SUBJECT: Intercommunity Transit Service Plan

MEETING DATE: May 20, 2004

AGENDA ITEM: 10

RECOMMENDATION:

A. Consider approval of Intercommunity Transit Service Implementation Plan, Lompoc – VAFB – Santa Maria.

B. Direct staff to work with the City of Santa Maria in development of CMAQ application for bus lease/purchase option.

C. Review and comment on draft MOU between the cities of Santa Maria, Lompoc, County of Santa Barbara, and SBCAG regarding administration of Intercommunity Transit Service Implementation Service, Lompoc – VAFB – Santa Maria.

SUMMARY

Since last month the proposed Intercommunity Transit Service Plan has been revised by the consultant, Urbitran based on comments from the board and advisory committees. The revised plan has received approval from TTAC and the North County Transit Advisory Committee. If the board approves the plan the next step is for the board to direct the preparation of an application for federal Congestion Mitigation Air Quality (CMAQ) funds. If approved, the CMAQ funding would provide the revenues needed to lease the buses and operate the service for the duration of the 3-year pilot project. A Memorandum of Understanding (MOU) has been drafted for execution by the agencies involved in providing and funding the service (Santa Maria, Lompoc, County of Santa Barbara and SBCAG).

DISCUSSION:

At the April meeting the board received a summary presentation on the proposed Intercommunity Transit Service Plan. In summary, an early morning, mid-day, and peak hour oriented service is designed to attract commuters and help insure an adequate fare box recovery ratio. The service would go between the Lompoc and Santa Maria transit centers, with intermediate stops to serve regional needs. Urban buses would use either low sulfur diesel fuel or propane. Since bus production problems limit availability of new buses, a bus lease or lease/purchase option is recommended. The City of Santa Maria which operates the regional SMAT transit service is the recommended administrative entity. A ridership estimate and budget

Member Agencies
Buellton  Carpinteria  Goleta  Guadalupe  Lompoc  Santa Barbara  Santa Maria  Solvang  Santa Barbara County
indicates an acceptable fare box recovery ratio within the three year period. A good and well funded marketing program is also a key component to the success of this program.

At the April 15 SBCAG meeting, the Board received public comment on the draft plan and recognized the input from the advisory committees. Staff transmitted all these comments to the consultant.

The consultant has modified the plan to address concerns outlined in SBCAG’s letter of comment. The following significant changes are noted:

1) The consultant has determined that the service is a commuter service, therefore it is not subject to a requirement to provide complementary ADA paratransit service.

2) Additional costs for marketing, bus painting, bus stops, fuel, and, driver split shifts have increased three year lease costs from $1.8 million to $2.2 million and lease/purchase costs increased from $2.4 million to $3.3 million for the three years.

3) A bus stop was added at McCoy/Professional Parkway and a stop was deleted at Lakeview and Broadway.

4) A formal evaluation period after two years was added to assess ongoing performance, although service will be evaluated on an annual basis.

Staff believes the consultant has responded to the comments on the draft plan and recommends the board approve the final plan.

The board should select one of the two budget scenarios, lease or lease/purchase (PP. 39-40 of final Plan). This choice is important in order to prepare a CMAQ application to fund the service. Staff and TTAC recommend the lease/purchase scenario as it provides the most flexibility and minimizes the long-term costs to the cities and the county for purchasing the buses. The application could be structured into two parts and programmed over two or three years. This would allow immediate access to funds for the lease and operating costs and permit the capital purchase of the buses if the new service meets performance standards and is continued following the 3-year pilot program.

Next Steps

Following the approval of the final plan, the consultant will prepare, with SBCAG assistance, the application for SBCAG federal CMAQ funds. The prospective service administrator—the City of Santa Maria—would endorse and submit this application to SBCAG for consideration. The SBCAG Board would receive and consider for approval this application and add the project to the Federal Transportation Improvement Program through an FTIP amendment in June or July (2004). The FTIP amendment would have to be approved by the federal agencies before Santa Maria could access the funds. Local matching funds in the amount of $375,000 have been reserved from the Local Transportation Funds apportioned last year to the County and the Cities of Santa Maria and Lompoc.

Service Administration

After the funding is approved by SBCAG, Santa Maria as the lead agency would, in cooperation with their partners, develop a request for proposal to initiate service from the appropriate transit
operator. Alternatively, it could enter into a contract amendment with an existing vendor to expedite service delivery.

In a separate but related issue of project development and organization, SBCAG staff prepared a draft Memorandum of Understanding (MOU) that would provide a means to formally coordinate service issues between the various parties. This MOU would be signed by representatives of the cities of Santa Maria, Lompoc, the County of Santa Barbara, and, SBCAG. Similar to the MOU between SBCAG and the Ventura County Transportation Commission for the Coastal Express, the MOU outlines a formal oversight of the service with a policy and technical committee comprised of elected officials and staff from the various agencies. Staff is also considering the development of a separate MOU between the various parties and VAFB. This MOU would provide a framework to coordinate service between the new intercommunity service and on base transit shuttle service provided by VAFB.

COMMITTEE REVIEW

The North County Transit Advisory Committee met on May 4 and reiterated their support for the Plan. The committee discussed the importance of coordination with on-base VAFB shuttle services.

The Technical Transportation Advisory Committee met on May 6 and supported the staff recommendation. TTAC members emphasized the importance of developing an MOU with VAFB to insure on base shuttle services are provided by VAFB. This service would insure transit users can get from the main gate, where the intercommunity transit bus will stop, to their place of employment. TTAC also had additional comments on the MOU that have been incorporated into the attached draft MOU between the cities of Santa Maria, Lompoc, the County of Santa Barbara, and SBCAG.

In conclusion, staff requests approval of the Intercommunity Transit Service Plan and the selection of the lease/purchase budget scenario. In addition staff is soliciting comments on the draft MOU.

STAFF CONTACT: Michael Powers

Attachments:

1) Final Draft Plan (PDF version), Intercommunity Transit Service Implementation Plan

2) Draft, Memorandum of Understanding, between the cities of Santa Maria, Lompoc, the County of Santa Barbara, and the Santa Barbara County Association of Governments, Regarding Coordination of a Three-Year Pilot Project to Provide Regular, Fixed Route, Commuter Public Transportation Service between Lompoc and Santa Maria
MEMORANDUM OF UNDERSTANDING

BETWEEN THE CITIES OF SANTA MARIA, LOMPOC, THE COUNTY OF SANTA BARBARA AND THE SANTA BARBARA COUNTY ASSOCIATION OF GOVERNMENTS

Regarding Coordination of a Three-Year Pilot Project to Provide Regular, Fixed Route, Commuter Public Transportation Service between Lompoc and Santa Maria

[Enter month] xx, 2004

This Memorandum of Understanding (MOU) is entered into between the Cities of Santa Maria, Lompoc, the County of Santa Barbara, and the Santa Barbara County Association of Governments, hereinafter referred to as “SBCAG”, for the purpose of defining agency roles, responsibilities and commitments in conjunction with the implementation of a three-year pilot project to provide regular, fixed-route public transportation service on the Highway 1/135 corridor between Lompoc and Santa Maria.

This document reflects the intent of all parties to proceed with implementation of the public transportation service as described below.

1. Project Description
   The pilot project will consist of the initiation of regularly-scheduled, fixed-route, intercity commuter express bus service between Lompoc and Santa Maria. The service will be open to the public, for all trip purposes, and will be fully accessible to persons with disabilities. The service will be implemented over a three-year period, commencing with the initiation of bus service, anticipated to be on or about [enter month] xx 2004.

2. Lead Agency
   The City of Santa Maria will be designated as the lead agency for administration of the project, and will be responsible for service contracting and compliance with all federal and state requirements, including reporting requirements pursuant to the National Transit Database.

3. Service Proposal – Cooperative Agreement
   The Intercommunity Transit Service Implementation Plan prepared by Urbitran is included by reference that defines the expected service level, budget, funding obligations, and performance requirements for the service. Annual performance
measures for each of the three years of the pilot project, with annual thresholds that will be used to evaluate the need for service changes are found in the Implementation Plan. If the service is failing to meet one or more performance measures, reasonable efforts will be made to modify the service to improve performance.

4. Service Plan
The bus service will operate five days a week initially. Headways will be approximately one hour, more frequently during weekday peak hours and less frequently during off-peak periods.

The service shall operate generally between the Lompoc Transit Facility and the downtown Town Center Mall in Santa Maria with stops at intermediate locations as indicated in the plan (but subject to change as demand warrants), and including a stop at Vandenberg Air Force Base.

A detailed service plan and schedule will be developed by [enter month] xx 2004, for inclusion in the Request for Proposals for service delivery.

5. Funding
The cities of Santa Maria and Lompoc and the County of Santa Barbara shall share equally in the net costs associated with the three-year pilot project, after deducting all passenger and other operating revenue.

The primary source of funding for the project will be Congestion Mitigation/Air Quality (CMAQ) funds contributed by SBCAG over the first three years of the project. The CMAQ funds are proposed as the primary source of funding for the pilot project subject to approval by the SBCAG board. The cities of Santa Maria and Lompoc and the County of Santa Barbara will use LTF funds to provide the required local match for the CMAQ funds.

All agencies shall work cooperatively to pursue other federal or state grant opportunities where appropriate, such as welfare-to-work, job access and reverse commute programs, in order to augment or reduce the CMAQ, or local matching funds needed for the program.
6. **Policy and Technical Committees**
A Policy Committee shall be established consisting of the following individuals or such successors as may be appointed by SBCAG or the Local agency representatives:

- Santa Barbara County Supervisor, District #4
- Santa Barbara County Supervisor, District #5
- Lompoc City Council Representative
- Santa Maria City Council Representative

Ex-officio representatives from Vandenberg Air Force Base and Caltrans will also be on the Policy Committee. The Policy Committee shall meet at least once a year during the course of the pilot project to review and approve interagency agreements, budgets, and service plans for the following year.

A Technical Committee shall also be established, consisting of staff representatives of the following agencies:

- City of Santa Maria
- City of Lompoc
- Santa Barbara County
- SBCAG
- Vandenberg Air Force Base

The Technical Committee shall assist in the development of detailed service plans, routes, schedules, and other service details, establishment of performance measures, and selection of a service contractor. It is specifically understood that the transit agency representatives will refrain from any participation in the discussion of the requirements for or decision-making related to the selection of a service provider, if they intend to bid on the service.

7. **Bus Equipment**
The service will utilize full-sized, handicapped-accessible transit buses suitable for freeway operations. Bus equipment used for the pilot project will use clean fuel such that appropriate emissions reduction thresholds are met, based on reasonable ridership assumptions for the bus service.
8. **Service Contracting**
The City of Santa Maria will prepare, in cooperation with the Technical Committee, a Request for Proposals (RFP) for the provision of service by a contractor. The RFP shall meet all applicable federal requirements. Alternatively, with the consent of the Technical Committee, the City may amend an existing transit service contract to add this new service.

9. **Fares**
Initial one-way fares for the service will be initially set at $2.00 for adults and $1 for seniors and persons with disabilities. Monthly passes will be $75 for adults and $37.50 for seniors and persons with disabilities. All fares will be confirmed by the Policy Committee prior to service implementation. All local transit agencies will work together to insure the intercommunity service is held harmless in transfers from the local systems. Changes to the fares shall be subject to approval by the Policy Committee. The City of Santa Maria will hold the required hearing prior to implementing any fare changes.

10. **Marketing**
Marketing activities, promotional materials, printed schedules, etc. will be developed by the lead agency. The service will be aggressively promoted by all participants based on the concerns expressed by members of the public in the past. It is anticipated that the service schedule and other information will be included on the local transit agencies and the SBCAG Traffic Solutions website. SBCAG's existing guaranteed-ride-home program will be available to users of the service through the Traffic Solutions program.

11. **Long-Term Continuation of Service**
Prior to the end of the three-year pilot project, the policy committee shall determine if the service will be continued. The committee shall evaluate the service using performance measures identified in the Implementation Plan. At the end of two years of service, the Technical Committee will evaluate the service and, if warranted by the performance of the bus service, develop a plan for the long-term continuation and cost-sharing of the service for review by the Policy Committee.

12. **Amendment**
This MOU may be amended by the written consent of all parties.
13. **Termination**

This MOU may be terminated by any party within 90 days upon written notification to the others. (Note: Additional language on this issue is being developed by Lompoc City Staff).

CITY OF LOMPOC

______________________________________________
Mayor Dick DeWees

______________________________________________
Date

CITY OF SANTA MARIA

______________________________________________
Mayor Laurence Lavagnino

______________________________________________
Date
Intercommunity Transit Service Implementation Plan: Lompoc - VAFB - Santa Maria

Submitted to
Santa Barbara County Association of Governments
Submitted by
Urbitran Associates, Inc.

April 2004
### Table of Contents

**Introduction**................................................................................................................................... 1  
**Chapter One** .................................................................................................................................. 3  
**Operational Parameters** ............................................................................................................... 3  
  1.1 Hours of Service ......................................................................................................................... 3  
  1.2 Route Alignment and Proposed Bus Stop Locations.............................................................. 3  
  1.3 Frequency of Service .................................................................................................................. 9  
  1.4 Ridership Projections .............................................................................................................. 13  
  1.5 Service Administration ............................................................................................................ 15  
  1.6 Vehicle Requirements ............................................................................................................. 18  
  1.7 Service Coordination ............................................................................................................... 19  
  1.8 Complementary Paratransit Service ....................................................................................... 20  
**Chapter Two**................................................................................................................................ 21  
**Vehicle Characteristics** ............................................................................................................... 21  
  2.1 Emissions Standards .................................................................................................................. 21  
  2.2 Vehicle Fuels and Technology ................................................................................................. 23  
  2.3 Intercommunity Service Vehicles ............................................................................................ 25  
**Chapter Three** ............................................................................................................................. 29  
**Project Financing** ........................................................................................................................ 29  
  3.1 Fare Policy .............................................................................................................................. 29  
  3.2 Capital Needs .......................................................................................................................... 32  
  3.2.1 Bus Stops and Shelters ......................................................................................................... 32  
  3.2.2 Vehicle Procurement Plan .................................................................................................. 34  
  3.3 Budget .................................................................................................................................... 34  
  3.3.1 Operating Costs & Revenues ............................................................................................... 34  
  3.3.2 Capital Costs & Revenues .................................................................................................. 36  
  3.3.3 Three-Year Budgets .......................................................................................................... 38  
**Chapter Four**............................................................................................................................... 41  
**Public Outreach, Marketing and Performance Evaluation**......................................................... 41  
  4.1 Public Outreach....................................................................................................................... 41  
  4.2 Marketing and Public Information Program ............................................................................. 42  
  4.3 Performance Measurement Program.......................................................................................... 46  
  4.3.1 Service Effectiveness ............................................................................................................ 46  
  4.3.2 Cost Efficiency and Effectiveness ......................................................................................... 47  
  4.3.3 Service Quality .................................................................................................................... 47  
  4.3.4 Recommended Performance Standards ............................................................................. 49  
**References**.................................................................................................................................... 50
Appendices

Appendix A - Institutional Framework Discussion
A.1 Alternative #1: City Transit System (Lompoc or Santa Maria) 
A.2 Alternative #2: Santa Barbara County Department of Public Works 
A.3 Alternative #3: Santa Barbara County Association of Governments (SBCAG) 
A.4 Alternative #4: Joint Powers Agreement/Agency 
A.5 Summary of Alternatives

Appendix B - Excerpts of Current California Code of Regulations (CCR)

Appendix C - Proposed CCR Changes

Appendix D - Fuels and Vehicle Technologies
D.1 Biodiesel
D.2 Clean Diesel
D.3 Fuel Cell or Hydrogen
D.4 Hybrid Electric
D.5 Methanol and Ethanol
D.6 Natural Gas – Compressed (CNG) or Liquid (LNG)
D.7 Propane or Liquid Petroleum Gas (LPG)

Appendix E - Specific Vehicle Characteristics

Appendix F - Agency Experiences with Proposed Vehicles

Appendix G - Sample Letter Soliciting Stakeholder Feedback

Appendix H - Stakeholders

Appendix I - Summary of Written Public Comments
List of Tables

Table 1-1 Recommended Bus Stops, Peak and Off-Peak ..........................................................6
Table 1-2 Proposed Service Schedule .......................................................................................9
Table 1-3 SMX Flight Schedule to/from Los Angeles ...............................................................10
Table 1-4 Weekday Schedule - Southbound Santa Maria to Lompoc .....................................11
Table 1-5 Weekday Schedule - Northbound Lompoc to Santa Maria ....................................12
Table 1-6 Proposed Driver Shifts ............................................................................................13
Table 1-7 ITSEP Ridership Projections ...................................................................................13
Table 1-8 Final Ridership Projections ....................................................................................15
Table 1-9 COLT Arrival Times at Albertson’s Plaza .................................................................20
Table 2-1 Exhaust Emission Standards for Heavy-Duty Urban Bus Engines and Vehicles ......22
Table 2-2 Fleet Rule for Transit Agencies ................................................................................23
Table 2-3 Summary of Fuel Characteristics ..........................................................................24
Table 2-4 Summary of Vehicle Technologies as Compared to Standard Diesel Fuel .........25
Table 2-5 Possible Vehicles for the Intercommunity Service ....................................................27
Table 3-1 Current and Proposed Fare Structures .................................................................30
Table 3-2 Recommended Fare Structure for Intercommunity Service ....................................31
Table 3-3 Locations of New Bus Stops ...................................................................................32
Table 3-4 Vehicle Purchase and Lease Prices ........................................................................34
Table 3-5 Marketing Costs .......................................................................................................35
Table 3-6 Estimated Fare Revenues and FRR ......................................................................36
Table 3-7 Budget Scenario A – Lease Vehicles ......................................................................39
Table 3-8 Budget Scenario B – Lease, then Purchase Vehicles ................................................40
Table 4-1 Year 1 Marketing Action Plan ..................................................................................45
Table 4-2 ITSEP Annual Performance Criteria ......................................................................46
Table A-1 Advantages and Disadvantages of City Transit System ...........................................53
Table A-2 Advantages and Disadvantages of Santa Barbara County DPW .............................54
Table A-3 Advantages and Disadvantages of SBCAG ............................................................54
Table A-4 Advantages and Disadvantages of JPA .................................................................56
Table A-5 Summary of Advantages of all Organizational Alternatives ................................57
Table A-6 Summary of Disadvantages of all Organizational Alternatives ..............................58

List of Figures

Figure 1-1 Proposed Peak-Hour (Commute) Alignment ..........................................................7
Figure 1-2 Proposed Off-Peak (General Use) Alignment ...........................................................8
Figure 1-3 Functional Organization Chart ..............................................................................16
INTRODUCTION

Discussion of providing public transit service between communities in North Santa Barbara County has been ongoing for over seven years and this transit need has been the subject of considerable debate over the past few years. Previous studies have produced divergent findings regarding the feasibility of such service, based on several factors including projected costs, ridership, and farebox revenues.

In response to testimony at the Unmet Transit Needs Hearing in 1997, local agencies undertook steps to evaluate the need for intercommunity service in the North County region. The City of Solvang was awarded an FTA Section 5311 planning grant to evaluate the need and feasibility for intercommunity transit service. The draft Northern Santa Barbara Intercommunity Transit Study was presented to the Santa Barbara County Association of Governments (SBCAG) Board at its January 21, 1999 meeting. The study, completed by Crain and Associates, identified intercommunity transit needs along two corridors, between Lompoc and Santa Maria and between Santa Ynez, Solvang, Buellton and Lompoc. A second study was conducted to further evaluate the need for intercommunity transit service in Northern Santa Barbara County. This study, completed by Moore and Associates in September 2001, found that there was insufficient demand to warrant fixed-route transit service between Lompoc and Santa Maria. Since the completion of these studies, interest in the service has grown considerably.

This growing interest led to further examination of an intercommunity service through the North County Intercommunity Transit Service Exploratory Proposal (ITSEP). The ITSEP was prepared by a subcommittee of the North County Transit Advisory Committee (NCTAC), and included representatives from Santa Maria Area Transit (SMAT), City of Lompoc Transit (COLT), the Santa Maria Organization of Transportation Helpers (SMOOTH), Vandenberg Air Force Base (VAFB), and SBCAG. The ITSEP was prepared at the direction of the SBCAG Board. At the 2002 Unmet Transit Needs Hearing, the Board determined that the intercommunity transit service between Lompoc and Santa Maria was an unmet need, but that it was not reasonable to meet. With the adoption of the 2003 Transit Needs Assessment, however, the Board approved the development of a three-year pilot program for North County intercommunity transit service, which would provide transit service between the communities of Lompoc, Santa Maria and Vandenberg Air Force Base. This corridor was seen as having the highest demand for intercommunity travel and being the most appropriate for trial service. The service parameters for the intercommunity transit service presented in this report are based upon the North County Intercommunity Transit Service Exploratory Proposal (ITSEP) and have been modified to incorporate comments received through public outreach and additional analysis. This document and its included recommendations will be referred to as the North County Intercommunity Transit Service Implementation Plan (ITSIP).
The ITSIP specifies the operating parameters for the new service which is to provide service between Lompoc, Vandenberg Air Force Base, and Santa Maria along the corridor defined by State Routes 1 and 135. Relevant operating parameters, which are discussed in detail in Chapter 1, include:

- Hours of service,
- Route alignment and bus stop locations,
- Frequency of service,
- Ridership projections,
- Service administration,
- Vehicle requirements,
- Service coordination, and
- Complementary paratransit service.

