with a new rail alignment to bypass the Napa Pipe Company plant and
- the most commonly asked question at the Vallejo meeting concerned the best alignment by which to connect the existing rail line to the Ferry Terminal on Mare Island.

A second round of public meetings were held with one in Napa on April 21, 2003 and a second in Suisun on April 23rd.

Both meetings included a wide variety of comments and questions pertaining to such topics as rail service corridors and destinations, stations, rail equipment, ridership projections and system costs (capital and operating).

The prescreening process resulted in the selection of the options below; these are the focus of the balance of the study:

- Suisun/Fairfield – Vallejo
 - ✓ weekday, peak-hour, morning westbound and afternoon eastbound service;
- Napa – Vallejo
 - ✓ weekday, peak-hour, morning and afternoon bi-directional service;
- Vallejo – Napa Valley
 - ✓ seasonal, weekend/holiday, bi-directional service;
 - ✓ weekday off-peak, bi-directional service
- St. Helena – Napa
 - ✓ weekday, peak-hour, morning and afternoon bi-directional service and
- Suisun/Fairfield – Napa
 - ✓ weekday, peak-hour, morning northbound and afternoon southbound service
 - ✓ seasonal, weekday, off-peak and weekend service
- St. Helena – Calistoga
 - ✓ weekday, peak-hour, morning and afternoon bi-directional service

CHAPTER 2 – RAILROAD RIGHT-OF-WAY OWNERSHIP AND ACCESS

Key findings are:

- Union Pacific Railroad (UPRR) owns the rights-of way (ROW) between Suisun/Fairfield, Vallejo and Napa (at the North end of the Napa Pipe Company plant), all of which are leased to the California Northern Railroad (CFNR) for freight service only.
- UPRR would be interested in considering the sale of the study area lines, subject to the terms of its freight lease with CFNR.
- The Napa Valley Railroad (NVR) owns the ROW between Napa and St. Helena used by the Napa Valley Wine Train (NVWT).
- NVR would consider allowing passenger service over its line, providing it had the opportunity to bid on the provision of such services.
- None of the other lease agreements on the active rail lines appear to be detrimental to establishing rail passenger service.

- The former Southern Pacific Railroad ROW between St. Helena and Calistoga has been sold to a number of owners. Approximately 3.5 miles are owned by the City of Calistoga. Ownership of the remaining 4.5 miles is divided between various vineyards and wineries. Reacquiring this property for a rail line would be difficult and costly. An alternative alignment using a 1.7 mile portion of the SR 29 ROW would be feasible, but would still require difficult and costly acquisition of the 3.7 mile balance of required ROW.

The research found that restoration of a rail fixed plant between Calistoga and St. Helena would entail an expenditure of from \$45 million to \$110 million depending on the alignment selected, exclusive of an estimated ROW acquisition cost exceeding \$14 million. Since the segment is only 8 miles long, the high absolute cost involved, together with a low ridership projection, discussed elsewhere, indicates that no further consideration be given a St. Helena - Calistoga segment.

CHAPTER 3 – PHYSICAL PLANT AND CAPITAL IMPROVEMENT PLAN

Chapter 3 examined the existing rail lines in four segments:

Vallejo-Napa Junction (7.3 miles);
Suisun/Fairfield-Napa Junction (12.5 miles);
Napa Junction-Napa (5.1 miles) and
Napa-St. Helena (18.1 miles).

Key findings are:

- Track, bridges and structures, while adequate to support current, slow speed, freight train movements, will require substantial upgrading to meet more demanding needs of private automobile-competitive passenger train speeds. In most cases, the entire track structure—rail, ties and ballast will have to be replaced, along with turnouts and road crossings.
- Many of the existing, at-grade crossings are old and will require rehabilitation. Faster passenger train speed will require adjustments at all grade crossings locations.
- Track and structure capital improvements are estimated to be slightly in excess of \$93 million (see Table ES-2), including the cost of existing infrastructure rehabilitation, the construction of a new connection to/from the Vallejo Ferry terminal and the construction of a new bypass around the Napa Pipe facility.

- All existing turnouts (switches) will have to be replaced to accommodate higher speed passenger trains.

**Table ES-2
Segment Capital Cost Summary**

| Segment | Length (Miles) | Segment Endpoints (in 2002 dollars) | | Cost | Cost/Mile |
|---------|----------------|-------------------------------------|-------|---------------|--------------|
| 1 | 7.3 | Vallejo-Napa Junction | | \$ 23,728,000 | \$ 3,250,411 |
| 2 | 5.1 | Napa Junction-Napa | | 23,931,000 | 4,692,353 |
| 3 | 18.1 | Napa-St. Helena | | 25,788,000 | 1,424,751 |
| 4 | 12.5 | Napa Junction-Suisun/Fairfield | | 19,699,000 | 1,575,920 |
| Total | 43.0 | | Total | \$ 93,146,000 | |
| | | | | Average | \$ 2,166,186 |

- Pending completion of additional efforts on equipment type and level of maintenance to be performed in-house, the consultant team tentatively recommends Napa Junction as the preferred location of an equipment maintenance shop and layover yard.
- Napa County Transportation Planning Agency/Solano Transportation Authority (NCTPA/STA) have several good options for passenger service dispatching, however, the consultant team recommends contracting dispatching services to the CFNR assuming that it could obtain from UPRR the rights to operate passenger service over that railroad.