Due to requirements of the Congestion Mitigation & Air Quality (CMAQ) program and the California Air Resources Board (CARB), another chapter (Chapter 2) is devoted to appropriate vehicles for the service. The chapter includes information on relevant emission standards, characteristics of various fuel and vehicle technologies, and presents specific buses that could be used for the service.

Chapter 3 presents the financial outlook for the service. The chapter proposes a fare policy and identifies the capital needs for the service. The final component of this chapter is the budget for the pilot phase, which presents the capital and operating costs and revenues.

Chapter 4 details the public outreach efforts and presents information on how to market and evaluate the intercommunity service. The information in this chapter will be valuable to the service administrator when it comes time to promote the new service and track its performance.

It will become apparent in reviewing this plan that time is of the essence. There is strong, broadly based interest in having the intercommunity service start as soon as possible. In order for the intercommunity service to be operational as soon as possible, this plan must be approved and the CMAQ application completed. This will provide the necessary funds to initiate the service. At this point vehicles need to be procured and an operator needs to be selected. Capital needs - such as the installation of new bus stops – should also be high priorities. As was mentioned repeatedly by project stakeholders and the general public, marketing will be critical to the success of the intercommunity service and should start in advance of the actual service start date. The intercommunity service has been years in the making, it is time to put this plan in action!
CHAPTER ONE

OPERATIONAL PARAMETERS

This chapter outlines the operational parameters established by the ITSEP and the stakeholder comments on them. Each section concludes with recommendations based on the original proposal, public comments, additional analysis and operational constraints. These recommendations are a starting point for the service. Once the intercommunity service is operational, it will be important to evaluate the performance and make any necessary adjustments to the schedule, bus stop locations, or other operational parameters to address any issues that may arise.

1.1 Hours of Service

As presented in the preliminary implementation proposal, service would operate on weekdays between 5:45 AM and 6:45 PM. The vast majority of respondents thought that these hours of operation would meet the transportation demand in the corridor. A couple of respondents thought that later service should be considered, particularly for students and individuals who work late shifts. Service until 8:00 PM and 9:30 PM was suggested by two different respondents. Another respondent thought that weekend service would be valuable for medical appointments by social security recipients, while others noted that weekend service would not be necessary. Finally, one respondent thought that the proposed service span was appropriate but that a brief survey should be completed shortly after service implementation to see if any changes/modifications should be made to the schedule.

Recommendation

For the initial implementation of the intercommunity transit service, operate service between 5:45 AM and 6:25 PM. These hours should be sufficient to meet most transportation demand and will allow passengers to transfer to most local, fixed-route runs on Santa Maria Area Transit (SMAT) and City of Lompoc Transit (COLT). It should be noted that passengers will not be able to ride SMAT or COLT to catch the first two intercommunity runs because SMAT service does not begin until 6:15 AM and COLT service does not start until 6:30 AM.

1.2 Route Alignment and Proposed Bus Stop Locations

The route alignment for any bus service is necessarily constrained to the existing road network. For the intercommunity transit service, there are a limited number of routes between Lompoc and Santa Maria. Because VAFB is an important stop along the corridor between Lompoc and Santa Maria, the Highway 135 – Highway 1 corridor is the most appropriate alignment. The intercommunity transit service is a commute service, though it will serve two primary markets, commuters and general use passengers, who are expected to have different needs. Therefore, slightly different alignments may be appropriate for the peak-hour commute service and the midday, general use service.
Following is the original proposal for stops and alignments:

**Peak Service - Commute**

Begin at: Town Center Mall Transit Center (southbound)
Stops at: Santa Maria Airport  
Foster / Hwy 135  
Clark / Hwy 135 (park & ride lot)  
Vandenberg Air Force Base / Main Gate  
Highway 1 / Constellation (Vandenberg Village)
End at: Albertson’s Plaza Transit Center  

Begin at: Albertson’s Plaza Transit Center (northbound)
Stops at: Hwy 1 / Constellation (Vandenberg Village)  
Vandenberg Air Force Base / Main Gate  
Clark / Hwy 135 (park & ride lot)  
Foster / Hwy 135  
Santa Maria Airport
End at: Town Center Transit Center

**Off-peak Service - General**

Begin at: Town Center Transit Center (southbound)
Stops at: Betteravia Government Center  
Santa Maria Airport  
Foster / Hwy 135 (SB County social service offices)  
Clark / Hwy 135 (park & ride lot)  
Vandenberg Air Force Base / Main Gate  
Highway 1 / Constellation (Vandenberg Village)
End at: Albertson’s Plaza Transit Center  

Begin at: Albertson’s Plaza Transit Center (northbound)
Stops at: Hwy 1 / Constellation (Vandenberg Village)  
Vandenberg Air Force Base / Main Gate  
Clark / Hwy 135 (park & ride lot)  
Foster / Hwy 135 (SB County social service offices)  
Santa Maria Airport  
Betteravia Government Center
End at: Town Center Transit Center

Respondents seemed much less concerned about the route alignment than identifying desired bus stop locations. The route alignment will be established by connecting the largest activity centers with one
another, which is influenced in part by requests for service. Whenever possible, it was requested that existing COLT or SMAT bus stops be utilized for the intercommunity transit service to facilitate transfers. Project stakeholders and the general public have requested bus stops at the following locations:

- Allan Hancock College (Lompoc and Santa Maria campuses),
- Marian Medical Center,
- Betteravia County Government Center,
- Park & ride lot at Clark/Hwy 135,
- Santa Maria Town Center,
- Major shopping centers in Lompoc, such as Albertson’s,
- Vandenberg Village,
- Professional Parkway (just west of McCoy and Broadway in Santa Maria),
- North Ave/Laurel Ave/O St in Lompoc,
- Santa Maria and Lompoc clinics,
- Social security office/unemployment office in Santa Maria,
- Women’s Resource Center,
- VAFB,
- City Hall in Santa Maria, and
- Santa Maria Airport.

Although many of these stops are included in the proposed service plan, the primary reasons why some suggested stops are not recommended for inclusion in the implemented service are that they are:

- Located too far from the main alignment,
- Not major trip generators for this type of service, and
- Served by existing local service and can be reached via a transfer.

Keeping these issues in mind, it is important to remember that the focus of the intercommunity service is to transport passengers between Santa Maria, VAFB, and Lompoc – not to connect riders to various destinations within each service area. It is expected that passengers will transfer to the local city transit systems in order to access many of the destinations listed above.

**Recommendation**

While it is very important that the intercommunity transit service be accessible to all potential passengers, it is also important to remember that additional stops increase the route’s running time, making the service less attractive to commuters. Therefore, it is recommended that a limited number of stops be
planned for each major destination (Lompoc, VAFB, and Santa Maria). In addition, planned stops should be as close as possible to the main alignment to minimize travel time. Some comments suggested that certain stops only be served in one direction due to the perceived demand for service. Providing service in only one direction is problematic as passengers are only able to access the intercommunity service on one leg of a roundtrip. Therefore, it is recommended that all stops be served in both directions. Table 1-1 summarizes the list of recommended bus stops for the initiation of peak and off-peak service. Once the service is in operation and the preferences of the riders are better understood, stop locations may be modified as needed.

Due to considerable interest in connecting the intercommunity service to Hancock College (Santa Maria campus), it is recommended that express routes be considered to provide a direct connection for passengers traveling between the Town Center Mall Transit Center and the Hancock College Santa Maria campus. It should be noted that passengers can already access Hancock College using two existing SMAT routes (Route 5 and 7). Prior to implementing any new service, these routes should be evaluated for their ability to provide reasonable connections to and from the intercommunity service. If the connections are unsatisfactory, a partnership should be explored between the intercommunity transit service, the cities of Santa Maria and Lompoc, and Hancock College to improve this important connection.

Table 1-1 Recommended Bus Stops, Peak and Off-Peak

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<thead>
<tr>
<th>Peak Bus Stops</th>
<th>Off-peak Bus Stops</th>
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<tr>
<td>Albertson’s Plaza Transit Center</td>
<td>Albertson’s Plaza Transit Center</td>
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<tr>
<td>Highway 1/Constellation Rd (Vandenberg Village)</td>
<td>Highway 1/Constellation Rd (Vandenberg Village)</td>
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<tr>
<td>VAFB, Main Gate</td>
<td>VAFB, Main Gate</td>
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<tr>
<td>Clark/Hwy 135 (park &amp; ride lot)</td>
<td>Clark/Hwy 135 (park &amp; ride lot)</td>
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<td>Foster/Hwy 135</td>
<td>Foster/Hwy 135</td>
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<tr>
<td>Santa Maria Airport</td>
<td>Santa Maria Airport</td>
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<td>Professional Parkway/McCoy</td>
<td>Professional Parkway/McCoy</td>
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<tr>
<td>Crossroads II, Stowell/Enos</td>
<td>Betteravia County Government Center</td>
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</tbody>
</table>

Figures 1-1 and 1-2 present the proposed alignment for peak and off-peak runs, respectively. Note that the alignment deviates from Hwy 1 at VAFB. Due to heavy congestion at the base’s main gate, the short-term solution is for the intercommunity buses to turn off Hwy 1 to allow passengers to transfer between the intercommunity service and the Vandenbergh shuttle on Lompoc Casmalia Road. In the long term, VAFB plans to build a small bypass off of Hwy 1, prior to the gate, with bus shelters and a pedestrian crossing. Until that construction is complete, the alignment requires that northbound buses make a left turn onto Hwy 1 from Fire Fighter’s Road. Site visits and input from VAFB support that this temporary solution will not pose a safety hazard or cause significant running time delays.
Figure 1-1 Proposed Peak-Hour (Commute) Alignment
Figure 1-2 Proposed Off-Peak (General Use) Alignment
1.3 Frequency of Service

The schedule developed in the preliminary implementation proposal was designed to serve two primary markets: commuters and general users. Two of the round trips planned each day target the midday/general use passenger, while the bulk of the trips are oriented towards the commuter market.

Table 1-2 presents the schedule from the preliminary implementation proposal.

<table>
<thead>
<tr>
<th>(Departure)</th>
<th>Vandenberg AFB (Main Gate)</th>
<th>(Arrival)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town Center – Santa Maria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Commuter)</td>
<td>5:45 AM</td>
<td>6:30 AM</td>
</tr>
<tr>
<td>(Commuter)</td>
<td>6:15 AM</td>
<td>7:00 AM</td>
</tr>
<tr>
<td>(General use)</td>
<td>12:30 PM</td>
<td>12:45 PM</td>
</tr>
<tr>
<td>(General use)</td>
<td>3:30 PM</td>
<td>4:15 PM</td>
</tr>
<tr>
<td>(Commuter)</td>
<td>3:45 PM</td>
<td>4:30 PM</td>
</tr>
<tr>
<td>(Commuter)</td>
<td>4:15 PM</td>
<td>5:00 PM</td>
</tr>
<tr>
<td>(Commuter)</td>
<td>5:45 PM</td>
<td>6:30 PM</td>
</tr>
<tr>
<td>Albertson’s Plaza – Lompoc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Commuter)</td>
<td>6:15 AM</td>
<td>6:30 AM</td>
</tr>
<tr>
<td>(Commuter)</td>
<td>6:45 AM</td>
<td>7:00 AM</td>
</tr>
<tr>
<td>(General use)</td>
<td>8:30 AM</td>
<td>8:45 AM</td>
</tr>
<tr>
<td>(General use)</td>
<td>11:30 AM</td>
<td>11:45 PM</td>
</tr>
<tr>
<td>(Commuter)</td>
<td>4:15 PM</td>
<td>4:30 PM</td>
</tr>
<tr>
<td>(Commuter)</td>
<td>4:45 PM</td>
<td>5:00 PM</td>
</tr>
<tr>
<td>(Commuter)</td>
<td>5:45 PM</td>
<td>6:00 PM</td>
</tr>
</tbody>
</table>

A variety of responses were received regarding the ideal frequency for the new service. The most commonly requested frequency was hourly, bi-directional service. One respondent did request service operating on 15 to 30-minute headways during peak commute periods and thought that service every few hours during the midday would be sufficient. Stakeholders emphasized that regardless of the service frequency, the schedule must be coordinated with local SMAT and COLT routes to allow for seamless transfers.

Since VAFB is expected to be a significant trip generator, the primary shift times are important variables in establishing the schedule for the intercommunity transit service. Through the VAFB Commuter Survey (completed in 2002) and conversations with VAFB staff, it has been learned that most shifts begin between 7:00 AM and 7:30 AM and end between 3:30 PM and 4:00 PM. Since it could take passengers as much as 25 minutes on the VAFB shuttle to reach their final destination on the base, it is necessary to
have these passengers at the main gate no later than 6:30 AM and 7:00 AM, respectively. Similarly, it is necessary to have the northbound and southbound intercommunity routes serve the main gate at approximately 4:00 PM and 4:30 PM for the afternoon commute.

Demand for service between Santa Maria and Lompoc is expected to be highest northbound in the morning and southbound in the afternoon. Because many passengers’ final destination is not at a bus stop, it is important that the intercommunity service schedule coincide as much as possible with common shifts and schedules – whether they be local fixed routes, work schedules, airport departures, or the start of court in Santa Maria. Input from community stakeholders has suggested that many employees in the area start work between 7:00 and 8:00 AM. Regularly scheduled commercial flights at Santa Maria Airport (SMX) are listed in Table 1-3. As shown in that table, there are six daily flights to Los Angeles (LAX) and six daily flights from LAX. Coordination with other transit services is discussed in more detail below, in section 1.7.

Table 1-3 SMX Flight Schedule to/from Los Angeles

<table>
<thead>
<tr>
<th>Departures to LAX</th>
<th>Arrivals from LAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:55 AM</td>
<td>9:15 AM</td>
</tr>
<tr>
<td>10:40 AM</td>
<td>11:04 AM</td>
</tr>
<tr>
<td>12:15 PM</td>
<td>1:45 PM</td>
</tr>
<tr>
<td>4:20 PM</td>
<td>4:25 PM</td>
</tr>
<tr>
<td>5:50 PM</td>
<td>6:15 PM</td>
</tr>
<tr>
<td>7:55 PM</td>
<td>10:30 PM</td>
</tr>
</tbody>
</table>

Recommendation

Based on the issues discussed above, it is recommended that the intercommunity service adopt the schedules presented in Tables 1-4 and 1-5. Table 1-4 illustrates the schedule for southbound service – where there are two commuter runs in the morning, two general use runs in the midday, and four commuter runs in the afternoon. Table 1-5 illustrates the schedule for northbound service – where there are two commuter runs and two general use runs in the morning, and three commuter runs in the afternoon. The proposed schedules are based on run cutting data collected by SMAT staff and have been supplemented with data collected by the consultant.

### Table 1-4 Weekday Schedule - Southbound Santa Maria to Lompoc

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Town Center Mall Transit Center</th>
<th>SB County Gov’t Center</th>
<th>Santa Maria Airport</th>
<th>Foster Road</th>
<th>Clark Avenue Park-and-Ride</th>
<th>VAFB</th>
<th>Vandenberg Village</th>
<th>Albertson’s Plaza – Lompoc Transit Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Commuter</td>
<td>5:45</td>
<td>-</td>
<td>6:00</td>
<td>6:05</td>
<td>6:08</td>
<td>6:25</td>
<td>6:33</td>
<td>6:40</td>
</tr>
<tr>
<td>AM Commuter</td>
<td>6:20</td>
<td>-</td>
<td>6:35</td>
<td>6:40</td>
<td>6:43</td>
<td>7:00</td>
<td>7:08</td>
<td>7:15</td>
</tr>
<tr>
<td>General Use</td>
<td>12:45</td>
<td>12:52</td>
<td>1:00</td>
<td>1:05</td>
<td>1:08</td>
<td>1:25</td>
<td>1:33</td>
<td>1:40</td>
</tr>
<tr>
<td>PM Commuter</td>
<td>3:20</td>
<td>-</td>
<td>3:35</td>
<td>3:40</td>
<td>3:43</td>
<td>4:00</td>
<td>4:08</td>
<td>4:15</td>
</tr>
<tr>
<td>PM Commuter</td>
<td>4:50</td>
<td>-</td>
<td>5:05</td>
<td>5:10</td>
<td>5:13</td>
<td>5:30</td>
<td>5:38</td>
<td>5:45</td>
</tr>
<tr>
<td>PM Commuter</td>
<td>5:20</td>
<td>-</td>
<td>5:35</td>
<td>5:40</td>
<td>5:43</td>
<td>6:00</td>
<td>6:08</td>
<td>6:15</td>
</tr>
</tbody>
</table>

*Bold italics = Vehicle 1; Regular text = Vehicle 2; Italics = Vehicle 3.*
Table 1-5 Weekday Schedule - Northbound Lompoc to Santa Maria

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Albertson’s Plaza – Lompoc Transit Center</th>
<th>Vandenberg Village</th>
<th>VAFB</th>
<th>Clark Avenue Park-and-Ride</th>
<th>Foster Road</th>
<th>Santa Maria Airport</th>
<th>SB County Gov’t Center</th>
<th>Town Center Mall Transit Center</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AM Commuter</strong></td>
<td>6:45</td>
<td>6:52</td>
<td>7:00</td>
<td>7:17</td>
<td>7:20</td>
<td>7:25</td>
<td>-</td>
<td>7:40</td>
</tr>
<tr>
<td>General Use</td>
<td>8:45</td>
<td>8:52</td>
<td>9:00</td>
<td>9:17</td>
<td>9:20</td>
<td>9:25</td>
<td>9:33</td>
<td>9:40</td>
</tr>
<tr>
<td>General Use</td>
<td>11:45</td>
<td>11:52</td>
<td>12:00</td>
<td>12:17</td>
<td>12:20</td>
<td>12:25</td>
<td>12:33</td>
<td>12:40</td>
</tr>
<tr>
<td>PM Commuter</td>
<td>3:45</td>
<td>3:52</td>
<td>4:00</td>
<td>4:17</td>
<td>4:20</td>
<td>4:25</td>
<td>-</td>
<td>4:40</td>
</tr>
<tr>
<td><strong>PM Commuter</strong></td>
<td>4:20</td>
<td>4:27</td>
<td>4:35</td>
<td>4:52</td>
<td>4:55</td>
<td>5:00</td>
<td>-</td>
<td>5:15</td>
</tr>
<tr>
<td><strong>PM Commuter</strong></td>
<td>5:30</td>
<td>5:37</td>
<td>5:45</td>
<td>6:02</td>
<td>6:05</td>
<td>6:10</td>
<td>-</td>
<td>6:25</td>
</tr>
</tbody>
</table>

*Bold italics = Vehicle 1; Regular text = Vehicle 2; Regular italics = Vehicle 3.*

Based upon the schedules presented above, Table 1-6 presents the proposed driver shifts for the intercommunity transit service. Due to the emphasis on service during commute times, it is only possible to schedule one continuous shift for a full-time driver. Two of the shifts are split shifts and the final is a part-time shift. The proposed driver shifts will result in a daily total of 21.5 service hours and an annual total of 5,480 hours.²

² This is based on operating service 255 days a year, which assumes that there will be five holidays each year when service is not operated.
Table 1-6 Proposed Driver Shifts

<table>
<thead>
<tr>
<th>Shift</th>
<th>Hours</th>
<th>Span (shift hours)</th>
<th>Runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>3:15 PM – 6:00 PM</td>
<td>L-SM: 3:45 PM – 4:40 PM; SM-L: 4:50 PM – 5:45 PM</td>
</tr>
<tr>
<td>Summary</td>
<td>21.5 hours</td>
<td>5:15 AM – 6:45 PM</td>
<td>15 runs</td>
</tr>
</tbody>
</table>

1.4 Ridership Projections

Understanding how many riders are expected to use this service is integral to developing revenue projections and to validating how many buses will be needed to operate the service. Table 1-7 presents the ridership projections developed in the ITSEP.

Table 1-7 ITSEP Ridership Projections

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ridership (Commuter – round trip)</td>
<td>1,460 / month</td>
<td>1,760 / month</td>
<td>2,040 / month</td>
</tr>
<tr>
<td>Ridership (General use – round trip)</td>
<td>60 / month</td>
<td>70 / month</td>
<td>80 / month</td>
</tr>
<tr>
<td>Total Ridership (round trip)</td>
<td>1,520 / month</td>
<td>1,830 / month</td>
<td>2,120 / month</td>
</tr>
</tbody>
</table>

A final ridership projection for this service has been completed based on anticipated demand and recent performance of local peer transit services. Based upon these ridership projections, it is expected that the service will be able to collect 10% of its operating costs from fares in its first year of operation, 15% in its second, and 20% by the third year of the pilot phase. Two local peer transit services were selected to
assist in the development of ridership projections for the intercommunity service. The peer systems are discussed briefly below.

- **Clean Air Express** – This service is a commuter subscription service. As a subscription service, these routes have a fairly stable, consistent ridership from day to day. The drawback of using this service as a peer is that access to the route is limited to service subscribers. Nonetheless, as an intercommunity route serving both Lompoc and Santa Maria, it is a valid peer service. In calendar year 2003, the Clean Air Express carried an average of 21.6 passengers per hour.

- **Central Coast Area Transit Route 10** – This service, which is administered by the Regional Transit Authority, provides intercommunity transit service between San Luis Obispo and Santa Maria, making it a reasonable peer service. However, it is important to note that this intercommunity route makes a number of local stops, which increases the running time. For instance, on all but two express trips per day, it takes over 1 ½ hours to complete a trip on the Route 10 while it can be driven in just over a ½ hour in a private automobile. Route 10 carried an average of 8.7 passengers per hour in fiscal year 2003.

Other evidence corroborating interest in intercommunity service was provided by the surveys conducted as part of the annual unmet needs assessment. A commuter survey of employees at VAFB revealed a strong interest in the service – with 33% of the respondents who live in the Lompoc and Santa Maria areas expressing interest in public transportation. In projecting the demand for ridership to and from VAFB, it is also important to consider the impact of Executive Order 13150, which was issued by President Clinton on April 21, 2000. The order directs federal agencies to create fringe benefit programs that expand commuting alternatives and reduce federal employees’ contribution to traffic congestion and air pollution. VAFB military personnel and civilian employees are eligible to sign up for this program, which reimburses participants for up to $100 a month for taking public transportation to and from work. Assuming this program is properly marketed to the VAFB community, it is expected that there will be considerable interest from this market segment.

**Recommendation**

The ridership forecasts developed for this plan (see Table 1-8) are demonstrably higher than the ITSEP projections. These revised ridership figures include a significant number of riders associated with VAFB – who will largely travel during the morning and afternoon time periods. Due to anticipated demand to and from VAFB, only 15% of the service’s ridership is expected to occur during the midday. The remaining 85% of the projected ridership is expected to be split equally between the morning and afternoon periods – reflecting that most of these peak period trips are two-way commute trips. In its third year of service (FY 2006/2007), the intercommunity route is expected to carry 4,730 monthly passenger trips – which meets the TDA standard of a 20% farebox recovery ratio and results in an average of 10.4 passengers/revenue-hour.
Table 1-8 Final Ridership Projections

<table>
<thead>
<tr>
<th></th>
<th>Monthly Ridership, Unlinked Passenger Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Morning</strong></td>
<td></td>
</tr>
<tr>
<td>(5:45 AM – 7:40 AM)</td>
<td>1,054</td>
</tr>
<tr>
<td><strong>Midday</strong></td>
<td></td>
</tr>
<tr>
<td>(8:45 AM – 1:40 PM)</td>
<td>372</td>
</tr>
<tr>
<td><strong>Afternoon/Evening</strong></td>
<td></td>
</tr>
<tr>
<td>(3:20 PM – 6:25 PM)</td>
<td>1,054</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,480</strong></td>
</tr>
</tbody>
</table>

In addition to being consistent with expected fare revenues, these projections are consistent with the performance of service peers. The rate of 10.4 passengers/revenue hour is moderately higher than the performance of CCAT Route 10. This is reasonable when considering that the intercommunity service will have fewer stops and higher operating speeds. In contrast, Clean Air Express experiences better performance because it provides an even higher level of service than the intercommunity route and it relies on subscriptions, which are a more stable ridership base.

Other facets of the implementation plan, such as vehicle requirements and farebox recovery considerations, will rely on these ridership projections.

1.5 Service Administration

The ITSEP did not specify which agency would administer the intercommunity service, although it did stipulate that the advisory committee would provide ongoing technical support through the staffs at the cities of Lompoc and Santa Maria, Santa Barbara County, SBCAG, and Caltrans. The original proposal did anticipate that operation of the service would be contracted out to a private operator.

Four different organizational alternatives have been considered for the administration of the intercommunity transit service, they are:

- City transit system (COLT or SMAT),
- Santa Barbara County Department of Public Works,
- Santa Barbara County Association of Governments (SBCAG), and
- Joint powers agreement/agency (JPA).

Appendix A contains the complete discussion of these administrative alternatives. In evaluating the possible administrators, each organization considered was asked how the administrative needs of the service could be met by their organization. To assist this process, a sample organization chart was developed to clarify the range of administrative needs. Figure 1-3 shows this organization chart, which
describes the anticipated responsibilities organized by each functional area (operations, planning, marketing, etc.) for the new transit service. This process was expected to illuminate any advantages through existing systems, resources or economies of scale that would facilitate a particular organization’s ability to run the service.

**Figure 1-3 Functional Organization Chart**

As a result of this evaluation, it was determined that the cities of Lompoc and Santa Maria are best positioned to administer the intercommunity transit service in the short term. The primary rational for this conclusion is that both cities already administer local transit service. This experience and knowledge of operations, marketing, contract administration, and funding issues is invaluable. Using SMAT or COLT as the service administrator is the closest alternative to the status quo, as it relies on existing governmental entities that currently provide transit services. Delay in implementing the intercommunity service can be minimized because COLT and SMAT have policies and procedures in place for initiating new service. Another clear advantage to this alternative is that coordination between the new intercommunity service and existing local service will be quite easy.

There are also important financial considerations associated with the provision of the intercommunity service. Although the intent is to keep all of the operating and financial information on the intercommunity service separate from the administering agency, there is limited direction from the language of the Transportation Development Act on whether or not this is possible. Discussions with Caltrans are ongoing to ascertain how the intercommunity service will be treated with regards to TDA. The service administrator should maintain this contact to understand the service’s requirements as they are determined. If the intercommunity service is treated independently from the administrator’s service or if it is considered an extension of services, it will have three years to reach the TDA goal of a 20% farebox recovery ratio. However, if for some reason the service is included as a route within the administrator’s system, it would impact the system’s overall farebox revenues. Depending upon its success, it could adversely impact the systemwide farebox recovery ratio and jeopardize the transit system’s eligibility for TDA funding if the systemwide farebox recovery ratio were to drop below 20%. Although possible,
having the intercommunity service treated as one of the administrator’s routes appears to be the least likely scenario.

**Recommendation**

As illustrated by the discussion above, to facilitate the rapid deployment of the intercommunity service either the City of Santa Maria or the City of Lompoc should be made the service administrator. Further, between these two options, Santa Maria appears to be the most appropriate choice for the following reasons:

- SMAT has a larger fleet of vehicles, three or four additional buses would be a marginal increase for them,
- SMAT already operates, maintains, and has storage facilities for full-size buses,
- Upcoming service changes will allow SMAT to fully integrate the intercommunity service with its local service,
- All but three of the proposed ten intercommunity bus stops are within the SMAT service area which should facilitate transfer opportunities between the local and regional services, and
- SMAT is simply more experienced with the ongoing operation, administration, funding, and regulation of a mid-sized fleet of urban buses.

In addition to appointing the City of Santa Maria as the service administrator, a memorandum of understanding/responsibility (MOU) should be drafted and signed by all member jurisdictions to clarify their roles in administering, financing, and operating this service. In particular, it is vital that the MOU specify the financial commitment of each member agency and include automatic adjustments for the changing cost of fuel, insurance and similar operating costs. This arrangement – with a city operator and an MOU among member agencies, will be the simplest solution for the pilot service.

The progress of the intercommunity service should be evaluated continuously to inform adjustments to improve service provision and respond to ridership demand. After two years, the viability of the service will be evaluated to decide if the service should continue beyond the third year of operation. If the service is found to be viable, it is recommended that consideration be given to creating a regional Joint Powers Agreement (JPA) as the long-term arrangement for providing regional transit service. At this time, service expansion along additional corridors, such as between Santa Ynez, Solvang, Buellton, and Lompoc, can be considered as well.
1.6 Vehicle Requirements

Vehicle requirements for the new service need to address the following issues:

- Number of vehicles (including spares),
- Type of vehicle,
- Vehicle size,
- Fuel type,
- Interior configuration, and
- Operating capabilities, including range and power.

During public outreach, individuals requested that the intercommunity buses include the following:

- Storage space for luggage, baby strollers, packages, etc.
- Fully equipped bike racks,
- Comfortable seats, and
- A seating arrangement that is easy to navigate.

The original service proposal anticipated the need for four thirty-five foot, low-floor transit vehicles. Due to scheduling requirements and anticipated passenger demand (see Table 1-7), three 35’ to 40’ vehicles will be needed to operate the service. Even the most robust vehicles have occasional mechanical problems, making the availability of a spare vehicle a near necessity. This would give the service a spare to vehicle ratio of 33% (1 spare / 3 peak vehicles). If the service is in fact operated by SMAT, it is possible that a fourth vehicle need not be purchased because a vehicle from the existing fleet could serve the occasional needs for a spare. Using an existing vehicle as a spare would only be a problem if the intercommunity vehicles have a special color scheme – distinguishing them from the local service.3

The type of vehicle and its configuration should be chosen to best meet the needs of the service’s expected riders. Two types of vehicles that could be used for the service are over the road coaches, similar to those used by Greyhound, and urban buses, like those used by SMAT. Although an over the road coach may improve the comfort of commuters traveling long distances, it would increase dwell times at popular stops (by restricting boarding and alighting to one door) and limit the functionality of the vehicle for other trip purposes. In addition to shorter dwell times, an added benefit of urban buses is the increased flexibility of the interior configuration – to balance the need for seats, wheelchair locations, and storage. The service will provide transportation to the airport and possibly for passengers traveling with groceries.

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3 Agencies that use branding for different transit services, such as GO Boulder, use what they call ‘vanilla’ buses, or those with no color scheme at all, as spare vehicles.
or other parcels, although this is generally not a common use for an intercommunity transit service. Due
to limitations of the proposed schedule to coordinate with flights at SMX, the higher, more consistent
demand for seats will exceed the lower, sporadic demand for large storage areas.

Finally, the operating capabilities of the vehicles are dictated by the service’s proposed alignment. Of
particular importance are the length of the route, which is roughly 27 miles one-way, and the presence of
significant and prolonged grades. According to the service schedule the buses should have a minimum
range of 175 miles before they need refueling. Along the route, the primary concern is that the bus be able
to climb Fire Fighter’s Hill on Highway 1 between VAFB and Santa Maria. Although the grade does not
exceed 6%, it is prolonged and could pose problems for some buses and engines.

Please refer to the next chapter for additional discussion about appropriate vehicles for the service.

**Recommendation**

Based on the need for three, regular-service vehicles and one spare, four vehicles should be procured for
the provision of the intercommunity service. However, if SMAT operates the service and has a sufficient
number of spare vehicles, only three vehicles could be procured.

As an intercommunity service with a limited number of stops and demand for high operating speeds, a
low floor, urban bus that is 32’ to 40’ in length is the most appropriate vehicle for the service. Generally,
there is a marginal cost associated with a larger bus; however, larger buses are also heavier which could
cause problems in climbing Fire Fighter’s Hill on Highway 1. The vehicle should have a standard
configuration that accommodates two wheelchairs and primarily forward facing seats. Comfortable,
padded seats are a priority as passengers could be on the bus for close to an hour. It is recommended that
all vehicles be equipped with bike racks and storage for luggage or other packages. Storage space can be
installed over the wheel well or overhead where it will not impact seating capacity. Installing flip seats in
the wheelchair tie-down areas will maximize seating capacity while providing additional flexibility to
accommodate strollers or large bags. Finally, as suggested above, the vehicles should have a minimum
range of 175 miles before they need refueling and be able to climb Fire Fighter’s Hill.

1.7 **Service Coordination**

Providing the highest quality service necessitates that passengers be able to expand their travel through
the use of local transit services, which includes Santa Maria Area Transit (SMAT) and City of Lompoc
Transit (COLT) as well as the shuttle service that VAFB will operate. It should be noted that VAFB plans
to operate the shuttle service to meet all intercommunity transit runs. To the degree that it is possible, the
intercommunity transit service will be coordinated with local transit service.
There are two major challenges to coordinating the intercommunity service with local transit service in Santa Maria and Lompoc, which are that:

- SMAT does not have the capacity to accommodate an additional bus at the Town Center Mall Transit Center when all of its routes are serving it (15 minutes after the hour, and 15 minutes before the hour)
- Lompoc’s routes do not pulse at the Albertson’s Plaza transit center.

If the capacity constraint in Santa Maria is resolved then it will be fairly straightforward to facilitate timed transfers between the intercommunity service and local SMAT service. If this issue is not resolved, then only passengers traveling in one direction can be accommodated with timed transfers. In the case of Lompoc, the fact that their routes do not pulse at Albertson’s Plaza, means that the intercommunity service will only interface with two routes at best. Because heavier ridership is anticipated in Santa Maria, which COLT route coincides with the arrival/departure of the intercommunity service will be dictated primarily by the time that the route interfaces with SMAT at its transit center. For reference, Table 1-9 lists the arrival times for COLT routes at Albertson’s Plaza.

<table>
<thead>
<tr>
<th>Route</th>
<th>Morning</th>
<th>Afternoon/Evening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 1</td>
<td>:17 and :47</td>
<td>:23 and :53</td>
</tr>
<tr>
<td>Route 2</td>
<td>:10 and :40</td>
<td>:16 and :46</td>
</tr>
<tr>
<td>Route 3</td>
<td>:09 and :39</td>
<td>:15 and :45</td>
</tr>
<tr>
<td>Route 4</td>
<td>:47</td>
<td>:21</td>
</tr>
<tr>
<td>Route 5</td>
<td>:00 and :30</td>
<td>:00 and :30</td>
</tr>
</tbody>
</table>

Another coordination issue is whether or not passengers will be required to pay in order to transfer between local transit systems and the intercommunity service. The recommended transfer policy is addressed in section 3.1.

1.8 Complementary Paratransit Service

The intercommunity transit service is a commuter service and is therefore not required to provide complementary paratransit service\(^4\) according to the Americans with Disabilities Act of 1990 (ADA). Comparable services, such as the Clean Air Express and Coastal Express, are commuter services and do not provide complementary paratransit service. Although the intercommunity transit service will provide limited general use service (not to exceed four runs) during the midday, it remains an intercommunity commuter service which happens to provide a public service to general use ridership during non-peak hours. This is similar to the service model of the Coastal Express service.

---

\(^4\) All public entities operating fixed route service are required to provide paratransit service to individuals with disabilities, that is comparable to the level of service provided to users of the fixed route service. However, these requirements do not apply to commuter bus, commuter rail, or intercity rail systems.
CHAPTER TWO

VEHICLE CHARACTERISTICS

Chapter 1 established that the most appropriate bus for the intercommunity service is a 35’ to 40’ urban bus that has a range of at least 175 miles and is able to climb Fire Fighter’s Hill at a reasonable speed. Once the service characteristics and bus types for the intercommunity service have been established, the primary factors for choosing among vehicles meeting those criteria are: whether the vehicle meets engine and fuel emission standards established by the California Air Resources Board (CARB), vehicle cost, and the availability of vehicles.

This chapter outlines relevant emission standards, compares the major fuel and vehicle technologies for heavy-duty transit service, and presents specific vehicles that are options for the intercommunity service.

2.1 Emissions Standards

A major factor limiting the choice of fuel type and vehicles for the intercommunity service is California’s stringent emission standards. Currently, there are three major regulations which impact transit vehicle selection – engine emission standards, transit fleet standards, and fuel standards. According to CARB, the intercommunity service may be treated as a distinct service, independent from the vehicle fleet of the service’s administrator. Because this arrangement is a unique, the service administrator will need to work closely with CARB to ensure that the individual vehicles and fleet meet the relevant standards.

Table 2-1 outlines California’s current emissions standards for heavy-duty urban buses and Table 2-2 summarizes the fleet rule for transit agencies. Excerpts from the relevant sections of the California Code of Regulations (CCR) are included in Appendix B for those interested in more detail. Although it will be discussed again in the subsequent section, it is worth noting here that no diesel-fueled engines have been certified to meet the 2004 emission standard. This means that at this time only alternative fuel buses or previous model years’ diesel buses that meet the applicable emission standards can be used for the intercommunity service.
Table 2-1 Exhaust Emission Standards for Heavy-Duty Urban Bus Engines and Vehicles

<table>
<thead>
<tr>
<th>Regulated Pollutant⁴</th>
<th>2003</th>
<th>2004-2006¹</th>
<th>2004-2006² Diesel-fueled urban bus engines</th>
<th>2007 and on ³</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC or OMHCE</td>
<td>1.3 g/bhp-hr</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>NMHC</td>
<td>1.2 g/bhp-hr</td>
<td>--</td>
<td>0.05 g/bhp-hr</td>
<td>0.05 g/bhp-hr</td>
</tr>
<tr>
<td>CO</td>
<td>15.5 g/bhp-hr</td>
<td>15.5 g/bhp-hr</td>
<td>5.0 g/bhp-hr</td>
<td>5.0 g/bhp-hr</td>
</tr>
<tr>
<td>NOx</td>
<td>4.0 g/bhp-hr</td>
<td>--</td>
<td>0.5 g/bhp-hr</td>
<td>0.2 g/bhp-hr</td>
</tr>
<tr>
<td>PM</td>
<td>0.05 g/bhp-hr</td>
<td>0.05 g/bhp-hr</td>
<td>0.01 g/bhp-hr</td>
<td>0.01 g/bhp-hr</td>
</tr>
<tr>
<td>NOx+NMHC</td>
<td>--</td>
<td>2.4 g/bhp</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>PM</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>--</td>
<td>--</td>
<td>0.01 g/bhp-hr</td>
<td>0.01 g/bhp-hr</td>
</tr>
</tbody>
</table>

Optional Standard

| NOx+NMHC            | 1.8 g/bhp-hr | 2.5 g/bhp-hr | --                                       | --            |
| PM                  | 0.01 g/bhp-hr | --         | --                                       | --            |
| NMHC                | --           | max of 0.5 g/bhp-hr | --                                       | --            |

Notes: Units of g/bhp-hr are grams per brake horsepower-hour. Relevant sections of Title 13 CCR: ⁴ 1956.1(a)(10), ² 1956.1(a)(11), and ³ 1956.1(a)(12).

Adding to the already complex emission standards is the fact that modifications to the existing standards have been proposed. The goals of the proposed changes are to harmonize the state and federal standards for 2007 and beyond model year buses, promote innovative ways to reduce emissions, and apply more rigorous emissions standards to buses previously exempt. The text of the proposed changes (which are subject to change before adoption) is included in Appendix C. If adopted, these changes could introduce:

- An optional standard for 2004-2006 model year, diesel-fueled urban buses,⁵
- A new standard for innovative technologies – possibly allowing for the use of hybrid-electric diesel buses, and
- Fleet emission standards for non-urban buses.

Following a 45-day comment period prior to the Air Resources Board’s June hearing, it is expected that final changes will be adopted and then submitted to the Office of Administrative Law to review and adopt into law within one year. CARB expects to release a staff report in May 2004 on the new regulations. As far as the intercommunity service is concerned, CARB will treat it as its own standalone service for regulatory purposes. The NOx standard will be 4.8 g/bhp-hr or less for the service. CARB has not made a ruling on establishing the PM baseline for a new standalone transit service. However, CARB staff is

⁵ The proposed optional standard is 1.2 g/bhp-hr of NOx+NMHC and 0.01 g/bhp-hr of PM.
working on this issue and will likely address it with draft regulations in the coming months. It is recommended that the administering agency monitor proposed changes to CARB emission standards and regulations and comment on them as appropriate.

### Table 2-2 Fleet Rule for Transit Agencies

<table>
<thead>
<tr>
<th>Regulated Pollutant</th>
<th>Diesel Fuel Path Fleet Average</th>
<th>Alternative Fuel Path Fleet Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>4.8 g/bhp-hr</td>
<td>4.8 g/bhp-hr</td>
</tr>
<tr>
<td>PM Standard</td>
<td>--</td>
<td>0.03 g/bhp-hr</td>
</tr>
</tbody>
</table>

**Diesel-fueled bus standards**

<table>
<thead>
<tr>
<th>Regulated Pollutant</th>
<th>Diesel Fuel Path Fleet Average</th>
<th>Alternative Fuel Path Fleet Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMHC</td>
<td>0.05 g/bhp-hr</td>
<td>0.05 g/bhp-hr</td>
</tr>
<tr>
<td>CO</td>
<td>5.0 g/bhp-hr</td>
<td>5.0 g/bhp-hr</td>
</tr>
<tr>
<td>NOx</td>
<td>0.5 g/bhp-hr</td>
<td>0.5 g/bhp-hr</td>
</tr>
<tr>
<td>PM</td>
<td>0.01 g/bhp-hr</td>
<td>0.01 g/bhp-hr</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0.01 g/bhp-hr</td>
<td>0.01 g/bhp-hr</td>
</tr>
</tbody>
</table>

**Fuel sulfur content**

- Diesel-fueled buses: 15 ppm
- Alternative-fuel buses: 15 ppm

**PM diesel engine retrofit schedule**

<table>
<thead>
<tr>
<th>Model Year</th>
<th>Pre-1990 model year</th>
<th>1991-95 model year</th>
<th>1996-2002 model year</th>
<th>% of alternative-fuel buses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>to 0.10 g/bhp-hr by Jan 2003</td>
<td>50% by Jan 2003</td>
<td>20% by Jan 2005</td>
<td>85% through MY 2016</td>
</tr>
<tr>
<td></td>
<td>100% by Jan 2004</td>
<td>100% by Jan 2004</td>
<td>75% by Jan 2006</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100% by Jan 2007</td>
<td>100% by Jan 2007</td>
<td>75% by Jan 2008</td>
<td></td>
</tr>
</tbody>
</table>

1 Urban buses owned, operated, or leased by the transit agency. [1965.2(e)(1), Title 13 CCR]

2 Except for transit agencies with less than 20 vehicles in active fleet and operate in a federal one-hour ozone attainment area, then Jan 2007.