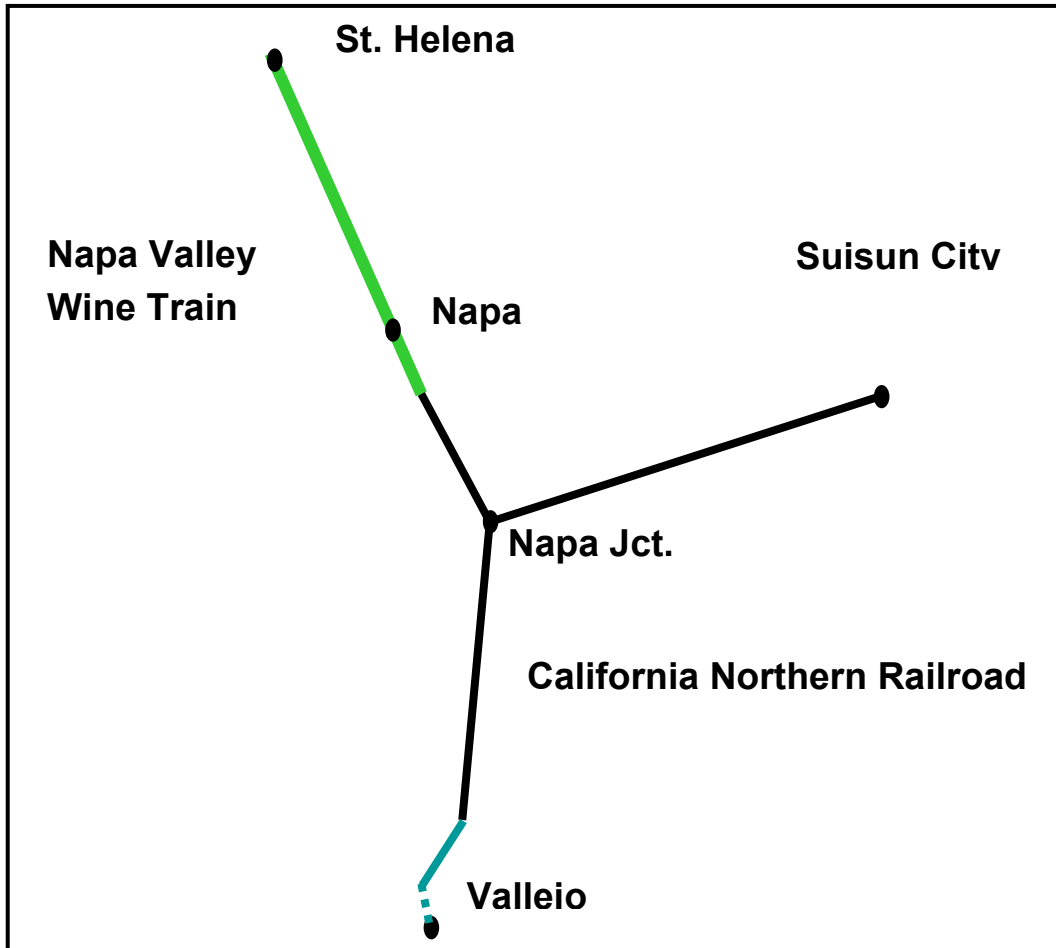
Map Two, on the following page, shows how the above – listed track segments connect with one another.

CHAPTER 4 – RECOMMENDED STATION PLAN TO SUPPORT COST EFFECTIVE RAIL PASSENGER SERVICES

There is a fundamental tradeoff in planning commuter rail stations: increasing the number of stations may make the service convenient to more potential customers but also lengthens train schedules thereby discouraging some potential riders. The approach first developed a service plan that incorporated stations deemed desirable

and feasible, then estimated passenger train running time and, finally, adjusted the station and service plan until a balance was found.

**Map Two
Rail Segment Connectivity**



An evaluation of potential station sites resulted in the establishment of three categories: “excellent,” “good” and “poor.” Station sites considered “excellent” or “good” were assembled into station groups, which were then evaluated from a systems perspective based on their impacts, trading off rail travel time (favoring fewer stations) versus access to the rail line (favoring more stations).

The recommended station plans recognize and incorporate three primary station types:

- **Major Intermodal**, locations at which to transfer to/from regional transit services or be co-located with a major bus transfer facility;
- **Basic Commuter/Visitor**, primarily commuter-oriented but also can be used in connection with visitor rail service and
- **Gateway**, serving as the primary visitor entry point into the Napa Valley, including such amenities as connecting shuttle services, short term parking, visitor information services, rest rooms, picnic areas and storage rooms.

The following Commuter Service stations are recommended:

Major Intermodal Stations

- Fairfield/Suisun City Amtrak Station
- Vallejo Ferry Terminal
- Downtown Napa

Basic Commuter Stations

- Red Top Road
- Sereno Transit Center
- American Canyon
- Napa Valley College (at Imola)
- North Napa (Trancas and Highway 29)
- Yountville and
- St. Helena.

Visitor Service station plan recommendations include the following:

Major Intermodal Stations

- Fairfield/Suisun City Amtrak Station
- Vallejo Ferry Terminal
- Downtown Napa and

Basic Visitor Stations

- Red Top Road
- American Canyon
- North Napa (Trancas and Highway 29)
- Yountville and

Gateway Station

- Rutherford.