3 By July 1 2002, except for transit agencies with less than 20 vehicles in active fleet and operate in a federal one-hour ozone attainment area, then fuel must be used by July 1, 2006.

### 2.2 Vehicle Fuels and Technology

Taking into consideration the operational requirements for the service, discussions with vehicle vendors, and input from the advisory committee, the fuels and technologies that will best meet the needs for the intercommunity service are: clean diesel, propane, and hybrid-electric (gas). The information presented here compares various characteristics of these three fuel/technology combinations. Other fuel/technology combinations that were considered include: biodiesel, fuel cells, methanol/ethanol, and natural gas. Additional information on these fuel/technology combinations is provided in Appendix D. Electricity was not considered due to the lack of full-size (35’ to 40’) buses with the range to operate the service.
Additional detail on the emission, performance, and infrastructure requirements for all of the fuel/technology combinations is provided in Appendix D.

Of the three viable alternatives for the intercommunity transit service:

- Clean diesel vehicles (whether they be older, heavy, heavy-duty vehicles or current year, medium, heavy-duty vehicles) are the lowest cost alternative, followed closely by propane and distantly by hybrid-electric gas.
- From an infrastructure perspective clean diesel and propane are the most economical technologies, followed by hybrid-electric gas (due to battery replacement costs).
- Finally, hybrid-electric gasoline buses have the lowest emissions, followed by propane which has slightly lower emissions than clean diesel.

Table 2-3 summarizes general characteristics of the most realistic fuel alternatives, including: fuel source, its cost, expected emissions changes, and fuel availability. Note that hydrogen and fuel cells are not included due to the fact that the fuel and technology are not readily available at this time.

### Table 2-3 Summary of Fuel Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Low Sulfur Diesel</th>
<th>LPG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost (gge)¹</strong></td>
<td>$1.65</td>
<td>$1.93</td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td>Imported oil</td>
<td>From oil refining or natural gas processing</td>
</tr>
<tr>
<td><strong>Energy security²</strong></td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Availability in service area³</strong></td>
<td>Select stations, new SMAT facility</td>
<td>5 public stations, ⁴ COLT facility</td>
</tr>
<tr>
<td><strong>Expected emissions changes⁵</strong></td>
<td>Better</td>
<td>NA</td>
</tr>
<tr>
<td>- PM</td>
<td>Better</td>
<td>Better</td>
</tr>
<tr>
<td>- NOx</td>
<td>Better</td>
<td>Same</td>
</tr>
<tr>
<td>- NMHC</td>
<td>Better</td>
<td>Much better</td>
</tr>
<tr>
<td>- CO</td>
<td>Better</td>
<td></td>
</tr>
</tbody>
</table>

² “Energy security” reflects whether sources for the fuel are reliable and secure. Generally, if the fuel is produced domestically it is expected to be a more secure source of fuel than one produced outside of the U.S.
⁴ Santa Maria stations are: Main Street Shell (1204 E. Main Street) and AmeriGas (912 W. Betteravia Road). Other stations include: Delta Liquid Energy (Arroyo Grande), Madonna Shell (San Luis Obispo), and Delta Liquid Energy (Paso Robles).

Table 2-4 summarizes basic characteristics of the vehicle technologies, including: vehicle availability, maintenance, safety, and vehicle and infrastructure costs.
### Table 2-4 Summary of Vehicle Technologies as Compared to Standard Diesel Fuel

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Clean Diesel</th>
<th>Hybrid-electric</th>
<th>LPG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle availability</td>
<td>Good¹</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Maintenance ²</td>
<td>Similar</td>
<td>Less</td>
<td>More</td>
</tr>
<tr>
<td>Safety concerns</td>
<td>Similar</td>
<td>Similar</td>
<td>More</td>
</tr>
<tr>
<td>Difference in Vehicle cost</td>
<td>Similar</td>
<td>+ ~ $200,000</td>
<td>Similar</td>
</tr>
<tr>
<td>Infrastructure costs</td>
<td>Similar</td>
<td>Moderate (for batteries)</td>
<td>Similar</td>
</tr>
</tbody>
</table>

¹ Because no 2004 model year diesel engines meet the emissions requirements, the vehicles would have to be older model years.

² Refers to any increase or decrease in maintenance activities associated with the vehicles and/or refueling stations, as compared to standard diesel fuel.

### 2.3 Intercommunity Service Vehicles

Implementing the new intercommunity transit service between Santa Maria, Vandenberg Air Force Base, and Lompoc is contingent upon having vehicle funding available and vehicles that are ready to be delivered (having been leased or purchased) by the vendor. Most bus manufacturers have a lead time of at least six to nine months before vehicles are delivered after an order has been placed, which may limit vehicle choices once funding is available. Due to the small number of buses that will be used to operate the service, it should be relatively easy to purchase buses as options on another agency's vehicle purchasing contract, called “piggybacking.” If this is done, the vehicle lead time will vary according to the details of individual contracts. However, it is also important to keep in mind that if the vehicles are procured independently of existing vehicle contracts the service administrator will need to go through a procurement bidding process for the vehicles. This will add to the time it takes to deliver the buses.

During public outreach, several individuals requested that the buses be extremely fuel efficient and that they produce low levels of emissions. Due to the variability in emissions and fuel economy associated with the specific design of a vehicle (e.g. vehicle weight, gear ratio, horsepower), it is not possible to provide a high degree of detail for either of these characteristics. There was also concern about the cold weather performance of various fuels and vehicles. Through discussions with manufacturers and vendors, it was established that the climate in Santa Barbara County would not adversely impact vehicle performance. In addition, luggage racks (overhead or standard), should they be deemed an important amenity to include in the bus layout – are available from all of the manufactures. Although some members of the public inquired about restrooms, it is not recommended that they be provided onboard the vehicles.

Table 2-5 presents those buses that meet the vehicle criteria established for the intercommunity service, and includes information on:

- Fuel type,
- Vehicle characteristics such as length, weight, number of doors, etc.
• Range,
• Delivery time frame,
• Purchase and lease costs, when available, and
• Name of agencies currently using the vehicle.

Information on all of the vehicles examined is included as Appendix E. Vehicle vendors and manufacturers provided the names of agencies that currently use some of the vehicles being considered for the intercommunity service. Many of these agencies were contacted to learn about their experiences with the vehicles and their satisfaction with them. Due to the number of variables (vehicle model year, fuel, vehicle size, operating environment, etc.) which affect bus performance, the results of these discussions were inconclusive. Most agencies had a few characteristics in common with the intercommunity service, but no one had all of them - making it impossible to extrapolate a clear winner among the various buses. More detailed notes on the agencies contacted and their experiences are included in Appendix F.

Recommendation
In order to implement intercommunity service as soon as possible, it is recommended that a short-term leasing arrangement be pursued for older model year, low sulfur diesel buses. This option provides additional flexibility in that:

• More time will be available to complete all of the procedural steps associated with a possible vehicle purchase,
• More and improved alternatively fueled vehicles are likely to be on the market, and
• Should the service be discontinued – there would be no vehicles left to worry about.

Additionally, diesel powered vehicles are more readily available than alternative fuel vehicles which should provide greater choice in the vehicle selection process. It should also be noted that diesel fuel provides higher energy output than propane, which is particularly important due to some of the steep grades the buses will need to climb while in service. Lastly, diesel engines are a well tested technology and generally have greater horsepower than propane engines that are on the market.

Regarding engine selection, medium-heavy duty engines that have not been CARB certified are not subject to fleet rule requirements. CARB defines medium-heavy duty engines as those used to operate vehicles with gross vehicle weights between 14,000 and 33,000 pounds. If a medium-heavy duty engine that meets these criteria is used in a vehicle that is less than 35’ long, the service will not be subject to the fleet rule.
Table 2-5 Possible Vehicles for the Intercommunity Service

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Vehicle Name</th>
<th>Fuel</th>
<th>Length (feet)</th>
<th>Engine</th>
<th>Transmission / Propulsion</th>
<th>Range</th>
<th>Delivery Time Frame ²</th>
<th>Vehicle Cost ³</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Flyer</td>
<td>GE40LF</td>
<td>Hybrid-electric gas</td>
<td>40'</td>
<td>Ford Triton V10 6.8 L</td>
<td>ISE-Siemens ThunderVolt TB40-HG</td>
<td>107 gallon tank, being tested</td>
<td>Q1 2005; LBT options available</td>
<td>NA</td>
</tr>
<tr>
<td>Blue Bird</td>
<td>Ultra LF</td>
<td>Propane</td>
<td>35'</td>
<td>Unknown</td>
<td>Unknown</td>
<td>90 miles / 180 miles</td>
<td>Q4 2004</td>
<td>Q4 2004</td>
</tr>
<tr>
<td>El Dorado</td>
<td>Transmark RE</td>
<td>Propane</td>
<td>32'</td>
<td>Cummins B5.9L or C8.3L</td>
<td>Allison MT-643 (B300, B300R)</td>
<td>200 miles</td>
<td>Q4 2004 – Q1 2005</td>
<td>Q4 2004 – Q1 2005</td>
</tr>
<tr>
<td>El Dorado</td>
<td>E-Z Rider II</td>
<td>Propane</td>
<td>35'</td>
<td>Cummins B5.9L or C8.3L</td>
<td>Allison B300, B300R, B400, B400R</td>
<td>200 miles</td>
<td>Q4 2004 – Q1 2005</td>
<td>Q4 2004 – Q1 2005</td>
</tr>
<tr>
<td>Thomas</td>
<td>SLF 235</td>
<td>Diesel</td>
<td>35' or 29'</td>
<td>Mercedes Benz 260 HP 906</td>
<td>Allison B300R automatic</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>Thomas - New 2002 model</td>
<td>SLF 235</td>
<td>Diesel</td>
<td>35'</td>
<td>Mercedes Benz 260 HP 907</td>
<td>Allison B300R automatic</td>
<td>Unknown</td>
<td>Immediately</td>
<td>Immediately</td>
</tr>
</tbody>
</table>

¹ There is a marginal cost difference between 32', 35' and 40' buses, though the length will impact vehicle weight and potentially the number of seats.

² The time frames noted here represent the vendor’s best estimate of vehicle availability, were they ordered immediately. These values can fluctuate dramatically if an order is placed by another agency.

³ Actual vehicle costs will depend on the range of options chosen for the vehicle – including desired seating arrangement, transmission choice, ADA options, amenities, etc. Lease prices are based on a lease-to-purchase option where the vehicle costs are amortized over five (high end of the range) to seven (low end of the range) years. The cost of short-term, lease only costs would be higher for comparable vehicles.
### Table 2-5 Possible Vehicles for the Intercommunity Service (contd.)

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Seated Pax</th>
<th># Doors</th>
<th>Weight (GVWR, lbs)</th>
<th>Agencies using</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Flyer</td>
<td>Up to 39</td>
<td>2</td>
<td>38,700</td>
<td>LBT - on order, Omnitrans - (3 retrofitted by ISE)</td>
</tr>
<tr>
<td>Blue Bird</td>
<td>Up to 35</td>
<td>2</td>
<td>17-19,000</td>
<td></td>
</tr>
<tr>
<td>El Dorado Transmark RE</td>
<td>29-33</td>
<td>1 or 2</td>
<td>29,000</td>
<td>LADOT, City of Glendale, UCLA, San Diego County DOT</td>
</tr>
<tr>
<td>El Dorado E-Z Rider II</td>
<td>Up to 29</td>
<td>2</td>
<td>31,280</td>
<td>LADOT, City of Duarte, Sonoma County Transit, Sac. Intl. Airport</td>
</tr>
<tr>
<td>Thomas SLF 232 P</td>
<td>27 w. 2 doors</td>
<td>1 or 2</td>
<td>20,750 (CW)</td>
<td>Omnitrans, Riverside Transit, Thousand Oaks</td>
</tr>
<tr>
<td>Thomas – SLF 235</td>
<td>31 with 2 doors</td>
<td>1 or 2</td>
<td>28,570 lbs</td>
<td>Prince George County, Valley Metro, TARTA</td>
</tr>
<tr>
<td>Thomas - New 2002 model SLF 235</td>
<td>31 with 2 doors</td>
<td>2 or 2</td>
<td>28,570 lbs</td>
<td>Same as above</td>
</tr>
</tbody>
</table>

4 GVWR – Gross Vehicle Weight Rating is the maximum loaded weight of the vehicle including fuel, liquids, and passengers.
CHAPTER THREE

PROJECT FINANCING

As outlined in the ITSEP, funding for the 3-year pilot of the intercommunity service will rely heavily on a CMAQ grant with the local match coming from TDA allocations to Lompoc, Santa Maria, and Santa Barbara County. These sources will cover the cost of any capital purchases (or leasing) and operating expenses. If the pilot program is successful, additional funding will need to be identified to sustain the service. At that point, potential funding sources are TDA, Measure D, Job Access and Reverse Commute (JARC) Program, and FTA Section 5307.

The subsequent discussion outlines the original proposals and current recommendations for financing capital, administrative and operating needs.

3.1 Fare Policy

Choosing an appropriate fare structure and policies are vital to the successful implementation of new transit service. There are a variety of factors that influence this decision, including:

- Fare structure of neighboring transit systems,
- Intended service markets,
- Farebox recovery ratio requirements, and
- Availability of funding revenue.

Fares should be set so that they are consistent with existing services, are appropriate for the intended market, and meet whatever funding goal the service might have. The following sections discuss how these issues apply to the intercommunity transit service.

Table 3-1, below, lists the fare structures of some transit services in the North County region and lists the proposed fare structure for the intercommunity service.
Table 3-1 Current and Proposed Fare Structures

<table>
<thead>
<tr>
<th></th>
<th>SMAT</th>
<th>COLT</th>
<th>Proposed for Intercommunity Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-way fare, general public</td>
<td>$1.25</td>
<td>$1.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>One-way fare, senior or person with a disability</td>
<td>$0.60</td>
<td>$0.50</td>
<td>$1.00</td>
</tr>
<tr>
<td>Trips outside city limits, general public</td>
<td>$1.25</td>
<td>$1.50</td>
<td>$2.00</td>
</tr>
<tr>
<td>Trips outside city limits, senior or person with a disability</td>
<td>$0.60</td>
<td>$0.75</td>
<td>$1.00</td>
</tr>
<tr>
<td>Monthly pass, general public</td>
<td>$40.00</td>
<td>$18.00 (city)</td>
<td>$75.00</td>
</tr>
<tr>
<td>Monthly pass, senior or person with a disability</td>
<td>$20.00</td>
<td>$9.00 (city)</td>
<td>$37.50</td>
</tr>
<tr>
<td>Transfer within system</td>
<td>Free</td>
<td>Free</td>
<td>See below</td>
</tr>
</tbody>
</table>

As illustrated by the above table, the proposed fare structure for the intercommunity service is most similar to those for SMAT and COLT, which reflects its intended market of general users and commuters. The single-ride fare is slightly more expensive than the SMAT and COLT fares for trips outside their basic service area. This is appropriate given the longer distances and higher level of service (faster operating speeds) offered by the intercommunity service. On average, it is anticipated that intercommunity transit passengers will travel anywhere from two to three times the distance traveled by COLT or SMAT passengers.

In contrast, the cost of the monthly pass is more than double those for SMAT and COLT, but is the same as the Coastal Express. Both the Coastal Express and the intercommunity service rely heavily on commuters for their ridership and these are the passengers most likely to purchase a monthly pass. The rate of $75 for a monthly pass offers a modest discount for passengers who use the service regularly, as commuters are likely to do.

The transfer policy is another issue to address for the intercommunity service. By offering free transfers to local service, it is expected that the local transit systems will experience modest ridership increases from those passengers taking advantage of this policy. Enacting this policy would require that transfer scrip be printed for use by passengers transferring from the intercommunity service to a local transit provider. Passengers wishing to transfer from SMAT or COLT to the intercommunity route are expected to pay full fare.
Finally, the general goal of transit services in urbanized areas is to cover a minimum 20% of their operating costs through fares in order to receive state funding. It should be noted that SBCAG does have the authority to establish a farebox recovery ratio for the intercommunity service based on the portion of the service that serves non-urbanized areas. Furthermore, as a county with less than 500,000 population, SBCAG could establish a farebox recovery ratio as low as 15%. However, unless SBCAG decides to change this standard, a farebox recovery ratio of 20% will need to be obtained by the end of the 3-year pilot program.

Recommendation

Given that commuters are expected to be the primary purchasers of monthly passes and that general users would pay a one-way fare, the proposed fare structure is appropriate for the service being provided and should be adopted for implementation. The recommended fare structure is summarized in Table 3-2. The service operator should review ridership trends every six to twelve months and consider minor modifications as needed to reach the farebox recovery goal.

Table 3-2 Recommended Fare Structure for Intercommunity Service

<table>
<thead>
<tr>
<th>Fare Type</th>
<th>User</th>
<th>Proposed Fare</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single Ride Fare</strong></td>
<td>General public</td>
<td>$2.00</td>
</tr>
<tr>
<td></td>
<td>Senior or person with a disability</td>
<td>$1.00</td>
</tr>
<tr>
<td></td>
<td>Children 46” or shorter</td>
<td>Free</td>
</tr>
<tr>
<td><strong>Monthly Pass</strong></td>
<td>General public</td>
<td>$75.00</td>
</tr>
<tr>
<td></td>
<td>Senior or person with a disability</td>
<td>$37.50</td>
</tr>
<tr>
<td><strong>Transfer to a local system</strong></td>
<td>All</td>
<td>Free</td>
</tr>
</tbody>
</table>

For the new service to not jeopardize state funding, the service should strive to attain a farebox recovery ratio of 20%. In estimating fare revenues for the service budget, an average fare of $1.88 is assumed – which reflects the expectation that most riders will use the $75 monthly pass. Qualifying this is the additional assumption that those passengers paying full fare will not significantly alter this average. Although inconsistent with COLT and SMAT fare policy of setting a minimum age requirement for children, the proposed 46” or shorter policy is recommended as it is much easier to measure. Based upon data from the National Center for Health Statistics, 46” is the average height of a five year old. Omnitrans, the transit system operating in the San Bernardino Valley area, has adopted this fare policy and has found that it reduces boarding time as well as fare evasion.

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6 Public Utilities Code, Article 4, Section 99270.1 of the Transportation Development Act.
7 California Code of Regulations, Article 5, Section 6645.1 of the Transportation Development Act.
8 For regular commuters the $75 monthly cost will be spread among 2 daily trips for an average 20 days per month - $75/(2*20)=$1.875.
3.2 Capital Needs

In order to start the intercommunity service, there are a few basic capital requirements that need to be met: vehicles and bus stops. Because convenient fueling stations exist for all of the fuel alternatives, there is no need to consider the construction of a new fueling facility. Another possible infrastructure need is a maintenance and/or vehicle storage facility. Santa Maria, which is in the process of building a new facility, will be able to accommodate the maintenance and storage needs of the intercommunity service with this new facility if it is chosen as the service administrator, as recommended.

This section details the service’s capital needs for bus stops and vehicles.

3.2.1 Bus Stops and Shelters

The chosen route alignment for the intercommunity service (see Figures 1-1 and 1-2) brings service to a number of locations that have been without service. Implementing the service will initially require a minimum investment in bus stop signs to designate where the service stops. In addition to modifying existing bus stop signage to include the intercommunity service, at least eight new bus stops will need to be installed. These locations are outlined in Table 3-3.

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway 1/Constellation Road</td>
<td>2 (northbound &amp; southbound)</td>
</tr>
<tr>
<td>VAFB, Main Gate</td>
<td>2 (northbound &amp; southbound)</td>
</tr>
<tr>
<td>Clark/Hwy 135</td>
<td>1</td>
</tr>
<tr>
<td>Foster/Hwy 135</td>
<td>2 (northbound &amp; southbound)</td>
</tr>
<tr>
<td>Professional Parkway</td>
<td>1 (southbound)</td>
</tr>
<tr>
<td><strong>Total Number of Stops</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

Several project stakeholders had fairly strong opinions regarding bus stop amenities. Some respondents indicated that the existing bus stops are unattractive, lack benches and shelters, and are often hard to find. It was suggested that these bus stops were in need of retrofitting, to include benches, shelters, lighting and perhaps a payphone. One respondent also thought it would be nice to have internet connections, heating/air conditioning, a speaker with music, and a kiosk to distribute useful information at the bus stop.
While bus stop improvements are important and should be prioritized once the intercommunity service is established, initial efforts should focus on starting the service and providing the necessary infrastructure to do so. It is anticipated that several capital projects will be prioritized after service implementation, including the following:

- Adequate parking near selected commuter stops,
- Enhanced park and ride facilities,
- Pedestrian friendly walkways from parking to stop locations,
- Bus turn outs,
- Additional bus shelters, and
- Electronic fare collection to facilitate inter-system transfers and revenue accounting.

Recommendation

The initial focus on bus stop improvements should be to provide the infrastructure necessary to implement the service. Therefore, it is recommended that eight bus stop signs be installed where none currently exist. The cost of bus stops served exclusively by the intercommunity service should be paid for by the intercommunity service, while the cost of shared stops should be split between the intercommunity service and the sharing agency. For the purpose of the capital planning, bus stop sign installations are estimated to cost $400 each.

Of the eight new bus stops needed, four are within SMAT’s service area, two are at the Main Gate of VAFB, and two are in COLT’s service area. Of the four stops in SMAT’s service area, all are expected to be served by SMAT when the new Orcutt service is implemented. Although COLT’s Route 4 serves Vandenberg Village, there are no stops at the intersection of Hwy 1 and Constellation Road, although COLT may opt to begin serving these stops once they are in place. The two stops (northbound and southbound) serving the main gate of VAFB are expected to be temporary, in anticipation of road construction that will better facilitate passengers’ transfer between the intercommunity service and VAFB’s internal circulator.

Bus stop improvements should include the installation of shelters and benches – prioritizing the most heavily used stops and those that are used jointly by the intercommunity service and other transit agencies. Shelters may be installed at new stop locations in the first year of service using phased construction whereby the bus stop signs are installed prior to the accompanying shelter. The cost of a new shelter (including installation) is estimated at $6000. Some new stop locations warrant the construction of a concrete bus pad, which is estimated to cost $1,500 to install.

Implementing these capital improvement projects will require coordinated efforts between agencies (County of Santa Barbara, Caltrans, VAFB, and the cities of Lompoc and Santa Maria) in the project development phase.
3.2.2 Vehicle Procurement Plan

As stipulated by the project proposal, vehicle procurement plans were developed for both the purchase and lease of vehicles. In contrast to the ITSEP proposal, only lease and lease to purchase options are provided in this plan. Purchasing vehicles was also explored as an alternative. Due to the strong desire to implement the service as soon as possible and the concern of having vehicles to sell at the end of three years if the service does not continue, this alternative is not being recommended. Table 3-4 summarizes the vehicles identified in section 2.3 and lists their purchase and lease prices.

Table 3-4 Vehicle Purchase and Lease Prices

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Purchase Price</th>
<th>Annual Lease Payment¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomas SLF 232P</td>
<td>$250,000 - $300,000</td>
<td>$39,000– $64,200</td>
</tr>
<tr>
<td>Blue Bird Ultra LF</td>
<td>$240,000 - $260,000</td>
<td>$37,400 – $56,200</td>
</tr>
<tr>
<td>El Dorado Transmark RE</td>
<td>$150,000 - $200,000</td>
<td>$24,000 - $43,200</td>
</tr>
<tr>
<td>El Dorado E-Z Rider II</td>
<td>$150,000 - $200,000</td>
<td>$24,000 - $43,200</td>
</tr>
<tr>
<td>Average (high)</td>
<td>$240,000</td>
<td>$51,700</td>
</tr>
</tbody>
</table>

¹A 5-year amortization schedule was used to estimate the high-end estimate of leasing costs, while a 7-year schedule was used for the low-end estimate.

As stipulated earlier in the plan, four vehicles will be purchased or leased to accommodate the schedule and anticipated ridership of the intercommunity service. The choice of vehicle should be made as soon as possible to avoid any delays caused by the lack of vehicle availability.

3.3 Budget

The following sections outline the major assumptions used to develop the three-year budget for the pilot phase of the intercommunity service.

3.3.1 Operating Costs & Revenues

This section discusses the anticipated operating costs and revenues for the intercommunity service.

COSTS

General Operating Costs

The general operating costs constitute the largest portion of the intercommunity service’s operating costs. This item includes: the cost of contracted service, administration costs incurred by the service administrator, and maintenance and fuel costs. The subsequent discussion outlines how these values were estimated for the pilot program:

- **Cost of contracted service** is a function of the daily service hours that are operated, the average number of weekdays (excluding major holidays) in a year (255), and the contracted hourly rate.

  In the case of the intercommunity service, roughly 5,480 hours of service will be provided annually. This is somewhat higher than the ITSEP proposal because the schedule necessitates
multiple, split shifts. The contracted rate used for the budget is based on SMAT’s current rate with its operator of $40.50, with a premium of 50% applied to those hours which will be split shifts. Generally speaking, drivers who run split shifts are paid at a higher rate to offset the inconvenience of having a long break between shifts in a single day. This results in an average base rate (including regular and split shifts) of $50.40.

- **Administration** costs reflect that the service administrator will need to add one full-time equivalent (FTE) employee to facilitate the start of service. A total of $70,000 is set aside for the salary and benefits of this FTE in the first year of service. For subsequent years, it is assumed that this FTE will only spend half of their time working on the administration of the intercommunity service. The FTE will oversee the contractor’s service and fulfill the various responsibilities detailed in the service administration section of this plan. The only exception is the cost of marketing, which has been presented as its own line item. An additional cost of 1% is included in the hourly rate to cover any miscellaneous administrative costs associated with the service.

- **Maintenance** costs are assumed to be a fixed percentage of the hourly operating cost. Recent financial data from SMAT showed that maintenance costs were 29% of the contracted operating cost. A higher percentage of 35% is assumed to reflect anticipated increases in fuel costs in the coming years. This percentage reflects a 67% percent increase in the cost of diesel fuel.

All of these costs are assumed to escalate 5% annually.

**Marketing**

Marketing the intercommunity service prior to service initiation and then once it is in operation will be vital to the success of the service. Specific marketing activities are discussed in detail in Chapter 4. For the purpose of budgeting, marketing efforts are concentrated at the beginning of the service to ensure that potential riders are well educated about the service. In the first year of service, $59,500 is allocated for marketing, $24,500 in year two, and $19,500 in year 3. The anticipated marketing activities and their costs are outlined in Table 3-5, below.

<table>
<thead>
<tr>
<th>Marketing Activity</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Advertising</td>
<td>$ 25,000</td>
<td>$ 20,000</td>
<td>$ 15,000</td>
</tr>
<tr>
<td>Schedule/Map Printing</td>
<td>$ 3,500</td>
<td>$ 3,500</td>
<td>$ 3,500</td>
</tr>
<tr>
<td>Marketing Consultant</td>
<td>$ 15,000</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Web Development Consultant</td>
<td>$ 15,000</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Special Events</td>
<td>$ 1,000</td>
<td>$ 1,000</td>
<td>$ 1,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 59,500</strong></td>
<td><strong>$ 24,500</strong></td>
<td><strong>$ 19,500</strong></td>
</tr>
</tbody>
</table>

**Vehicle Insurance**

This line item includes the estimated cost of insuring the intercommunity service’s four vehicles. The rate is based on recent insurance costs paid by SMAT for its fixed route service. The budgeted insurance cost is based on the hours of service provided.
REVENUES

CMAQ Grant
Federal funding through a CMAQ grant, will be the largest source of operating funding. CMAQ grants require a local match, in this case of 12%. It is assumed that the operating portion of the grant will cover 88% of the service’s operating costs – including maintenance, administration and marketing activities.

TDA Allocations
As mentioned above, terms of the CMAQ program require local funding sources to cover a portion of the program’s cost. It is recommended that the local match be paid using equal contributions of TDA funds from the cities of Lompoc and Santa Maria and Santa Barbara County. This should be clearly stipulated in the memorandum of understanding (MOU) that is drafted for the creation of this service.

Fare Revenue
Based on an average fare of $1.88 and the ridership projections generated in section 1.4, the intercommunity service will meet the farebox recovery ratio (FRR) of 20% by its third year in operation. Estimated fare revenues and the corresponding FRR are presented in Table 3-6, below. No fare changes are anticipated during the three-year pilot program.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fare revenue</td>
<td>$56,060</td>
<td>$77,079</td>
<td>$106,660</td>
</tr>
<tr>
<td>FRR</td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
</tr>
</tbody>
</table>

3.3.2 Capital Costs & Revenues
The following discussion pertains to anticipated capital costs and revenues for the intercommunity service.

COSTS

Vehicle Procurement
Capital costs for the intercommunity service are dominated by the cost to purchase or lease four heavy-duty buses. Two budgets are presented – one assumes the buses are leased for the three-year pilot phase and the second assumes that the buses are leased for the first three years of service and new buses are purchased at the end of the third year if the service proves successful. The costs for these scenarios are based on information supplied by various vendors. Although actual costs will vary according to the exact vehicle specifications, these estimates are representative of expected costs. The estimated cost of a short-term lease of an older, diesel vehicle is $46,800 while the estimated cost to purchase a new propane bus is $240,000 (FY 2004 dollars).
Bus Stops & Shelters
As discussed in section 3.2.1, there will be costs associated with installing bus stops (and shelters) where none currently exist and improving the quality of all bus stops and shelters along the alignment of the intercommunity service. For those stops used exclusively by the intercommunity service, the budget assumes that all capital costs are paid for by the service. The capital cost of making improvements to shared stops is assumed to be split equally between the intercommunity service and any other agency(ies) serving the stop. The cost to install bus stop signs (with schedule holders) is assumed to be $400 and for shelters with benches, the cost is $6,000. If shelters are initially installed at the new stops, the total local share of capital funding during the pilot phase will be reduced because the shelters will be eligible for CMAQ funding. If bus stop signs are installed first and then upgraded in the future, these upgrades will need to be funded locally because, as upgrades to existing facilities, they would not qualify for CMAQ assistance.

Bus Painting
Regardless of whether the intercommunity buses are leased or purchased, they will need to be painted with the service’s logo. The cost of painting a single bus is assumed to be $5,000, which is comparable to what SMAT pays for its vehicles to be painted. If new buses are purchased in the third year of service, the cost to paint them includes an annual cost increase of 5%.

Fueling Facility
At this time, it is assumed that no additional fueling facilities will be needed to operate the intercommunity service. SMAT’s new operating and maintenance facility will have low-sulfur diesel fuel and be designed to accommodate transit buses. If propane buses are purchased towards the end of the pilot service, managers of the public propane fueling facilities indicated that large vehicles regularly use their facilities and that accommodating transit buses should not be a problem.

Maintenance Facility
At this time, it is assumed that no additional maintenance facilities will be needed to operate the intercommunity service.

REVENUES

CMAQ Grant
Federal funding through a CMAQ grant will be the largest source of capital funding. The CMAQ grant requires a local match of 12%. It is assumed that the capital portion of the grant will cover 88% of the service’s capital costs – including vehicle procurement and new stops and shelters. Because CMAQ funding may not be used to upgrade existing stops, it is in the best interest of the service to install shelters (complete with bus stop signs) immediately at new stop locations. Construction may be phased such that the bus stop signs are installed first – allowing for rapid service initiation.

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9 Installing stop signs and shelters initially, will save approximately $20,000 in local capital costs.
TDA Allocations

As mentioned above, terms of the CMAQ program require local funding sources to cover a portion of the program’s cost. The 12% local match will be paid by equal contributions from TDA allocations to the cities of Lompoc and Santa Maria and Santa Barbara County. The contributions by each entity in the first year of service reflect the different costs that they will pay for bus stops upgrades used by their local service. The City of Santa Maria will be expected to pay roughly $2,400 to cover the cost of installing three new stops and upgrades to four existing stops. The City of Lompoc will be expected to pay roughly $600 for upgrades to one existing stop and two new stops. Santa Barbara County will be expected to pay $3,000 to cover the cost of upgrading the existing stop at the Santa Maria Airport, which is currently served by the Clean Air Express.

3.3.3 Three-Year Budgets

Two separate budgets have been developed for the three-year pilot phase of the intercommunity service. Scenario A reflects the financial obligations when buses are leased for three years (see Table 3-7) and Scenario B (see Table 3-8) reflects those when short-term leases are used for three years and then new buses are purchased during the final year of the pilot phase. As would be expected, total costs are highest in the lease-purchase scenario because lease payments are made in addition to the vehicle purchases. Due to the lead time needed to procure new vehicles, leasing appears to be the most effective way to start service at the earliest possible date while allowing for new vehicles to be purchased if the service is successful.
### Table 3-7 Budget Scenario A – Lease Vehicles

**BUDGET SUMMARY**

<table>
<thead>
<tr>
<th>Costs</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Capital expenditures</td>
<td>$618,000</td>
<td></td>
<td></td>
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<tr>
<td>Vehicles</td>
<td>$581,600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus stop/shelters</td>
<td>$36,400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Costs</td>
<td>$1,607,758</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td><strong>$2,225,758</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Revenues</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fares</td>
<td>$239,799</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMAQ</td>
<td>$1,740,076</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDA</td>
<td>$245,883</td>
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<tr>
<td><strong>Total revenues</strong></td>
<td><strong>$2,225,758</strong></td>
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<td></td>
</tr>
</tbody>
</table>

**BUDGET 2004/05 2005/06 2006/07**

<table>
<thead>
<tr>
<th>Revenues</th>
<th>2004/05</th>
<th>2005/06</th>
<th>2006/07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fares</td>
<td>$56,060</td>
<td>$77,079</td>
<td>$106,660</td>
</tr>
<tr>
<td>CMAQ (Capital)</td>
<td>$206,800</td>
<td>$164,736</td>
<td>$164,736</td>
</tr>
<tr>
<td>CMAQ (Operational)</td>
<td>$443,995</td>
<td>$384,367</td>
<td>$375,442</td>
</tr>
<tr>
<td>TDA (12% match, bus stop improvements)</td>
<td>$97,345</td>
<td>$74,878</td>
<td>$73,661</td>
</tr>
<tr>
<td><strong>City of Lompoc</strong></td>
<td>$31,043</td>
<td>$24,959</td>
<td>$24,554</td>
</tr>
<tr>
<td><strong>City of Santa Maria</strong></td>
<td>$32,843</td>
<td>$24,959</td>
<td>$24,554</td>
</tr>
<tr>
<td><strong>County of Santa Barbara</strong></td>
<td>$33,459</td>
<td>$24,958</td>
<td>$24,553</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td><strong>$804,200</strong></td>
<td><strong>$701,060</strong></td>
<td><strong>$720,498</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenses</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buses (4) – lease†</td>
<td>$187,200</td>
<td>$187,200</td>
<td>$187,200</td>
</tr>
<tr>
<td>Bus painting</td>
<td>$20,000</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Bus stops/shelters</td>
<td>$36,400</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Operating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General operating costs*</td>
<td>$426,200</td>
<td>$410,760</td>
<td>$431,298</td>
</tr>
<tr>
<td>Vehicle insurance</td>
<td>$74,900</td>
<td>$78,600</td>
<td>$82,500</td>
</tr>
<tr>
<td>Marketing</td>
<td>$59,500</td>
<td>$24,500</td>
<td>$19,500</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td><strong>$804,200</strong></td>
<td><strong>$701,060</strong></td>
<td><strong>$720,498</strong></td>
</tr>
<tr>
<td>Net</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Farebox Recovery Ratio (FRR)</td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
</tr>
</tbody>
</table>

† Lease costs are based on a short-term, 3-year lease of a pre-2004 model diesel bus.

* Includes operations contract, fuel and maintenance, and SMAT administrative costs. Based on 5,480 annual operating hours and hourly rates of: $77.77 (year 1), $74.96 (year 2), and $78.70 (year 3).
Table 3-8 Budget Scenario B – Lease, then Purchase Vehicles

<table>
<thead>
<tr>
<th>BUDGET SUMMARY</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Costs</strong></td>
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<td></td>
</tr>
<tr>
<td>Capital</td>
<td>$1,658,319</td>
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</tr>
<tr>
<td>Vehicles</td>
<td>$1,621,919</td>
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<td></td>
</tr>
<tr>
<td>Bus stop/shelters</td>
<td>$36,400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>$1,607,758</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td>$3,266,077</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Revenues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fares</td>
<td>$239,799</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMAQ</td>
<td>$2,655,557</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDA</td>
<td>$370,721</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total revenues</strong></td>
<td>$3,266,077</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BUDGET</th>
<th>2004/05</th>
<th>2005/06</th>
<th>2006/07</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fares</td>
<td>$56,060</td>
<td>$77,079</td>
<td>$106,660</td>
</tr>
<tr>
<td>CMAQ (Capital)</td>
<td>$206,800</td>
<td>$164,736</td>
<td>$1,080,216</td>
</tr>
<tr>
<td>CMAQ (Operational)</td>
<td>$443,995</td>
<td>$384,367</td>
<td>$375,442</td>
</tr>
<tr>
<td>TDA (12% match, bus stop improvements)</td>
<td>$97,345</td>
<td>$74,878</td>
<td>$198,499</td>
</tr>
<tr>
<td><strong>City of Lompoc</strong></td>
<td>$31,043</td>
<td>$24,959</td>
<td>$66,166</td>
</tr>
<tr>
<td><strong>City of Santa Maria</strong></td>
<td>$32,843</td>
<td>$24,959</td>
<td>$66,166</td>
</tr>
<tr>
<td><strong>County of Santa Barbara</strong></td>
<td>$33,459</td>
<td>$24,958</td>
<td>$66,165</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td>$804,200</td>
<td>$701,060</td>
<td>$1,760,817</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Expenses</strong></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buses (4) – lease</td>
<td>$187,200</td>
<td>$187,200</td>
<td>$187,200</td>
</tr>
<tr>
<td>Bus painting</td>
<td>$20,000</td>
<td>$0</td>
<td>$21,855</td>
</tr>
<tr>
<td>Buses (4) – purchase</td>
<td>$1,018,464</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus stops/shelters</td>
<td>$36,400</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Operating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General operating costs*</td>
<td>$426,200</td>
<td>$410,760</td>
<td>$431,298</td>
</tr>
<tr>
<td>Vehicle insurance</td>
<td>$74,900</td>
<td>$78,600</td>
<td>$82,500</td>
</tr>
<tr>
<td>Marketing</td>
<td>$59,500</td>
<td>$24,500</td>
<td>$19,500</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td>$804,200</td>
<td>$701,060</td>
<td>$1,760,817</td>
</tr>
<tr>
<td><strong>Net</strong></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Farebox Recovery Ratio (FRR)</strong></td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
</tr>
</tbody>
</table>

*Lease costs are based on a short-term, 3-year lease of a pre-2004 model diesel bus.
* Includes operations contract, fuel and maintenance, and SMAT administrative costs. Based on 5,480 annual operating hours and hourly rates of: $77.77 (year 1), $74.96 (year 2), and $78.70 (year 3).
CHAPTER FOUR

PUBLIC OUTREACH, MARKETING AND PERFORMANCE EVALUATION

4.1 Public Outreach

In order to prepare effective plans it is essential to have a sound public outreach program that is started early and maintained throughout the project. The public involvement techniques employed during this project were crucial to spreading the word regarding the intercommunity service, incorporating key concerns and ideas into the planning process, and generally building interest, support, and consensus among stakeholders and potential customers.

In order to solicit the input of as many people as possible, letters were mailed to nearly 100 stakeholders throughout Santa Barbara County in December 2003. Distributing these letters had three primary purposes: to introduce Urbitran as the consultant working on the ITSIP and the key public agencies, including SBCAG, Santa Barbara County, VAFB, Caltrans, and the cities of Lompoc and Santa Maria; to provide an overview of the service; and to request feedback on hours of service, frequency of service, route alignment, proposed bus stop locations, bus and bus stop amenities and any other issues of concern. Sample letters are included as Appendix G.

Most responses were received via email, although information was also collected through phone conversations and face-to-face meetings with stakeholders. Appendix H contains the list of project stakeholders that were contacted about the intercommunity transit service. Responses were received from nearly 30 individuals through this outreach effort. The nature of the comments received varied considerably, covering topics such as the types of vehicles which should be utilized, the schedule of the bus service, and techniques to be used in marketing the service. For a complete listing of public comments received through this outreach effort, refer to Appendix I.

Public open houses and drop-in sessions were also held in both Lompoc and Santa Maria in late March 2004 to collect feedback on the Draft Service Plan. The public was generally supportive of the proposed intercommunity transit service and wanted the service to begin as soon as possible. In fact, 55% of interviewed SMAT and COLT passengers indicated that they would use the intercommunity service. The majority of the feedback received suggests that the proposed fare structure is reasonable. People also thought that buses should be fully accessible and have bike racks. There was consensus that marketing is critical to the success of the intercommunity service. Several individuals mentioned that the marketing approach should include coordination with VAFB, Allan Hancock College, social service agencies, and local businesses to maximize ridership potential. It was also suggested that a contest be held to name the service and to develop an identity and system logo. Some people thought that Lompoc muralists might be a good resource for painting the intercommunity buses and shelters. For additional marketing information, refer to the next section.
4.2 Marketing and Public Information Program

To ensure success for the intercommunity transit service, it must be properly marketed throughout the communities it serves. Marketing and public information includes the dissemination of information on routes and schedules, as well as general promotion of the service. This program will require a high degree of coordination between COLT, SMAT, VAFB and Traffic Solutions. The marketing activities discussed in this chapter should be initiated prior to the implementation of the intercommunity service and sustained once service is in operation. New transit services are often plagued by low initial ridership largely due to the fact that people are not aware of the new service and often require between twelve and eighteen months to establish themselves.