In addition to these three primary station types, “excursion” stations, including very basic amenities and accommodating excursion or visitor shuttle buses and minimal parking, could be located at convenient tourist destinations throughout the Napa Valley. They were not sited in this study but could be based on previous studies undertaken on behalf of the NVWT.

Conflicts with freight operations at stations resulting from passenger train station stops would not be severe as envisioned and thus would not require construction of additional station tracks.

Total estimated capital costs associated with the recommended set of seven basic and five transfer, major intermodal or gateway stations are approximately \$14,200,000, an amount incremental to the figures in Table ES-2.

CHAPTER 5 - EQUIPMENT REQUIREMENTS AND ALTERNATIVES

The key findings are:

- While numerous “light” diesel-multiple-unit (DMU) models, in which all cars have motors, as contrasted with trailer cars in a locomotive-hauled train, are available from several builders, none currently in service complies with Federal Railroad Administration (FRA) Section 238 crashworthiness standards, requiring a temporal or spatial separation waiver to operate such equipment in a shared passenger and freight use environment. It is considered highly unlikely that the owning railroads in the study rail corridors will agree to any time or spatial separation which would meet FRA requirements, thus requiring use of heavy DMU equipment.
- DMUs hold a capital cost advantage over locomotive-hauled train consists based on one power car and one trailer car compared with one locomotive and two coaches; however, as coaches are added in response to demand, the apparent DMU capital cost advantage diminishes and, at some length of train, disappears.
- Unit vehicle maintenance costs, to some extent, depend on fleet size, with larger fleets tending toward lower unit costs.
- Estimated annual unit vehicle maintenance costs associated with small fleets likely utilized on any of the proposed Napa/Solano corridors vary between \$45,000 and \$125,000 depending upon vehicle types. Equipment capital costs range from \$ 5 million per two car single level heavy DMU set, to \$6 million for a locomotive and two single level coaches. These amounts would be in addition to the fixed plant investment.
- The Consultant Team recommends focusing on “heavy” DMUs as best matching the desired characteristics of: 1) full interoperability with freight trains (i.e., no time separation requirement); 2) low-to-medium passenger carrying capacity and 3) probable lower initial cost of fleet acquisition. Leave open the possibility of locomotive-hauled trains, should suitable “heavy”

DMUs not be available at competitive prices and/or should the demand forecast suggest a need for higher capacity trains.

CHAPTER 6 – RAIL PASSENGER AND SHUTTLE OPERATING PLAN

The three commuter services would start the day with equipment moving without passengers from overnight storage at the central equipment maintenance facility to the initial terminals (St. Helena and Suisun/Fairfield). After making an initial peak direction trip, most trains would make a trip in the reverse direction followed by another peak direction trip. Trains would lay over at terminal stations during the midday period and then provide evening peak service similar to that in the morning. All trainsets would return to the equipment maintenance facility for servicing and overnight storage. Visitor service could operate in a similar manner or could share equipment and schedules with commuter service if both were implemented on the same route. Trips per day by route appear in Table ES-3 below.

**Table ES-3
Trips per Day by Route**

| Route | Trips per Day |
|---|--|
| Suisun/Fairfield – Vallejo | 4 trains peak direction – 2 reverse direction (12 trips/weekday) |
| Suisun/Fairfield – Napa | 4 trains peak direction – 2 reverse direction (12 trips/weekday) |
| Vallejo – St. Helena | 4 each direction at peak (16 trips/weekday) |
| Vallejo – Rutherford (Visitor Service) | 2 each direction per day (4 trips/day) |
| Suisun/Fairfield – Rutherford (Visitor Service) | 2 each direction per day (4 trips/day) |
| Total Weekday Trips [Weekend Trips] | 48 [8] |

Source: RLBA Team.

While all three peak services approach the 45 miles per hour average running time between stations specified for the study, using the presently recommended stops, the estimated St. Helena - Vallejo travel time (about 55 minutes) does not leave sufficient time and cushion to make a one way trip, turn and be ready to depart again reliably within the planned 60-minute headway. A more detailed engineering and operations analysis would be needed to verify whether a reliable 60-minute headway is realistic.

Table ES-4 on the following three pages depicts illustrative service schedules.

Additional freight facilities such as the passenger bypass at Napa Pipe (included in Chapter 3 capital cost estimates) will be required to support shared passenger-freight use. The nature and extent of those facilities should be addressed as part of any track access negotiations and agreement.

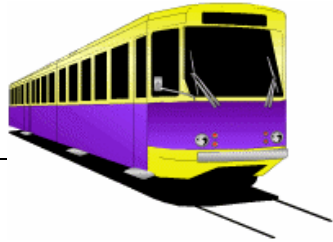
The majority of employment sites along the rail corridors are well served by existing transit. No dedicated public transit shuttles linking rail stations to employment sites are recommended. Smaller employment sites that may not be well served by transit would not attract significant ridership even if it were offered. A public shuttle system serving rail passengers who are visitors was described.

Operating plans and costs exclude the St. Helena – Calistoga corridor because the extremely high capital costs and the low ridership projected in the earlier analyses would make it a much less cost-effective route.