Several project stakeholders mentioned the importance of marketing the intercommunity transit service. Everyone thought it was critical to utilize as many venues as possible to publicize the new transit service. Numerous suggestions for doing this were provided. Several respondents suggested utilizing public service announcements (PSAs) on local radio stations, including Spanish-speaking stations, as a good opportunity to reach potential bus riders. Traffic Solutions was also mentioned as an organization that could take a lead role in promoting the new transit service. Several respondents thought that it is important to work with large employers in the corridor to promote the service to their employees. One project stakeholder suggested working with the following organizations to market the service:

- Adult/juvenile probation departments,
- Public defender’s office,
- Courts in Lompoc and Santa Maria,
- Santa Barbara County Mental Health Department, and
- Lompoc and Santa Maria Chambers of Commerce.

Before the intercommunity transit service can be effectively marketed, the service plan needs to be finalized so that routing and scheduling information can be advertised. It will also be helpful if the following items have been established prior to marketing the service:

- Service identity,
- A logo and letterhead,
- Unique color scheme (painted on vehicles or applied as a bus wrap),
- A website with information on the service,
- A phone number with information for potential users (e.g. XXX-RIDE),
- Passenger guide/brochure (maps and timetables), and
• The provision of monthly passes that can be sold and are readily available at locations throughout the community, including: government offices, major retail outlets and malls, and major medical facilities. These locations should be identified and contacted as soon as possible in order to initiate discussions that would allow for the sale of this fare media.

It is important to generate media attention and market the services prior to implementation. Media coverage is often the best form of promotion for a transit system because it generally reaches a larger audience than direct marketing and does not cost anything. Before implementing the new service, press releases should be sent to local newspapers, television and radio stations to generate media interest in the new service. All marketing materials should include the phone number, logo, and website address for the service. In addition to contacting the Santa Maria Times and the Lompoc Record, a project stakeholder suggested that it would be valuable to get the Santa Barbara News-Press to write a story on the new transit service as many residents read this paper. Spanish and bi-lingual publications, such as El Tiempo, should also be sent press releases and other relevant information regarding the intercommunity service. It will be important to maintain contact with local media sources, so that when other events arise (such as route or fare changes), there will be an existing relationship that should make it easier to get media coverage.

Special events and community meetings can also be an effective means of engaging the public about the intercommunity service. These types of events and presentations provide an opportunity to interact with members of the community, answer questions regarding the new service and to generally promote the service. During the first week of operation of the intercommunity transit service, it would be appropriate to organize a ‘ribbon-cutting’ ceremony to officially introduce the new service to the public.

As another marketing approach, a project stakeholder suggested that several fare free days be offered during the first couple months of service to provide residents with the opportunity to utilize the service at no cost. It was also suggested that brief surveys be distributed to passengers during the fare free days to collect information regarding their travel behavior and preferences. Another project stakeholder indicated that a grassroots marketing effort would be the best way to successfully spread news of the intercommunity transit service. It was proposed that people stand at the “Y” area just north of Lompoc (intersection of Highway 1 and Purisima Road) during the morning commute period to leaflet cars and promote the new transit service.

The intercommunity service should also be promoted through a traditional advertising campaign. This should include radio, print, and television ads. Advertising costs can be moderated by using outlets such as government television channels for public service announcements on the new service. Working with SMAT and COLT, it should be possible to post information regarding the new service onboard local transit vehicles, on the vehicle exterior or on benches or shelters throughout the service area. Working with the Public Affairs branch of VAFB, it will be extremely important that the intercommunity transit service is promoted throughout VAFB, as this represents an important market segment for the service. In addition to an advertising program to promote the intercommunity transit service, it is recommended that bus, shelter and bench space be made available for local businesses advertisements as a revenue generating opportunity.
As suggested above, the development of a web site is another important marketing tool for promoting the new transit service. A well-designed web site can provide much needed flexibility to market and inform the public about the service. It is recommended that the website URL be the name of the intercommunity transit service. The website should have a Spanish version and be accessible to individuals with disabilities, in accordance with Section 508 of the federal Rehabilitation Act of 1998. Accessible websites provide text alternatives, such as audio and video clips, which improves the usability of the site, particularly for individuals with disabilities. Accessible websites must also provide direct, concise content to allow for easy navigation. Other important functions of the website include the following:

- Provide essential information such as maps and route schedules,
- Provide contact information,
- Solicit customer feedback,
- Provide time-sensitive information regarding the operation of the service,
- Display current marketing efforts and introduce new marketing campaigns, and
- Provide links to other local transit operators such as COLT and SMAT.

Developing such a website should not be a problem, as SBCAG has experience in developing, hosting, maintaining, and managing websites for services and programs for which it is responsible. Nonetheless, $15,000 has been budgeted to hire a consultant to develop the website.

Branding is an important concept that should be considered in marketing the intercommunity transit service. Having a unique identity for the service would help differentiate the intercommunity service from local, fixed-route service. A unique color scheme will also help passengers identify the vehicles that serve the corridor. The color scheme should also be applied to all aspects of the intercommunity service, to include bus stops, timetable and route information, and other promotional materials.

In addition to the marketing approaches recommended in this section, it is also important to provide passengers with schedule information at each bus stop served by the intercommunity transit service. The bus stop represents the physical interface between the transit service and its customers; therefore, it is critical to provide timetable and route information and a comfortable, safe environment for passengers to wait for the bus.

Strong customer service should also be a top priority for the intercommunity transit service. Transit operators have a huge impact on customer service, as customers have the most direct contact with the operators. Strong customer service should be an important criterion in the selection of a private transit operator.

A final component of the marketing program should be to provide for a self-evaluation of the marketing program. This evaluation would analyze the goals, objectives, and performance of the marketing activities used to promote the intercommunity service. A written onboard survey is one method that could be used to evaluate the needs of customers, as well as to understand how well marketing initiatives are working with current customers. Furthermore, in order to understand and evaluate the perceptions of the entire
community and the knowledge of non-users regarding the new intercommunity transit service, a more broadly based survey (conducted via the telephone) is highly recommended. Other survey methods include internet surveys, mail-back surveys, and intercept surveys however, they tend to be less representative of the general population. Any ridership surveys should be conducted regularly to understand the effectiveness of various marketing efforts to fine-tune the provision of the intercommunity transit service. During the pilot phase of the service, it would be appropriate to conduct one survey after 6 months to track initial performance and a second after 18 months, when the service is more established.

Table 4-1 presents the marketing action plan, which prioritizes the Year 1 marketing recommendations from this section. Due to the importance of marketing the service, it is recommended that a marketing consultant be hired to assist in the development and implementation of these marketing recommendations. As shown in Table 4-1, $15,000 has been budgeted for this expense.

Table 4-1 Year 1 Marketing Action Plan

<table>
<thead>
<tr>
<th>Marketing Recommendation</th>
<th>Agency</th>
<th>Cost</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Priority Recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General service promotion and advertising</td>
<td>Lead Agency</td>
<td>$25,000</td>
<td>Begin 1 month prior to service implementation</td>
</tr>
<tr>
<td>Hire marketing consultant to assist in developing service identity, logo, color scheme, passenger guide, etc.</td>
<td>Administering Agency</td>
<td>$15,000</td>
<td>Should be completed 2-3 months prior to service implementation</td>
</tr>
<tr>
<td>Produce service brochure, including schedule/route info</td>
<td>Administering Agency</td>
<td>$3,500</td>
<td>1 ½ months prior to service implementation</td>
</tr>
<tr>
<td>Work with media to get coverage of service</td>
<td>Lead Agency</td>
<td>Staff time</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Medium Priority Recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop website</td>
<td>Lead Agency</td>
<td>$15,000</td>
<td>Site should be operational prior to service implementation</td>
</tr>
<tr>
<td>Hold special events to promote service</td>
<td>Lead Agency</td>
<td>$1000</td>
<td>Before service begins and within first month of service implementation</td>
</tr>
<tr>
<td>Offer service promotions, such as fare free days</td>
<td>Administering Agency</td>
<td>Lost farebox revenue</td>
<td>First month of service</td>
</tr>
<tr>
<td>Lower Priority Recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluate marketing program</td>
<td>Administering Agency</td>
<td>Staff time</td>
<td>Annual reviews</td>
</tr>
</tbody>
</table>
4.3 Performance Measurement Program

A performance measurement and monitoring program should be established in order to quantitatively monitor and evaluate how well the service is performing. The annual performance criteria developed as part of the ITSEP and are presented in Table 4-2.

<table>
<thead>
<tr>
<th>Table 4-2 ITSEP Annual Performance Criteria</th>
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</thead>
<tbody>
<tr>
<td>Ridership</td>
</tr>
<tr>
<td>(commuter – round trip)</td>
</tr>
<tr>
<td>1,460 / month avg. 1,760 / month avg. 2,040 / month avg.</td>
</tr>
<tr>
<td>Ridership</td>
</tr>
<tr>
<td>(general use – round trip)</td>
</tr>
<tr>
<td>60 / month avg. 70 / month avg. 80 / month avg.</td>
</tr>
<tr>
<td>Farebox Ratio</td>
</tr>
<tr>
<td>14% 17% 20%</td>
</tr>
<tr>
<td>On-time performance</td>
</tr>
<tr>
<td>(arrival / departure w/in 5 min.)</td>
</tr>
<tr>
<td>80% 85% 90%</td>
</tr>
<tr>
<td>Quality of service survey</td>
</tr>
<tr>
<td>(service rated as satisfactory)</td>
</tr>
<tr>
<td>80% 85% 90%</td>
</tr>
</tbody>
</table>

It is recommended that performance standards be established for the following four areas:

- Service Effectiveness
- Cost Efficiency
- Cost Effectiveness
- Service Quality

The recommended performance standards discussed below are preliminary and will need to be finalized once official policies and objectives of the intercommunity transit service are established.

4.3.1 Service Effectiveness

Service effectiveness measures how much transit service is consumed or utilized in relation to the amount of service provided. The more service consumed vs. the service output (vehicle miles and vehicle hours) the higher level of service effectiveness. The main performance standards used to measure service effectiveness are passengers per vehicle service hour and passengers per vehicle service mile. Passengers are classified as the number of boarding passengers transported by the transit service, which is often referred to as an unlinked passenger trip.

*Passenger Trips per Revenue Hour*

The most common performance indicator used to measure service effectiveness is passenger trips per revenue hour. Based upon the projected ridership and hours of service, it is expected that the

**Passenger Trips per Revenue Mile**

The passengers per revenue mile measure for a particular transit service is heavily influenced by local factors, such as the geographic size of the service area and the intensity of land use. Because of the large service area between Lompoc, VAFB, and Santa Maria and the relatively low land use intensity through much of this corridor, it is unrealistic to expect performance in this category to be particularly strong. Based upon the ridership projections presented in Chapter 1 and the expected monthly vehicle miles of service, it is expected that this measure will begin at 0.02 passengers/revenue mile in FY 2004/2005, increase to 0.03 passengers/revenue mile in FY 2005/2006, and then to 0.04 passengers/revenue mile in FY 2006/2007.

4.3.2 Cost Efficiency and Effectiveness

Cost efficiency addresses how much public transportation services are provided (vehicle hours or vehicle miles) in relation to the resources expended (labor, capital, fuel, etc.) on the transportation service. Cost efficiency performance indicators include operating cost per vehicle service hour and operating cost per vehicle service mile. For the intercommunity transit service, the cost of the service inputs will vary depending upon which agency ultimately administers the service and how the service is contracted out. It is recommended that cost per revenue hour and mile standards be established as soon as decisions have been made regarding these issues.

Cost effectiveness looks at the consumption of the transit service (passenger trips and revenue) as compared to the resources used in providing the service. Operating cost per passenger and farebox recovery ratios are the main performance indicators used in the industry to measure cost effectiveness. The farebox recovery ratio is a particularly important performance standard as it measures a system’s ability to cover its costs through locally generated fare revenues. It is expected that the intercommunity transit service will be able to achieve a 20% farebox recovery ratio by the third year of operation.

4.3.3 Service Quality

In addition to the above performance measures, it is important to assess the quality of the intercommunity transit service. Service quality involves the relationship between the delivery of service and customer expectations and demands. The quality of service can be broken down into the following attributes:

- Accessibility
- Span of service
- Directness
- Reliability
- Safety
Accessibility
Accessibility is defined as the ability of the transportation system or service to accommodate passengers with disabilities on its vehicles. The most common performance measure that addresses accessibility is the percentage of vehicles that are lift equipped. All vehicles utilized for the intercommunity service will be lift equipped. The service should maintain a 100% accessibility standard to ensure that all new vehicles purchases have wheelchair capacity and lifts.

Span of Service
Span of service is defined as the duration of time that service is operated. The proposed span of service is currently 5:45 AM to 6:25 PM, Monday to Friday. Although a longer span of service would be preferable (to include service during the evening and on weekends), existing funding limits the amount of service that can be provided. The span of service may also be misleading as it does not indicate the frequency or number of trips scheduled during the span. Since there will be only seven round trips (and one, one-way trip) made each day between Lompoc and Santa Maria, it does not make sense to establish performance measures for service frequency at this point in time. Once the intercommunity service becomes more established and demand increases, it should be possible to increase the number of trips provided, thereby shortening the current service headways.

Directness
Directness refers to the time it takes to complete a trip via transit in comparison to the trip in a private automobile. The goal should be to schedule efficient trips that do not subject passengers to unreasonable travel times. The suggested standard is that the actual travel time via transit should not exceed more than twice the time it would take to drive. Driving between Lompoc and Santa Maria takes approximately 30 minutes, while it would take 55 minutes to complete this trip via the intercommunity transit service, a ratio of 1:1.83.

Reliability
Reliability can be measured using the quantitative indicator of on-time performance. For the intercommunity service, a trip should be considered “on-time” if the bus arrives between 2 minutes early and 5 minutes late. The standard for the intercommunity service should be 95% on-time performance by the third year of operation.

Safety
Passenger safety is also an important service quality issue. It can be measured several different ways, to include the number of vehicle miles per crash or the number of passenger injuries per 100,000 passenger trips. Either way, the intercommunity service should prioritize passenger safety in its daily operations and monitor its performance carefully towards achieving that goal.
4.3.4 Recommended Performance Standards

Table 4-3 presents a summary of the recommended performance standards for the intercommunity transit service. While all of the performance measures are important for evaluating the intercommunity transit service, the cost effectiveness measure (farebox recovery ratio) is the most important as it will determine whether the intercommunity service should continue beyond the three year pilot program. The intercommunity transit service should be evaluated annually and corrective action should be taken to address poor performance if necessary.

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Service Effectiveness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passengers/Hour</td>
<td>5.4</td>
<td>7.5</td>
<td>10.4</td>
</tr>
<tr>
<td>Passengers/Mile</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>Cost Efficiency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating cost/Hour</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Operating cost/Mile</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Cost Effectiveness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farebox Recovery Ratio</td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
</tr>
<tr>
<td>Service Quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle Accessibility</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>On-time performance</td>
<td>90%</td>
<td>92%</td>
<td>95%</td>
</tr>
<tr>
<td>(arrival w/in -1 and +5 minutes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miles between preventable crashes</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
</tr>
</tbody>
</table>
REFERENCES


APPENDICES

Appendix A - Institutional Framework Discussion
Appendix B - Excerpts of Current California Code of Regulations (CCR)
Appendix C - Proposed CCR Changes
Appendix D - Fuels and Vehicle Technologies
Appendix E - Specific Vehicle Characteristics
Appendix F - Agency Experiences with Proposed Vehicles
Appendix G - Sample letter soliciting stakeholder feedback
Appendix H - Stakeholders
Appendix I - Summary of Written Public Comments
Appendix A - Institutional Framework Discussion

Determining who will serve as the lead agency for the service is an important step in the implementation of the North County intercommunity transit service. At present, it is assumed that the service will be contracted out to a private operator, but first a decision needs to be made regarding which organization will be responsible for administration of the service. Four institutional alternatives have been developed to address the service administration issue and are presented below. It should be noted that the discussion and analysis of these alternatives is primarily qualitative in nature. If necessary, additional analyses will be completed to include more extensive financial and operating data for the locally preferred alternatives.

A.1 Alternative #1: City Transit System (Lompoc or Santa Maria)

This alternative consists of one of the existing municipal transit operators assuming responsibility for the administration of the intercommunity transit service. Although it is expected that the intercommunity transit service would be bid separately from the existing city service, the service would be administered in a manner similar to that used for existing routes operated by either City of Lompoc Transit (COLT) or Santa Maria Area Transit (SMAT). Additionally, a memorandum or understanding/responsibility would need to be drafted and signed by all member jurisdictions to clarify their roles in administering, financing, and operating this service. This institutional arrangement is the closest to the status quo than any of the other alternatives discussed since it relies on an existing governmental entity that already provides transit services.

There are certain advantages to this alternative. Delay in implementing the intercommunity service will be minimized as both COLT and SMAT already have policies and procedures in place for initiating new service. Another clear advantage to this alternative is that coordination between the new intercommunity service and existing local service will be quite easy. Other advantages to this alternative include the considerable transit experience that each city possesses, and if the City of Santa Maria was selected to administer this service, the addition of cleaner vehicles would assist SMAT in their continued ability to meet CARB emission standards.

There are also important financial considerations associated with the provision of the intercommunity service. Although the intent is to keep all of the operating and financial information on the intercommunity service separate from the administering agency, there is limited direction from the language of the Transportation Development Act on whether or not this is possible. Discussions with Caltrans are ongoing to ascertain how the intercommunity service will be treated with regards to TDA. The service administrator should maintain this contact to understand the service’s requirements as they are determined. If the intercommunity service is treated independently from the administrator’s service or if it is considered an extension of services, it will have three years to reach the TDA goal of a 20% farebox recovery ratio. However, if for some reason the service is included as a route within the administrator’s system, it would impact the system’s overall farebox revenues. Depending upon its success, it could adversely impact the systemwide farebox recovery ratio and jeopardize the transit system’s eligibility for TDA funding if the systemwide farebox recovery ratio were to drop below 20%. Although possible,
having the intercommunity service treated as one of the administrator’s routes appears to be the least likely scenario.

There may also be certain challenges associated with having a city system plan and operate a regional transit service. For instance, it may become politically unpopular that city staff time is dedicated towards the administration of service that operates primarily outside of the city’s jurisdiction. Table A-1 presents a summary of the advantages and disadvantages associated with this organizational alternative.

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expeditious implementation</td>
<td>Outside of jurisdiction</td>
</tr>
<tr>
<td>Relatively easy coordination</td>
<td>Regional service not typical perspective</td>
</tr>
<tr>
<td>Extensive experience</td>
<td>Potential to jeopardize funding</td>
</tr>
<tr>
<td>Existing administrative structure</td>
<td></td>
</tr>
</tbody>
</table>

A.2 Alternative #2: Santa Barbara County Department of Public Works

The Santa Barbara County Department of Public Works currently administers a transit service that connects Cuyama with Santa Maria two days per week. This demand response service is fairly limited and had ridership of only 513 passengers in FY 2000. Ridership has been increasing on this service, however, as 728 passengers were carried in FY 2002/2003. Beginning this winter, there are plans for the implementation of a similar service that will operate between Los Alamos and Santa Maria two days per week. The County Public Works Department currently contracts the Cuyama transit service to a private operator and plans to do the same with the Los Alamos transit service.

From a jurisdictional perspective, the County Public Works Department is a good candidate to administer the intercommunity service as much of the service area is located in unincorporated parts of Santa Barbara County. However, the County Public Works Department does not have extensive experience in transit administration, which is a distinct disadvantage to this particular organizational alternative. Generally speaking, public works departments are not ideally suited to the administration or provision of transit services due to their many other responsibilities, some of which (e.g., streets and roads projects) are often in direct competition with transit services. Table A-2 provides a summary of the advantages and disadvantages of this alternative.
Table A-2 Advantages and Disadvantages of Santa Barbara County DPW

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional perspective</td>
<td>Limited experience</td>
</tr>
<tr>
<td>Cities of Lompoc and Santa Maria would not be responsible for administering</td>
<td>Coordination with local service may be more challenging</td>
</tr>
<tr>
<td>transit service that is outside of their jurisdiction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loss of local control and associated funding</td>
</tr>
<tr>
<td></td>
<td>Less familiar with local planning/development issues in Lompoc/Santa Maria</td>
</tr>
<tr>
<td></td>
<td>Transit may be a lower priority for the public works department</td>
</tr>
</tbody>
</table>

A.3 Alternative #3: Santa Barbara County Association of Governments (SBCAG)

SBCAG is currently responsible for overseeing the Clean Air Express commuter bus service that provides service from Buellton, Lompoc, and Santa Maria to the Santa Barbara/Goleta area. SBCAG has also partnered with the Ventura County Transportation Commission to run the Coastal Express service which provides daily service between Ventura County and Santa Barbara/Goleta. In essence, SBCAG has been acting as the regional transit administrator for Santa Barbara County. This experience is quite valuable and relevant to the provision of intercommunity transit service between Lompoc and Santa Maria and would be a valuable asset if SBCAG were to assume responsibility for the intercommunity service. Since SBCAG is responsible for the allocation of transportation funding, there would likely be some benefits associated with an overall familiarity with available funding sources and their respective application requirements.