CHAPTER 7 – FREIGHT ENHANCEMENT OPPORTUNITIES

Chapter 7 examined the opportunities to increase freight traffic, removing vehicles from the roadways and reducing congestion. Key findings are:

- In 2001, the railroads moved a total of 17,500 freight carloads in the study area. This is the equivalent of 60,000 - 80,000 truckloads which would otherwise have moved on area highways. Seventy percent of this volume is for three customers (Napa Pipe, Budweiser and General Mills).
- The railroads expect to have moved a total of about 19,000 carloads in 2002 and forecast 15,000 in 2003 in the study area.
- The NVRR moved fewer than 40 carloads in 2001; none to or from points north of Napa. There is no realistic prospect of a significant increase in freight volume on the NVRR.



**Table ES-4
Illustrative Vallejo - St. Helena Commuter Schedules**

| Stop | STATION | Miles from Vallejo | MORNING <i>Read Down</i> | | | | MORNING <i>Read Up</i> | | | |
|------|------------------------|--------------------|-----------------------------|------------|------------|------------|---------------------------|------------|------------|------------|
| | | | Southbound | Southbound | Southbound | Southbound | Northbound | Northbound | Northbound | Northbound |
| s | St. Helena | 33.2 | 4:58 AM | 5:58 AM | 6:58 AM | 7:58 AM | 6:57 AM | 7:57 AM | 8:57 AM | 9:57 AM |
| s | Rutherford | 29.0 | 5:04 AM | 6:04 AM | 7:04 AM | 8:04 AM | 6:51 AM | 7:51 AM | 8:51 AM | 9:51 AM |
| s | Yountville | 23.6 | 5:12 AM | 6:12 AM | 7:12 AM | 8:12 AM | 6:43 AM | 7:43 AM | 8:43 AM | 9:43 AM |
| s | Napa - Trancas | 17.3 | 5:21 AM | 6:21 AM | 7:21 AM | 8:21 AM | 6:34 AM | 7:34 AM | 8:34 AM | 9:34 AM |
| s | Napa - Downtown 3rd St | 15.1 | 5:27 AM | 6:27 AM | 7:27 AM | 8:27 AM | 6:29 AM | 7:29 AM | 8:29 AM | 9:29 AM |
| s | South Napa at Imola | 13.9 | 5:30 AM | 6:30 AM | 7:30 AM | 8:30 AM | 6:25 AM | 7:25 AM | 8:25 AM | 9:25 AM |
| s | Napa Jct. | 6.4 | 5:39 AM | 6:39 AM | 7:39 AM | 8:39 AM | 6:16 AM | 7:16 AM | 8:16 AM | 9:16 AM |
| s | American Canyon | 5.1 | 5:42 AM | 6:42 AM | 7:42 AM | 8:42 AM | 6:14 AM | 7:14 AM | 8:14 AM | 9:14 AM |
| s | Sereno Transit Center | 2.8 | 5:47 AM | 6:47 AM | 7:47 AM | 8:47 AM | 6:09 AM | 7:09 AM | 8:09 AM | 9:09 AM |
| s | Vallejo Ferry Terminal | 0 | 5:53 AM | 6:53 AM | 7:53 AM | 8:53 AM | 6:02 AM | 7:02 AM | 8:02 AM | 9:02 AM |

| Stop | STATION | Miles from Vallejo | EVENING <i>Read Down</i> | | | | EVENING <i>Read Up</i> | | | |
|------|------------------------|--------------------|-----------------------------|------------|------------|------------|---------------------------|------------|------------|------------|
| | | | Southbound | Southbound | Southbound | Southbound | Northbound | Northbound | Northbound | Northbound |
| s | St. Helena | 33.2 | 3:27 PM | 4:27 PM | 5:27 PM | 6:27 PM | 5:28 PM | 6:28 PM | 7:28 PM | 8:28 PM |
| s | Rutherford | 29.0 | 3:33 PM | 4:33 PM | 5:33 PM | 6:33 PM | 5:22 PM | 6:22 PM | 7:22 PM | 8:22 PM |
| s | Yountville | 23.6 | 3:41 PM | 4:41 PM | 5:41 PM | 6:41 PM | 5:14 PM | 6:14 PM | 7:14 PM | 8:14 PM |
| s | Napa - Trancas | 17.3 | 3:42 PM | 4:42 PM | 5:42 PM | 6:42 PM | 5:13 PM | 6:13 PM | 7:13 PM | 8:13 PM |
| s | Napa - Downtown 3rd St | 15.1 | 3:48 PM | 4:48 PM | 5:48 PM | 6:48 PM | 5:06 PM | 6:06 PM | 7:06 PM | 8:06 PM |
| s | South Napa at Imola | 13.9 | 3:50 PM | 4:50 PM | 5:50 PM | 6:50 PM | 5:05 PM | 6:05 PM | 7:05 PM | 8:05 PM |
| s | Napa Jct. | 6.4 | 3:56 PM | 4:56 PM | 5:56 PM | 6:56 PM | 5:00 PM | 6:00 PM | 7:00 PM | 8:00 PM |
| s | American Canyon | 5.1 | 3:56 PM | 4:56 PM | 5:56 PM | 6:56 PM | 4:58 PM | 5:58 PM | 6:58 PM | 7:58 PM |
| s | Sereno Transit Center | 2.8 | 3:59 PM | 4:59 PM | 5:59 PM | 6:59 PM | 4:56 PM | 5:56 PM | 6:56 PM | 7:56 PM |
| s | Vallejo Ferry Terminal | 0 | 4:01 PM | 5:01 PM | 6:01 PM | 7:01 PM | 4:53 PM | 5:53 PM | 6:53 PM | 7:53 PM |



**Table ES-4
Illustrative Suisun/Fairfield-Vallejo Commuter Schedules**

| Stop | STATION | Miles from Vallejo | MORNING <i>Read Down</i> | | | | MORNING <i>Read Up</i> | |
|------|------------------------|--------------------|-----------------------------|-----------|---------------------------|-----------|---------------------------|-----------|
| | | | Westbound | Westbound | Westbound | Westbound | Eastbound | Eastbound |
| s | Suisun-Fairfield | 20.2 | 5:17 AM | 6:17 AM | 7:17 AM | 8:17 AM | 6:38 AM | 7:38 AM |
| s | Red Top Road | 12.7 | 5:27 AM | 6:27 AM | 7:27 AM | 8:27 AM | 6:28 AM | 7:28 AM |
| | Napa Junction | 6.4 | 5:35 AM | 6:35 AM | 7:35 AM | 8:35 AM | 6:20 AM | 7:20 AM |
| s | American Canyon | 5.1 | 5:38 AM | 6:38 AM | 7:38 AM | 8:38 AM | 6:18 AM | 7:18 AM |
| s | Sereno Transit Center | 2.8 | 5:42 AM | 6:42 AM | 7:42 AM | 8:42 AM | 6:13 AM | 7:13 AM |
| s | Vallejo Ferry Terminal | 0 | 5:49 AM | 6:49 AM | 7:49 AM | 8:49 AM | 6:06 AM | 7:06 AM |
| | | | | | | | | |
| Stop | STATION | Miles from Vallejo | EVENING <i>Read Down</i> | | EVENING <i>Read Up</i> | | | |
| | | | Westbound | Westbound | Eastbound | Eastbound | Eastbound | Eastbound |
| s | Suisun-Fairfield | 20.2 | 5:47 PM | 6:47 PM | 5:08 PM | 6:08 PM | 7:08 PM | 8:08 PM |
| s | Red Top Road | 12.7 | 5:57 PM | 6:57 PM | 4:58 PM | 5:58 PM | 6:58 PM | 7:58 PM |
| | Napa Junction | 6.4 | 6:05 PM | 7:05 PM | 4:50 PM | 5:50 PM | 6:50 PM | 7:50 PM |
| s | American Canyon | 5.1 | 6:08 PM | 7:08 PM | 4:48 PM | 5:48 PM | 6:48 PM | 7:48 PM |
| s | Sereno Transit Center | 2.8 | 6:12 PM | 7:12 PM | 4:43 PM | 5:43 PM | 6:43 PM | 7:43 PM |
| s | Vallejo Ferry Terminal | 0 | 6:19 PM | 7:19 PM | 4:36 PM | 5:36 PM | 6:36 PM | 7:36 PM |



**Table ES-4
Illustrative Visitor Schedules**

| Vallejo-Rutherford | | | | | | | |
|----------------------|------------------------|----------------------|------------------|----------|------------------|---------|--|
| Stop | Location | Miles From Vallejo | <i>Read Up</i> | | <i>Read Down</i> | | |
| s | Rutherford | 29 | 10:54 AM | 12:24 PM | 3:30 PM | 5:30 PM | |
| s | Yountville | 23.6 | 10:46 AM | 12:16 PM | 3:37 PM | 5:37 PM | |
| s | Napa - Downtown 3rd St | 15.1 | 10:32 AM | 12:02 PM | 3:52 PM | 5:52 PM | |
| | Napa Jct. | 6.4 | 10:19 AM | 11:49 AM | 4:05 PM | 6:05 PM | |
| s | Vallejo Ferry Terminal | 0 | 10:05 AM | 11:35 AM | 4:19 PM | 6:19 PM | |
| Fairfield-Rutherford | | | | | | | |
| Stop | Location | Miles From Fairfield | <i>Read Down</i> | | <i>Read Up</i> | | |
| s | Suisun-Fairfield | 0 | 10:15 AM | 12:15 PM | 4:51 PM | 7:51 PM | |
| | Napa Junction | 13.8 | 10:32 AM | 12:32 PM | 4:33 PM | 7:33 PM | |
| s | Napa - Downtown 3rd St | 21.5 | 10:45 AM | 12:45 PM | 4:21 PM | 7:21 PM | |
| s | Yountville | 30 | 10:58 AM | 12:58 PM | 4:07 PM | 7:07 PM | |
| s | Rutherford | 35.4 | 11:06 AM | 1:06 PM | 4:00 PM | 7:00 PM | |

Source: RLBA.