As with the other alternatives presented in this chapter, there are certain disadvantages to this alternative. First of all, SBCAG is responsible for a number of different functions that could potentially detract from their ability to effectively oversee the intercommunity transit service. Additionally, although SBCAG is familiar with local planning and development issues, it does not have a local presence in either Lompoc or Santa Maria, which could impact its ability to effectively administer the intercommunity transit service. Having a regional entity such as SBCAG administer this transit service could be politically unpopular among the local municipalities as it might be perceived as a loss of local control. Table A-3 presents a complete list of the anticipated advantages and disadvantages associated with this alternative.

Table A-3 Advantages and Disadvantages of SBCAG

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing administrative structure</td>
<td>Many other priorities</td>
</tr>
<tr>
<td>Regional coordination</td>
<td>Less familiar with local planning/development issues in Lompoc/Santa Maria</td>
</tr>
<tr>
<td>Strong commitment to transit ensures continued support for service</td>
<td>Coordination with local city service is more challenging</td>
</tr>
<tr>
<td>Cities of Lompoc and Santa Maria would not</td>
<td>Perceived loss of local control</td>
</tr>
</tbody>
</table>
Advantages | Disadvantages
--- | ---
be responsible for administering transit service that is outside of their jurisdiction |  
Experience administering fixed-route intercity transit service | No local presence in Santa Maria or Lompoc
Familiarity with funding sources/requirements |  

A.4 Alternative #4: Joint Powers Agreement/Agency

This institutional alternative is unique from all the others in that it does not rely upon an existing governmental entity, but instead creates a new Joint Powers Agency (JPA) that would be responsible for the intercommunity service and possibly other transit services. As authorized by the Joint Exercise of Powers Act (CGC 6500 et seq.), a JPA can be formed by two or more public agencies to exercise powers held in common if authorized by their governing bodies. This legislation does not create new powers, but instead provides a vehicle for the cooperative use of existing governmental powers. Agencies which may enter into joint exercise of powers agreements include the federal and state governments, cities, counties, county school boards, public districts, and public agencies of other states. A JPA can enter into contracts, employ people, acquire, construct and maintain buildings, improvements and public works, and issue revenue bonds. The member agencies can also agree to exchange services.

Numerous JPAs have been formed throughout California for the purpose of providing transit services. In fact, JPAs are one of the more common legal arrangements for organizing transit systems in the State of California. Two local JPAs exist in San Luis Obispo County, one of which is the San Luis Obispo Regional Transit Authority (SLORTA) and the other is the South County Area Transit (SCAT). SLORTA is responsible for providing county-wide intercity transit service to residents of San Luis Obispo County and also provides service to Santa Maria with 6 roundtrips per weekday on Route 10. SCAT is a fixed route transit system that was created by a JPA between the cities of Arroyo Grande, Pismo Beach, and Grover City and San Luis Obispo County. Other examples of JPAs responsible for providing transit services include: Livermore/Amador Valley Transit Authority, Western Contra Costa Transit Authority, Mendocino Transit Authority, Napa County Transportation Planning Agency, Yuba Sutter Transit Authority, Monterey-Salinas Transit, Merced County Transit, and Eastern Contra Costa Transit Authority.

If this alternative is chosen for the intercommunity transit service, the JPA would need to establish the “ground rules” for engagement between the affected entities, notably Santa Barbara County and the cities of Lompoc and Santa Maria. For instance, the JPA would establish the parameters, terms and conditions for the creation of a policy board comprised of elected, staff or citizen representatives from each participating jurisdiction. This policy board would then determine their preferred institutional arrangement for administering the intercommunity transit service. Options include:

---

10 New powers can only be created if the statutory authority exists for new cooperative agreements to exercise powers that each individual agency would be incapable of exercising separately.
• Hiring its own management and staff to provide transportation services directly,
• Relying upon staff resources from member jurisdictions,
• Directly manage contracts with private suppliers of transportation services, or
• Any combination of these options.

A technical or citizens’ advisory committee could be established to ensure that the intercommunity transit service is responsive to the specific needs of the community. Lastly, in drafting the JPA, it is important to include provisions that will allow for both the addition and subtraction of jurisdictions. This flexibility allows the JPA to incorporate new jurisdictions at some later date, or provides existing jurisdictions with the ability to withdraw from the JPA without damaging the overall organization.

One of the more notable advantages to the formation of a JPA is the commitment that is made to the intercommunity transit service by creating a designated agency responsible for administering this service. Furthermore, there is potential for expanding the scope of the JPA to include the administration of other intercity services, such as the Clean Air Express, that is currently administered by SBCAG. On the flip side, there are also a number of disadvantages associated with this alternative, such as the time and money required to develop and implement the JPA. Implementing this alternative would create a new layer of government, which may result in additional responsibilities for elected officials (i.e., more meetings, budgets, etc.) and is often negatively perceived by the general public. Table A-4 presents the advantages and disadvantages associated with this alternative.

Table A-4 Advantages and Disadvantages of JPA

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedicated and clearly defined organization demonstrates a commitment to intercommunity transit service</td>
<td>Will take time and money to create JPA</td>
</tr>
<tr>
<td>Regional perspective</td>
<td>Lack of experience</td>
</tr>
<tr>
<td>Cities of Lompoc and Santa Maria would not be responsible for administering transit service that is outside of their jurisdiction</td>
<td>Another layer of bureaucracy will have associated costs</td>
</tr>
<tr>
<td>Potential for expanding JPA to include more intercity services</td>
<td>Loss of local control and associated funding</td>
</tr>
<tr>
<td></td>
<td>Potentially less familiar with local planning/development issues in Lompoc/Santa Maria</td>
</tr>
<tr>
<td></td>
<td>Coordination with local city service is more challenging</td>
</tr>
</tbody>
</table>
A.5 Summary of Alternatives

As is evident from the discussion of the organizational alternatives, there is no clear-cut “winner.” Each alternative has its own set of issues. Nonetheless, there are some significant advantages and disadvantages associated with particular alternatives that must be considered prior to making a final decision on this matter. In selecting the preferred organizational alternative, it will be necessary to prioritize the various advantages and disadvantages. To assist in this process, summary tables have been created that present the anticipated advantages and disadvantages of each alternative (see Tables A-5 and A-6).

It should also be noted that it is possible to implement the intercommunity transit service in two separate phases. This hybrid approach would benefit from the respective strengths of two organizational alternatives. For instance, one of the city transit systems may be selected to administer the intercommunity transit service for the first year or two, which could be considered phase 1 of the service implementation. This approach would take advantage of the quick setup and relevant experience of the city transit system to get the service up and running. Meanwhile, the groundwork could be established for the creation of a JPA that would assume responsibility for the intercommunity transit service as part of phase 2 of the implementation plan.

### Table A-5 Summary of Advantages of all Organizational Alternatives

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Quick setup</th>
<th>Easy to coordinate with local service</th>
<th>Relevant experience</th>
<th>Regional perspective</th>
<th>Existing administration</th>
<th>Commitment to sustain service</th>
<th>Funding familiarity</th>
<th>Dedicated agency</th>
<th>Potential for expansion</th>
<th>Relieves SMI, Lompoc of providing service outside their jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 – City Transit System</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>#2 – Santa Barbara County Public Works</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>#3 – SBCAG</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>#4 – JPA</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tbody>
</table>
Table A-6 Summary of Disadvantages of all Organizational Alternatives

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Potential to jeopardize funding</th>
<th>Outside jurisdiction</th>
<th>Lack regional perspective</th>
<th>Limited experience</th>
<th>Less opportunity for local service coordination</th>
<th>Perceived loss of local control</th>
<th>Many other priorities</th>
<th>Unfamiliar with local development plans</th>
<th>More time/money</th>
<th>More bureaucracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 – City Transit System</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td>#2 – Santa Barbara County Public Works</td>
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<tr>
<td>#3 – SBCAG</td>
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<tr>
<td>#4 – JPA</td>
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</table>
Appendix B - Excerpts of Current California Code of Regulations (CCR)

Division 3. Air Resources Board
Chapter 1. Motor Vehicle Pollution Control Devices
Article 2. Approval of Motor Vehicle Pollution Control Devices (New Vehicles)

(a) The exhaust emissions from new 1985 and subsequent model heavy-duty diesel cycle urban bus engines and vehicles fueled by methanol, natural gas, liquefied petroleum gas, and petroleum shall not exceed the following, by model year:
(1) 1985-1986 -- 1.3 grams per brake horsepower-hour (g/bhp-hr) total hydrocarbons (or Organic Material Hydrocarbon Equivalent [OMHCE] for methanol-fueled buses), 15.5 g/bhp-hr carbon monoxide (CO), and 5.1 g/bhp-hr oxides of nitrogen (NOx).
(2) 1987- (a manufacturer may certify to the 1988 emission standards one year early as an option) -- 1.3 g/bhp-hr total hydrocarbons (or OMHCE for methanol-fueled buses), 15.5 g/bhp-hr CO, and 5.1 g/bhp-hr NOx.
(3) 1988-1990 -- 1.3 g/bhp-hr HC (or OMHCE for methanol-fueled buses), 15.5 g/bhp-hr CO, 6.0 g/bhp-hr NOx, 0.60 g/bhp-hr particulate matter (PM), and for 1990 only, 1.2 g/bhp-hr optional nonmethane hydrocarbons (NMHC).
(4) 1991-1993 -- 1.3 g/bhp-hr HC (or OMHCE for methanol-fueled buses), 1.2 g/bhp-hr optional NMHC, 15.5 g/bhp-hr CO, 5.0 g/bhp-hr NOx, and 0.10 g/bhp-hr PM. Emissions from methanol-fueled, natural-gas-fueled and liquefied-petroleum-gas-fueled urban bus engines may be included in the averaging program for petroleum-fueled engines other than urban bus engines.
(5) 1994-2003 -- 1.3 g/bhp-hr HC or OMHCE, 1.2 g/bhp-hr optional NMHC, 15.5 g/bhp-hr CO, 4.0 g/bhp-hr NOx, and 0.05 g/bhp-hr PM (0.07 PM g/bhp-hr in-use), except as provided in paragraph (7) below.
(A) For 1996 and 1997 only, a manufacturer may apply to the Executive Officer for an exemption from the 4.0 g/bhp-hr NOx standard, not to exceed 10% of the average of the manufacturer's total urban bus sales in California for the three preceding model years, upon providing technical justification and sales data for each exemption applied for.
(B) 1998 through 2002 model year engines may generate averaging, banking, and trading credits in accordance with the requirements for averaging, banking and trading programs set forth in “California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy Duty Diesel Engines and Vehicles” incorporated by reference in subdivision (b) of this section.
(C) Manufacturers may choose to certify 1998 through 2002 model year bus engines produced before October 1, 2002, to an optional NOx emissions standard between 0.5 g/bhp-hr and 2.5 g/bhp-hr. A manufacturer may certify to any standard between the values of 2.5 g/bhp-hr and 0.5 g/bhp-hr, by 0.5 g/bhp-hr increments. Manufacturers may not use engines certified to this optional NOx standard for any averaging, banking, or trading program set forth in “California Exhaust Emission Standards and Test
Procedures for 1985 and Subsequent Model Heavy Duty Diesel Engines and Vehicles” incorporated by reference in subdivision (b) of this section.

(7) October 1, 2002, PM standard -- For diesel-fueled, dual-fuel, and bi-fuel bus engines, the PM standard shall be 0.01 g/bhp-hr (0.01 PM g/bhp-hr in-use) for 2002 and subsequent model year engines produced beginning October 1, 2002. Manufacturers may choose to meet this standard with an aftertreatment system that reduces PM to 0.01 g/bhp-hr.

(8) October 2002-2006 optional standards -- Except for diesel-fueled, dual-fuel, and bi-fuel engines, manufacturers may choose to certify 2002-2006 model year bus engines produced beginning October 1, 2002, to an optional 1.8 g/bhp-hr to 0.3 g/bhp-hr NOx plus NMHC standard, measured as the arithmetic sum of the NOx and NMHC exhaust component certification values, without restriction on individual component certification values; provided that engines certified to this optional reduced-emission NOx plus NMHC standard may not participate in any averaging, banking, or trading program set forth in the test procedures document incorporated by reference in subdivision (b) of this section. A manufacturer may certify to any standard between the values of 1.8 g/bhp-hr to 0.3 g/bhp-hr, by 0.3 g/bhp-hr NOx + NMHC increments. Manufacturers certifying to this optional standard must also certify to a PM standard of 0.03, 0.02, or 0.01 g/bhp-hr.

(9) October 2002-2003 optional standards for diesel-fueled, dual-fuel, and bi-fuel engines -- Manufacturers may choose to certify 2002-2003 model year diesel-fueled, dual-fuel, and bi-fuel bus engines produced beginning October 1, 2002, to an optional 1.8 g/bhp-hr to 0.3 g/bhp-hr NOx plus NMHC standard, measured as the arithmetic sum of the NOx and NMHC exhaust component certification values, without restriction on individual component certification values; provided that engines certified to this optional reduced-emission NOx plus NMHC standard may not participate in any averaging, banking, or trading program set forth in the test procedures document incorporated by reference in subdivision (b) of this section. A manufacturer may certify to any standard between the values of 1.8 g/bhp-hr to 0.3 g/bhp-hr, by 0.3 g/bhp-hr NOx + NMHC increments. Manufacturers certifying to this optional standard must also certify to a PM standard of 0.03, 0.02, or 0.01 g/bhp-hr.

(10) 2004-2006: Except as provided in paragraph (11), below, the required standard shall be 2.4 g/bhp-hr NOx + NMHC measured as the arithmetic sum of exhaust component certification values for these pollutants, without restriction on individual component values, 15.5 g/bhp-hr CO, and 0.05 g/bhp-hr PM (0.07 g/bhp-hr PM in-use).

(A) Manufacturers may choose to certify to a 2.5 g/bhp-hr optional combined NOx + NMHC standard, provided that the NMHC exhaust component certification value shall not exceed 0.5 g/bhp-hr.

(B) Emissions averaging may be used to meet the combined NOx + NMHC standard, the optional combined NOx + NMHC standard set forth in paragraph (A), and the PM standard.

(C) The combined NOx + NMHC standard and the optional combined NOx + NMHC standard described in paragraph (A) may serve as the certification standard for the higher emitting fueling mode of an engine certified under the dual fueling mode certification process set forth in section 1956.8(a)(4), Title 13, CCR.

(11) 2004-2006 -- For diesel-fueled, or dual-fuel, and bi-fuel urban bus engines, the standards are 0.5 g/bhp-hr NOx, 0.01 g/bhp-hr PM, 0.05 g/bhp-hr NMHC, 5.0 g/bhp-hr CO, and 0.01 g/bhp-hr formaldehyde. As an option, manufacturers may choose to meet the NOx and PM standards with a base engine that is certified to the standards in paragraph (10) above, equipped with an aftertreatment system that reduces NOx to 0.5 g/bhp-hr and PM to 0.01 g/bhp-hr standards. The NMHC, CO, and formaldehyde standards in this paragraph (11) shall still apply. Manufacturers shall be responsible for full certification, durability, testing, and warranty and other requirements for the base engine. For the aftertreatment system, manufacturers shall not be subject to the certification durability requirements, or in-use recall and enforcement provisions, but are subject to warranty provisions for functionality. In addition, engine manufacturers may sell diesel-fueled, dual-fuel, or bi-fuel engines to any transit fleet exempted by the
Executive Officer under paragraphs (c)(8) and (d)(7) of section 1956.2, Title 13, CCR, from the requirements of paragraphs (c)(5) and (d)(4) of section 1956.2, certified to the standards in either paragraphs (9) or (10) above, provided that engines certified to the standards in paragraph (10) must be certified to a 0.01 g/bhp-hr PM standard.

(12) 2007 and subsequent -- 0.2 g/bhp-hr NOx, 0.01 g/bhp-hr PM, 0.05 g/bhp-hr NMHC, 5.0 g/bhp-hr CO, and 0.01 g/bhp-hr formaldehyde.

(b) The test procedures for determining compliance with standards applicable to 1985 and subsequent heavy-duty diesel cycle urban bus engines and vehicles and the requirements for participation in the averaging, banking and trading programs, are set forth in the “California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles,” adopted April 8, 1985, as last amended November 22, 2000, which is incorporated by reference herein.


HISTORY

(a) To encourage transit agencies that operate urban bus fleets to purchase or lease lower emission alternative-fuel buses, while also providing flexibility to such fleet operators to determine their optimal fleet mix in consideration of such factors as air quality benefits, service availability, cost, efficiency, safety, and convenience, two paths to compliance with this fleet rule are available: the alternative-fuel path and the diesel path. Transit agencies must choose their compliance path, and shall notify ARB of their intent to follow either the diesel or the alternative-fuel path, by January 31, 2001. Reporting requirements for that notification are set forth in subdivisions (a) and (b) of section 1956.4, Title 13, CCR.

(b) For the purpose of the fleet rule specified in this section, the following definitions apply:
(1) “Alternative fuel” means natural gas, propane, ethanol, methanol, electricity, fuel cells, or advanced technologies that do not rely on diesel fuel. Alternative fuel also means any of these fuels used in combination with each other or in combination with other non-diesel fuels.
(2) “Active fleet” means a transit agency's total active fleet of urban buses, including spare buses, but not contingency vehicles (e.g., for emergencies) or non-revenue producing vehicles.
(3) “Transit agency” means a public entity responsible for administering and managing transit services. Public transit agencies can directly operate transit service or contract out for all or part of the total transit service provided.
(4) “Urban bus” means a passenger-carrying vehicle powered by a heavy heavy-duty diesel engine, or of a type normally powered by a heavy heavy-duty diesel engine, with a load capacity of fifteen (15) or more passengers and intended primarily for intra-city operation, i.e., within the confines of a city or greater metropolitan area. Urban bus operation is characterized by short rides and frequent stops. To facilitate this type of operation, more than one set of quick-operating entrance and exit doors would normally be installed. Since fares are usually paid in cash or token, rather than purchased in advance in the form of tickets, urban buses would normally have equipment installed for the collection of fares. Urban buses are also typically characterized by the absence of equipment and facilities for long distance travel, e.g., restrooms, large luggage compartments, and facilities for stowing carry-on luggage.
(c) Transit agencies on the alternative-fuel path shall meet the following requirements:
(1) Upon approval of the regulation, and through Model Year 2015, at least 85 percent of all urban...
buses purchased or leased each year must be alternative-fuel buses.
(2) NOx fleet average requirements as set forth in subdivision (e), below.
(3) Beginning October 1, 2002, only engines certified to an optional PM standard of 0.03 g/bhp-hr or lower shall be purchased when making new bus purchases.
(4) PM retrofit requirements and use of low-sulfur fuel as set forth in subdivision (f), below.
(5) Transit agencies on the alternative-fuel path shall not purchase any diesel-fueled, dual-fuel, or bi-fuel buses with 2004-2006 model year engines certified to emissions levels in excess of those specified in paragraph (a)(11) of section 1956.1, Title 13, CCR, except as provided in paragraph (c)(8) of this section.
(6) Zero-emission bus purchase requirements beginning in model year 2010, in accordance with the requirements set forth in subdivision (c) of section 1956.3, Title 13, CCR.
(7) Reporting requirements as set forth in section 1956.4, Title 13, CCR.
(8) The Executive Officer may exempt transit agencies on the alternative-fuel path from the requirements of paragraph (c)(5) of section 1956.2, Title 13, CCR, provided that:
(A) A transit agency applies to the Executive Officer for such exemption by June 30, 2001;
(B) A transit agency demonstrates to the Executive Officer that it will achieve NOx emissions benefits through 2015 greater than what would have been achieved through compliance with paragraph (c)(5); and
(C) The Executive Officer finds that transit agencies, after consulting with the Engine Manufacturers Association, have demonstrated, or are contractually committed to demonstrate, advanced NOx aftertreatment technology.

(d) Transit agencies on the diesel path shall meet the following requirements:
(1) NOx fleet average requirements as set forth in subdivision (e), below.
(2) PM retrofit requirements and use of low-sulfur fuel as set forth in subdivision (f), below.
(3) Zero-emission bus demonstration in 2003-2004, as required in subdivision (b) of section 1956.3, Title 13, CCR.
(4) Transit agencies on the diesel path shall not purchase any diesel-fueled, dual-fuel, bi-fuel, or alternative-fuel buses with 2004-2006 model year engines certified to emissions levels in excess of those specified in paragraph (a)(11) of section 1956.1, Title 13, CCR, except as provided in paragraph (d)(7) of this section.
(5) Zero-emission bus purchase requirements beginning in model year 2008, in accordance with the requirements set forth in subdivision (c) of section 1956.3, Title 13, CCR.
(6) Reporting requirements as set forth in section 1956.4, Title 13, CCR.
(7) The Executive Officer may exempt transit agencies on the diesel path from the requirements of paragraph (d)(4) of section 1956.2, Title 13, CCR, provided that:
(A) A transit agency applies to the Executive Officer for such exemption by June 30, 2001;
(B) A transit agency demonstrates to the Executive Officer that it will achieve NOx emissions benefits through 2015 greater than what would have been achieved through compliance with paragraph (d)(4); and
(C) The Executive Officer finds that transit agencies, after consulting with the Engine Manufacturers Association, have demonstrated, or are contractually committed to demonstrate, advanced NOx aftertreatment technology.