- Discussion with 20 of 21 active rail freight customers, 25 possible future rail freight customers, the three currently active railroads (UPRR, CFRN and NVRR) and reference to a recent freight volume forecast prepared for the North Coast Railroad Authority revealed a potential in RLBA's judgement for a total of from 15,000 to 30,000 freight carloads annually in or through the study area looking ahead five to ten years.
- The most likely sources of additional rail freight are wine shippers (a potential increase to 2,200 carloads from only about 330 in 2001), municipal solid waste from the South Napa Waste Management Authority after 2007 (140 container loads per week now moving by truck under a contract expiring in 2007), construction aggregates (sand, gravel, etc.) possibly 3,000 or more carloads per year, and shipments from and to the railroad west of Schellville if the North Coast Railroad Authority is successful in restoring freight service (possible 5,000 to 10,000 carloads per year).
- Napa Pipe Company is currently operating at or near capacity. A downturn in line pipe demand to more normal levels will have a significant impact on future rail freight activity in the area.
- Lack of rail-served shipping and receiving facilities places significant limits on rail freight activity in the area. Given the public benefits of reducing highway congestion and air pollution, public agencies should encourage construction of more such facilities in the area.
- Any future rail passenger service in the area should be planned, and infrastructure constructed, so as not to impede the operations of Napa Pipe Company which currently requires continual crossing of the rail tracks through the plant for movement of pipe from production to storage facilities.
- The public benefits of reduced highway congestion and air pollution should be recognized by public agencies when they consider rail versus highway transportation options.

CHAPTER 8 – COMMUTER AND VISITOR RIDERSHIP AND REVENUE

Chapter 8 considers several alternatives and recommends the best by which to estimate commuter and visitor passenger rail patronage. To develop forecasts, specific service and fare assumptions were made. The service assumptions include 60-minute headways, four trains during the weekday peak period and travel speeds as described in

Chapter 6. Fares were developed that emulated the existing Napa and Vallejo bus transit fare structures, which are also very similar to those in effect on Caltrain’s commuter rail system operating on the peninsula south of San Francisco.

Three different commuter rail ridership forecasting methods were used.

The first method, developed in Southern California, was recently applied to the proposed rail service in Sonoma and Marin Counties. The method is distance-based and oriented to serving long-distance commuters only.

The second method was based on the real-world rail system ridership experienced at Morgan Hill, a typical station on the Caltrain service between Gilroy and San Francisco served by four peak-period trains daily. While those trains operate in a somewhat more congested corridor than would those considered here, it is believed the comparison nonetheless is pertinent.

The third method is devised from a Metropolitan Transportation Commission formula. It demonstrates how transit ridership would change were faster travel times offered by rail.

Upon averaging the three methods, a composite commuter rail forecast by corridor was developed as shown in Table ES-5.

**Table ES-5
Potential Commuter Riders by Corridor**

| Corridor | Origin | Destination | 2010 | | | 2020 | | |
|--------------|------------|-------------|----------------|------------|---------------|----------------|------------|---------------|
| | | | AM Peak Period | Daily | Annual | AM Peak Period | Daily | Annual |
| Route 12 | Fairfield | Napa | 751 | 1,502 | 378,500 | 629 | 1,258 | 316,600 |
| | Napa | Fairfield | 126 | 252 | 63,300 | 164 | 328 | 82,500 |
| Route 29 | St. Helena | Vallejo | 716 | 1,432 | 360,700 | 913 | 1,826 | 460,200 |
| | Vallejo | St. Helena | 276 | 552 | 139,300 | 249 | 498 | 125,200 |
| Route 80 | Fairfield | Vallejo | 726 | 1,452 | 365,900 | 828 | 1,656 | 417,200 |
| | Vallejo | Fairfield | <u>140</u> | <u>280</u> | <u>70,700</u> | <u>139</u> | <u>278</u> | <u>70,000</u> |
| Total System | | | 2,736 | 5,472 | 1,378,400 | 2,921 | 5,842 | 1,472,700 |

Note: Numbers may not add due to rounding.
Source: DKS Associates.

Applying a market share of five percent to multi-day or overnight visitors and three percent to “day-trippers” (both optimistic assumptions), passengers were apportioned to two proposed visitor trains each way during off-peak hours between Suisun /Fairfield or Vallejo and the Napa Valley. Daily and annual ridership, assuming four levels of tourist activity, is shown in Table ES-6, including visitors who might use weekday commuter trains.

Table ES-6

Potential Annual Visitor Ridership by Line and Season

| Visitor Demand by Season | From Suisun/Fairfield | | From Vallejo | | Total | |
|--|-------------------------------|------------------------|-------------------------------|------------------------|-------------------------------|------------------------|
| | Daily One-Way Trips by Season | Seasonal One-Way Trips | Daily One-Way Trips by Season | Seasonal One-Way Trips | Daily One-Way Trips by Season | Seasonal One-Way Trips |
| Low | 140 | 15,260 | 160 | 17,440 | 300 | 32,700 |
| Medium | 260 | 33,020 | 340 | 43,180 | 600 | 76,200 |
| Medium to High (Strong) | 400 | 33,600 | 500 | 42,000 | 900 | 75,600 |
| High | 680 | 30,600 | 820 | 36,900 | 1,500 | 67,500 |
| Total | | 112,480 | | 139,520 | | 252,000 |
| Note: Annual totals are different from the annual total shown elsewhere due to rounding. | | | | | | |
| Source: DKS Associates. | | | | | | |

A demand elasticity estimate of patronage at three fare levels was completed. U.S. studies show a “ridership elasticity” of -0.23, which means that a ten percent increase in fares would result in a 2.3 percent decrease in ridership. Bay Area transit ridership experience suggests that ridership fluctuates more dramatically because of economic conditions than from slight changes in fares.

An on-board proof-of-payment fare collection system is recommended, using ticket machines at stations to minimize the number of tickets sold on-board trains. This method is the most common on commuter rail systems, as the labor requirements are low and station dwell times are minimized.

The ridership demand at Calistoga was estimated using a variety of sketch planning methods. The Calistoga area contains less than 5,000 people, over three-quarters of

whom have a commute of less than 30 minutes. Thus, the available number of longer-distance commuters is small even before application of a rail service capture rate. The boardings would total only between 30 and 75 during the AM peak period.

CHAPTER 9 – CAPITAL AND OPERATING COSTS, FEASIBILITY, COST-EFFECTIVENESS, AND FUNDING

Start-up capital costs range from \$99.4 million to \$138.6 million per stand-alone service option, or a total of \$216 million for all routes. There are significant capital cost reduction opportunities associated with implementing more than one commuter service and especially by operating commuter and visitor services over the same route(s).

All of the proposed services are technically feasible. They generally are less favorable in terms of cost effectiveness than existing and proposed commuter rail services surveyed. Those extant cost effectiveness measures all give great weight to ridership, thus the relatively modest ridership projections result in unfavorable comparisons. .

Annual operating subsidy requirements would range from \$3.6 million to \$5.9 million per service were each service operated on a stand-alone basis (see Table ES-1). Considerable savings could be realized by operating more than one commuter service and especially by operating commuter and visitor services over the same routes.

Bus service to accommodate similar passenger volumes would be less expensive to operate than rail service but likely not as attractive to those in a position to choose between driving and using of public transportation

Although local, state and federal budget uncertainties are currently pervasive, potential funding sources associated with a new-start rail service in Napa and Solano counties exist, including both public as well as public-private partnership opportunities. A regional sales tax was discussed as an excellent future funding source for the Napa/Solano Rail Project, provided there is political support for its implementation.

CHAPTER 10 – ENVIRONMENTAL ISSUES

Although an environmental document is not required for feasibility studies, such as this one, a survey was completed noting items of significant environmental interest. The following key environmental constraints were identified:

Agricultural Resources – The greatest potential to disrupt agricultural lands would occur in the Napa - St. Helena segment. The rail corridor in that segment is bordered on at least one side by established vineyards and associated wine production and tasting facilities. Agricultural resources also exist along the rail ROW in the area immediately to the south of Highway 29/12 where the rail crosses under the highway, in Jameson Canyon and in the area to the east of Cordelia, but disruption to these resources could be avoided through sensitive siting of rail facilities.

Biological Resources – Salt and brackish water marsh exists in the rail corridor between Cordelia and Suisun City and along the Napa River. Those marsh areas are the most sensitive along the corridor. There is the potential for habitat that supports sensitive natural communities along the river between Vallejo and Napa and the segments north of Napa and east of Napa Junction.

Cultural Resources – A total of 31 cultural resources were identified within 100 feet of the rail corridor. Between Cordelia and Suisun City and segments of the rail line between Napa and St. Helena, the railroad itself is identified as a historic resource. Unless activity occurs outside of the railroad ROW, significant impacts on the cultural resources would not be expected.

Geology – A fault line runs along the border of the proposed Red Top Road station site and a fault is mapped adjacent to the Napa Junction and American Canyon station sites. Several other proposed station locations are subject to moderate to extremely high ground shaking amplification which presents geologic constraints.

Hydrology – The Napa Pipe bypass, the Napa College station site, the NVRR maintenance yard and the two potential downtown Napa station sites are all located within the 100-year flood plain. The Napa River Flood Control Project, currently under construction, is intended to control flooding in Napa and reconfigure the flood control

system. The Sereno Transit Center is located in close proximity to the boundary of a 100-year flood plain. In addition, there are intermittent streams at the Red Top Road, Creston siding and Oakville siding locations.

Land Use – The agricultural zoning of the Rutherford station site could restrict station development options at that location. The proximity of productive agricultural uses to the rail at the Oakville siding and Yountville stations could constrain the development of those facilities. Construction of a new rail line along the Vallejo waterfront could reduce the amount of property currently used for open space and park purposes.

Noise – Sensitive noise receptors including residential uses, schools and hotels in close proximity to the rail were identified in every rail segment.

Transportation/Traffic – Presently, the greatest levels of congestion along the corridor occur in St. Helena and in the Jameson Canyon. While the potential of achieving an overall reduction in auto traffic exists given the introduction of passenger rail service, localized congestion necessitating the need for additional traffic controls would be expected at the Red Top Road, South Napa Junction, Rutherford and St. Helena stations.

Environmental constraints that could pose potentially significant impacts or potentially significant impacts unless mitigated are summarized in Table ES-7.

| Table ES-7 Summary Table of Environmental Issues | | | | |
|---|--------------------------------|----------------------------|-------------------------|----------------------|
| Environmental Issues | Rail Segments | | | |
| | Suisun City – Napa Junction | Vallejo – Napa Junction | Napa Junction – Napa | Napa – St. Helena |
| <i>Aesthetics</i> | | | | |
| <i>Agricultural Resources</i> | X | | | xx |
| <i>Air Quality</i> | | | | |
| <i>Biological Resources/Wetlands</i> | X | x | x | x |
| <i>Cultural Resources</i> | | | x | x |
| <i>Geology/Soils</i> | X | x | x | |
| <i>Hazards/Hazardous Materials</i> | | | | |
| <i>Hydrology/Water Quality</i> | X | x | x | x |
| <i>Land Use/Planning</i> | | x | | x |
| <i>Energy/Mineral Resources</i> | | | | |
| <i>Noise</i> | X | x | x | x |
| <i>Population Housing</i> | | | | |
| <i>Public Services/Utilities</i> | | | | |
| <i>Recreation</i> | | | | |
| <i>Transportation/Traffic</i> | X | x | x | xx |
| Key: x = Potentially significant impacts unless mitigation is incorporated. xx = Potentially significant impacts. Note: For those categories where no checks are present, the potential impacts are expected to be less than significant or there are no potential impacts. Source: EnviroTrans Solutions. | | | | |

* * * *

CHAPTER 11 – ACHIEVEMENT OF THE PRIMARY STUDY OBJECTIVES AND RECOMMENDED NEXT STEPS

Below are each of the primary objectives (*in italics*) and a concise statement of the results, findings and recommendations that demonstrate the Consultant Team’s consideration and satisfaction of each objective.

1. *To determine the cost effectiveness of passenger rail service for commute and/or visitor related travel on existing rail (and abandoned R.O.W.) from Vallejo to Calistoga, from Vallejo to Suisun City through Jamieson Canyon, and from Suisun City to Calistoga.*

Passenger rail in Napa and Solano Counties is technically feasible. The study illustrates that given certain right-of-way improvements, passenger trains can carry riders between

stations along all three corridors. The UPRR, the NVRR and CFNR have indicated their willingness to consider hosting such services provided infrastructure improvements are provided which will allow the freight service and the Wine Trains to be operated efficiently. Given the commitment of sufficient resources, the project can be implemented.

However, there is no rule of thumb with regard to whether or not a contemplated passenger rail system is economically feasible. It is up to the citizens, elected leaders and the business communities in Napa and Solano Counties to decide as a matter of public policy whether the financial support necessary to support an attractive and reliable passenger rail system is justified given the passenger volume, revenue and cost estimates and potential environmental considerations. Using conventional cost-effectiveness performance measures such as operating expense per passenger trip, operating expense per vehicle mile, operating expense per passenger mile, subsidy per passenger trip and farebox recovery ratio, it appears that Napa/Solano passenger rail services are not as cost-effective as services already in operation.

It should be noted, however, that potential reductions in capital costs that might be achieved in future detailed design or potential private public partnerships that could be developed could have the potential of increasing the cost effectiveness of the system.

Regardless of what the citizens, elected leaders and business communities decide about the feasibility of passenger rail systems today, STA and NCTPA, separately or collectively, should undertake such limited studies as are necessary to be in a position to preserve all railroad lines in the study area in the event of rail line abandonment because passenger rail system feasibility is likely to improve in the future. Inasmuch as railroad abandonment actions may be executed within as short a period as 60 days, it is recommended that STA and NCTPA investigate abandonment risks and opportunities in advance so that they can be prepared to act rapidly.

Provided there is sufficient interest in examining further the feasibility of rail passenger service(s) within and between the counties, the Consultant Team recommends that a more intensive study of potential patronage be undertaken. While this study encompassed three independent analyses of commuter rail ridership estimation, it utilized many disciplines of which patronage estimation was merely one dimension that,

like all others, competed for constrained budget resources. A more comprehensive patronage forecast, in itself, could be a large study. Therefore, a larger and more focused look at potential ridership is recommended as it might result in significantly higher (or lower) estimates.

2. *To determine the economic feasibility of enhancing rail freight activity to reduce truck traffic on SR/29 and SR/12.*

Several opportunities to increase rail freight were identified in the study. It is possible, though optimistic, that total rail freight could double over time. However, it is also clear that very little existing truck traffic on SR/29 and SR/12 is likely to shift to rail. The introduction of passenger rail services along the study corridors could increase the attractiveness of railroad freight movements through the improvement of infrastructure and the sharing of fixed costs between freight and passenger rail systems.

3. *To conceptually examine the potential for long range passenger rail connections to Sonoma from Napa and Solano Counties.*

The long range passenger rail connection potential appears technically possible. Sonoma Marin Area Rail Transit (SMART) is planning the development of rail service between San Rafael and Cloverdale to begin as soon as 2007. SMART will own trackage connecting Napa and Marin counties, facilitating the development of connecting service. The Capitol Corridor could offer connecting service via the Fairfield/Suisun station.

4. *To prepare a cost comparison of rail versus existing bus service from Vallejo to Calistoga and future bus service from Napa to Fairfield/Suisun.*

Direct comparison of bus and rail operating costs is very difficult since it presumes that a bus transit system could be designed to attract the same number of riders as a parallel rail system. Rail services would be faster, more comfortable and more attractive to passengers than would “comparable” bus services even if the ten minute bus headways necessary to handle the volume of passengers projected to ride even one train every hour in peak periods could be purchased and operated. However, “comparable” bus operations would cost only ten to twenty percent as much as rail.