(e) Beginning October 1, 2002, no transit agency shall own, operate, or lease an active fleet of urban buses with average NOx emissions in excess of 4.8 g/bhp-hr, based on the engine certification standards of the engines in the active fleet.
(1) This active fleet average requirement shall be based on urban buses owned, operated, or leased by the transit agency, including diesel buses, alternative-fuel buses, all heavy-duty zero-emission buses, electric trolley buses, and articulated buses, in each transit agency's active fleet. The Executive Officer may allow zero-emission buses that do not meet the definition of an urban bus to be included in the calculation of the fleet average standard upon written request to the ARB by January 31, 2002, and upon approval by the Executive Officer. The request shall include a description of the zero-emission buses, the
zero-emission technology utilized, and the number of zero-emission buses to be used in calculating the NOx fleet average standard. Zero-emission buses not meeting the definition of an urban bus may not be used to satisfy the requirements of the Zero-emission Bus Demonstration Project set forth in subdivision (b) of section 1956.3, Title 13, CCR.

(2) Transit agencies may use ARB-certified NOx retrofit systems to comply with the fleet average requirement (in addition to bus purchases, repowerings, and retirements).

(3) Transit agencies have the option of retiring all 1987 and earlier model year diesel urban buses by October 1, 2002, to comply with the fleet average standard requirement.

(f) To reduce public exposure to diesel particulate matter, transit agencies and companies that lease buses to transit agencies shall retrofit diesel buses in their active fleets according to the schedule below, and shall operate their diesel buses on diesel fuel with a maximum sulfur content of 15 parts per million by weight. Documentation of compliance with these requirements must be provided in accordance with the provisions of subdivision (d) of section 1956.4, Title 13, CCR.

(1) Tier 1 -- Except as provided in (B) below, by January 1, 2003, transit agencies shall not own, operate or lease diesel-fueled, dual-fuel, bi-fuel, or diesel hybrid buses in their active fleets with 1990 and earlier model year engines, unless those engines have been retrofitted as provided in paragraph (A), below.

Transit agencies with fewer than 20 buses in their active fleets, and that operate in federal one-hour ozone attainment areas, are not required to comply with this requirement until January 1, 2007; provided that in areas redesignated as one-hour ozone non-attainment areas prior to January 1, 2007, transit agencies initially eligible for delayed compliance shall submit a plan to the Executive Officer within 30 days of redesignation for achieving compliance with this retrofit requirement.

(A) The retrofit device must be certified by the Executive Officer of the ARB in accordance with the procedures set forth in the “California Certification Procedures for PM Retrofit Devices for On-Road Heavy-Duty Diesel Engines” incorporated by reference in paragraph (f)(7) below.

(B) 1990 and earlier engines were originally certified to a PM standard of 0.60 grams per brake horsepower-hour. Only those 1990 and earlier engines that have been retrofitted to 0.10 grams per brake horsepower-hour PM with an ARB-certified retrofit device (to meet the requirements of the U.S. EPA urban transit bus rebuild and retrofit program, 40 CFR 85.1401-1415) are exempt from further retrofit requirements under this section.

(2) Tier 2 -- Transit agencies shall not own, operate or lease diesel-fueled, dual-fuel, bi-fuel, or diesel hybrid transit buses in their active fleets with 1991 through 1995 model year engines, unless the engines have been retrofitted with a device that has been certified by the Executive Officer in accordance with the procedures set forth in the “California Certification Procedures for PM Retrofit Devices for On-Road Heavy-Duty Diesel Engines” incorporated by reference in paragraph (f)(7) below, and in accordance with the following schedule. Transit agencies with fewer than 20 buses in their active fleets, and that operate in federal one-hour ozone attainment areas shall comply with the 100 percent retrofit requirement by January 1, 2007, and are exempt from the interim requirements described in (A) and (B) below that apply before that date. In areas redesignated as one-hour ozone non-attainment areas prior to January 1, 2007, transit agencies initially exempt from the interim requirements shall submit a plan to the Executive Officer within 30 days of redesignation for achieving compliance with this retrofit requirement.

(A) Alternative-fuel path: 20 percent of these buses shall be retrofitted by January 1, 2003; 75 percent of these buses shall be retrofitted by January 1, 2004; and 100 percent of these buses shall be retrofitted by January 1, 2005, except for those buses eligible for the retirement exemption set forth in paragraph (f)(4), below.

(B) Diesel path: 50 percent of these buses shall be retrofitted by January 1, 2003; and 100 percent of these buses shall be retrofitted by January 1, 2004, except for those buses eligible for the retirement exemption set forth in paragraph (f)(4), below.
(3) Tier 3 -- Transit agencies shall not own or operate diesel-fueled, dual-fuel, bi-fuel, or diesel hybrid buses in their active fleets with 1996 through 2002 model year engines produced before October 1, 2002, unless the engines have been retrofitted with a device that has been certified by the Executive Officer in accordance with the procedures set forth in the “California Certification Procedures for PM Retrofit Devices for On-Road Heavy-Duty Diesel Engines” incorporated by reference in paragraph (f)(7) below, and in accordance with the following schedule.

(A) Alternative-fuel path: 20 percent of these buses shall be retrofitted by January 1, 2007; 75 percent of these buses shall be retrofitted by January 1, 2008; and 100 percent of these buses shall be retrofitted by January 1, 2009, except for those buses eligible for the retirement exemption set forth in paragraph (f)(4), below.

(B) Diesel path: 20 percent of these buses shall be retrofitted by January 1, 2005; 75 percent of these buses shall be retrofitted by January 1, 2006; and 100 percent of these buses shall be retrofitted by January 1, 2007.

(4) For transit agencies on the alternative-fuel path, those buses that are within two years of retirement are exempt from the 100 percent retrofit requirement set forth in paragraphs (2)(A) and (3)(A), above, provided documentation of retirement is supplied to the Executive Officer in accordance with the requirements set forth in paragraph (d)(2) of section 1956.4, Title 13, CCR.

For transit agencies on the diesel path, those buses that are within one year of retirement are exempt from the 100 percent retrofit requirement set forth in paragraph (2)(B), above, provided documentation of retirement is supplied to the Executive Officer in accordance with the requirements set forth in paragraph (d)(2) of section 1956.4, Title 13, CCR.

(5) Beginning July 1, 2002, transit agencies shall not operate diesel buses on diesel fuel with a sulfur content in excess of 15 parts per million by weight. Transit agencies with fewer than 20 buses in their active fleets, and that operate in federal one-hour ozone attainment areas, are not subject to this low-sulfur fuel requirement until July 1, 2006. In areas redesignated as one-hour ozone non-attainment areas prior to July 1, 2006, transit agencies initially exempt from the low-sulfur fuel requirement shall submit a plan to the Executive Officer within 30 days of redesignation for achieving compliance with this requirement.

(6) Transit agencies that own, operate, or lease a diesel-fueled, dual-fuel, bi-fuel, or diesel hybrid bus with an engine for which a retrofit device is not, or will not be, available to meet the retrofit requirements within 6 months of the dates specified in paragraphs (f)(1) through (f)(3) shall be eligible for a one-year delay in complying with the retrofit requirements, upon submittal of documentation of device unavailability to the ARB in writing at least 30 days before the retrofit requirement becomes applicable and upon approval of the delay by the Executive Officer of the ARB.

(7) The retrofit certification procedures for use in complying with the PM retrofit requirements for 2002 model year diesel-fueled, dual-fuel and bi-fuel urban bus engines produced before October 1, 2002, and earlier model year urban bus engines (including engines used in diesel hybrid buses) are set forth in the “California Certification Procedures for PM Retrofit Devices for On-Road Heavy-Duty Diesel Engines” adopted November 22, 2000, which are incorporated herein by reference.


HISTORY


(a) “Zero-emission bus” means an Executive Officer certified urban bus that produces zero exhaust emissions of any criteria pollutant (or precursor pollutant) under any and all possible operational modes and conditions.
(1) A hydrogen-fuel cell bus shall qualify as a zero-emission bus.
(2) An electric trolley bus with overhead twin-wire power supply shall qualify as a zero-emission bus.
(3) A battery electric bus shall qualify as a zero-emission bus.
(4) Incorporation of a fuel-fired heater shall not preclude an urban bus from being certified as a zero emission bus, provided the fuel-fired heater cannot be operated at ambient temperatures above 40°F and the heater is demonstrated to have zero evaporative emissions under any and all possible operational modes and conditions.

(b) Zero-emission Bus Demonstration Project -- except as provided in (3) below, the owner or operator of an urban bus fleet on the diesel path in accordance with the provisions of section 1956.2, with more than 200 urban transit buses in its active fleet on January 31, 2001, shall implement a demonstration project. The owner or operator shall evaluate the operation of zero-emission buses in revenue service, and prepare and submit a report on the demonstration project to the Executive Officer for inclusion in a future review of zero-emission technology.

(1) This demonstration project shall meet all of the following specifications and requirements:
(A) utilize a minimum of three zero-emission buses,
(B) include any necessary site improvements,
(C) locate fueling infrastructure onsite,
(D) provide appropriate maintenance and storage facilities,
(E) train bus operators and maintenance personnel,
(F) place the buses in revenue service for a minimum duration of 12 calendar months, (G) retain operation and maintenance records, and
(H) report on the demonstration program as set forth in subdivision (e) of section 1956.4, Title 13, CCR.

(2) When planning and implementing the demonstration project, the operator or owner shall meet the following milestones:
(A) no later than January 1, 2002, prepare and solicit bid proposals for materials and services necessary to implement the demonstration project, including but not limited to the zero-emission buses and the associated infrastructure
(B) no later than July 1, 2003, place at least three zero-emission buses in revenue service, and
(C) no later than January 31, 2005, submit a report on the demonstration project to the Executive Officer, in accordance with paragraph (e)(3) of section 1956.4, Title 13, CCR.

(3) Multiple transit agencies within the same air basin may, on a case-by-case basis, petition the Executive Officer to implement a joint zero-emission bus demonstration project. Electric trolley buses shall not qualify as zero-emission buses for purposes of this joint demonstration project. No more than three transit agencies can participate in any one joint project. Transit agencies that are participating in a joint demonstration project shall:
(A) designate the agency hosting the onsite demonstration,
(B) jointly fund the demonstration project, and
(C) place a minimum of three zero-emission buses per participating transit agency in revenue service.

(c) Purchase Requirement for Zero-emission Buses -- The owner or operator of a transit agency with more than 200 urban buses in active service on January 1, 2007, for transit agencies on the diesel path, and January 1, 2009, for transit agencies on the alternative-fuel path, shall purchase and/or lease zero-emission buses, in accordance with the following:

(1) For transit agencies on the diesel path, in accordance with the requirements in section 1956.2, a minimum 15 percent of purchase and lease agreements, when aggregated annually, for model year 2008 through model year 2015 urban buses shall be zero-emission buses.
(2) For transit agencies on the alternative-fuel path, in accordance with the requirements in section 1956.2, a minimum 15 percent of purchase and lease agreements, when aggregated annually, for model year 2010 through model year 2015 urban buses shall be zero-emission buses.
(3) The provisions of paragraphs (1) and (2) shall not apply if the operator's urban bus fleet is composed of 15 percent or more zero-emission buses on January 1, 2008, for transit agencies on the diesel path, and on January 1, 2010, for transit agencies on the alternative-fuel path, or at any time thereafter.

(4) (A) Transit agencies on either the diesel path or alternative-fuel path may earn credits for use in meeting the purchase requirements for zero-emission buses specified in paragraphs (c)(1) and (c)(2) by placing zero-emission buses in service prior to the dates specified in paragraphs (c)(1) and (c)(2). For each zero-emission bus placed into early service, credits shall be accrued according to the following table. Each earned credit is equivalent to one zero-emission bus.

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(B) Zero-emission buses placed in service to meet the zero-emission bus demonstration projects as specified in subdivision (b) are not permitted to accrue credits towards the zero-emission bus purchase requirements.

(d) The Air Resources Board shall review zero-emission bus technology and the feasibility of implementing the requirements of subdivision (c) above no later than January 2006. Based on that assessment, the Board shall decide whether to proceed with the implementation of subdivision (c) requirements.


HISTORY

§ 1956.4. Reporting Requirements for all Urban Bus Transit Agencies.

(a) The following reports on new bus purchases and/or leases by transit operators on the alternative fuel path shall be submitted as described below:
(1) The initial report shall be submitted by January 31, 2001, and shall state the transit agency's intent to follow the alternative-fuel path.
(2) Any requests for deviation from the requirement that 85 percent of buses purchased per year must be alternative-fuel buses must be submitted in writing and approved by the Executive Officer of the Air Resources Board 90 days prior to purchase. The written request must include the reason for requesting the deviation from the 85 percent annual purchase requirement and the transit agency's future planned alternative-fuel bus purchases.
(3) Transit agencies shall submit annual reports containing: the number, model year, and fuel used for engines in transit buses they currently own or operate, bus purchases and/or leases beginning January 1, 2000, and annual average percentage of total bus purchases and/or leases that were alternative-fuel buses. The first report shall be submitted by January 31, 2001. Subsequent reports shall be submitted annually by January 31 through the year 2016.
(b) The following reports on new bus purchases and/or leases by transit operators on the diesel path shall be submitted as described below:
(1) The initial report shall be submitted by January 31, 2001, and shall state the transit agency's intent to follow the diesel path.
(2) Transit agencies shall submit annual reports containing the number, model year, and fuel used for
engines in transit buses they currently own or operate, and bus purchases and/or leases beginning January 1, 2000. The first report shall be submitted by January 31, 2001. Subsequent reports shall be submitted annually by January 31 through the year 2016.

(c) The following reports on the NOx fleet average requirement shall be submitted as described below:
(1) Initial documentation shall be submitted by January 31, 2001, and contain, at a minimum, the active urban bus fleet NOx emission average, and if that number exceeds the average required in subdivision (e), section 1956.2, Title 13, CCR, a schedule of actions planned to achieve that average by October 1, 2002, including numbers and model years of bus purchases, retirements, retrofits, and/or repowerings, or shall indicate the intent of the transit agency to retire all model year 1987 and earlier buses in its active fleet by October 1, 2002.

(2) A final report shall be submitted by January 31, 2003, detailing the active urban bus fleet NOx emission average as of October 1, 2002, and actions, if any were needed, taken to achieve that standard, including numbers and model years of bus purchases, retirements, retrofits, and/or repowerings, or documenting the retirement of all model year 1987 and earlier buses.

(d) The following reports on the PM bus retrofit requirements shall be submitted as described below:
(1) Initial reports shall be submitted by the dates shown below and shall contain, at a minimum, the following information:
(A) number and model year of diesel-fueled, dual-fuel, bi-fuel, and diesel hybrid buses in the active fleet, projected number and model year of buses to be retrofitted annually, projected number and model year of exempt buses, if any, and basis for exemption.

(B) for transit agencies on the alternative-fuel path, a report for Tier 1 and Tier 2 requirements shall be submitted by January 31, 2002; a report for Tier 3 requirements shall be submitted by January 31, 2005.

(C) for transit agencies on the diesel path, a report for Tier 1 and Tier 2 requirements shall be submitted by January 31, 2002; a report for Tier 3 requirements shall be submitted by January 31, 2003.

(2) Transit agencies shall submit annual reports, in accordance with the schedules in paragraphs (A) and (B) below, containing records of number and model year of diesel-fueled, dual-fuel, bi-fuel, and diesel hybrid buses in the active fleet, number and model year of buses retrofitted per year, retrofit devices used, number and model year of exempt buses, if any, and basis for exemption, and number and model year of buses retired, if any.

(A) for transit agencies on the alternative-fuel path, a report on compliance with Tier 1 requirements shall be submitted by January 31, 2003. For Tier 2, annual compliance reports shall be submitted by January 31, beginning in 2003 and ending in 2005. For Tier 3, annual compliance reports shall be submitted by January 31, beginning in 2007 and ending in 2009.

(B) for transit agencies on the diesel path, a report on compliance with Tier 1 requirements shall be submitted by January 31, 2003. For Tier 2, annual compliance reports shall be submitted by January 31, beginning in 2003 and ending in 2004. For Tier 3, annual compliance reports shall be submitted by January 31, beginning in 2005 and ending in 2007.

(e) The following reports on the zero-emission bus demonstration program shall be submitted by those transit agencies required to conduct such demonstrations, as described below:
(1) Initial documentation shall be submitted by January 31, 2003, and contain, at a minimum, the bus order and delivery schedule, fuel type, type of refueling station, any planned facility modifications, and a revenue service demonstration plan;

(2) A financial plan shall be submitted by January 31, 2003, and contain, at a minimum, projected expenditures for capital costs for purchasing and/or leasing buses, refueling stations, any facility modifications, and projected annual operating costs;

(3) A final report shall be submitted by January 31, 2005, and contain, at a minimum, the following information:
(A) a brief description of the zero-emission technology utilized, identification of bus manufacturer and
product specifications,
(B) miles driven per bus in revenue service, safety incidents, driver and mechanic training conducted, and maintenance (both scheduled and unscheduled),
(C) qualitative transit personnel and passenger experience, and
(D) a financial summary of capital costs of demonstration program, including bus purchases and/or leases, fueling infrastructure, any new facilities or modifications, and annual operating costs.
(f) The following reports on new zero-emission bus purchases and/or leases shall be submitted by transit agencies required to purchase zero-emission buses as described below:
(1) Initial report shall be submitted by January 1, 2007 for transit agencies on the diesel path, and by January 1, 2009, for transit agencies on the alternative-fuel path. The initial report shall contain, at a minimum, the following information:
(A) a brief description of the zero-emission technology to be utilized and a plan for the implementation of the requirement,
(B) for an exemption from the purchase requirement, documentation that 15 percent or more of the transit agency's active urban bus fleet is composed of zero-emission buses.
(2) Any requests for deviation from the requirement that 15 percent of buses purchased per year must be zero-emission buses must be submitted in writing and approved by the Executive Officer of the Air Resources Board 90 days prior to a transit agency submitting a purchase order(s) reflecting the purchase deviation. The written request shall include the reason for requesting the deviation and the transit agency's future planned zero-emission bus purchases.
(3) Transit agencies on the diesel path shall include in the annual reports required in paragraph (b)(2): zero-emission bus purchases and/or leases beginning with model year 2008 and through model year 2015, and the annual average percentage of total bus purchases and/or leases that were zero-emission buses.
(4) Transit agencies on the alternative-fuel path shall include in the annual reports required in paragraph (a)(3): zero-emission bus purchases and/or leases beginning with model year 2010 and through model year 2015, and the annual average percentage of total bus purchases and/or leases that were zero-emission buses.
(g) Transit agencies exempted from the requirements of paragraphs (c)(5) and (d)(4), section 1956.2, Title 13, CCR, shall submit annual reports demonstrating that they are achieving NOx emission benefits required in paragraphs (c)(8)(B) and (d)(7)(B), section 1956.2, Title 13, CCR. The first report shall be submitted by January 31, 2005. Subsequent reports shall be submitted annually by January 31 through the year 2016.

Appendix C - Proposed CCR Changes

DATE: November 25, 2003

TO: Interested Stakeholders

FROM: Robert H. Cross, Chief
       Mobile Source Control Division

RE: PROPOSED MODIFICATIONS TO THE EXHAUST EMISSION STANDARDS FOR HEAVY DUTY URBAN BUS ENGINES AND THE FLEET RULE FOR TRANSIT AGENCIES

The Air Resources Board (ARB) has received several requests to modify the 2007 diesel urban bus engine standard in 1956.1 (a)(12) to match the heavy-duty truck engine standards in 1956.8. Engine manufacturers have informed ARB that they will not be able to meet California’s 0.2 g/bhp-hr PM standard until 2010 because their efforts are focused on the national truck engine standard. The federal law allows engine manufacturers to reduce NOx emission through averaging as a percentage of sales until the standard requires 100% of sales to be of engines meeting 0.2 g/bhp-hr in 2010.

In addition, ARB has also received requests to modify the diesel engine standards for 2004 to 2006 model years. Engine manufacturers will not be certifying diesel urban bus engines to California’s standard for those years, 0.5 g NOx/bhp-hr, because they are focused on the 2007 national standards. Some requesters specifically want ARB to modify the 2004 to 2006 urban bus engines standards to allow diesel hybrid electric urban buses to be sold. Currently, diesel hybrid electric buses are required to meet the same standard as other diesel urban bus engines.

As a result of these two California standards, ARB expects there to be no diesel urban bus engines certified in California from 2004 to 2009. Alternative-fuel urban bus engines, however, are being certified and should be readily available.

ARB is currently modeling expected emissions resulting from the current regulations and several scenarios that would encompass the suggested changes. Staff believes, but has not yet confirmed, that because the existing diesel urban bus standards prevent purchase of new diesel engines for six years, emissions will remain higher than if the engine exhaust emission standards are modified.
Interested Stakeholders
Page 2

Additional suggestions for obtaining needed emission reductions have been received from interested parties. Options that staff is considering include the following:

• Do not modify the diesel urban bus exhaust emission standards because alternative fuel buses are available 2004-2006 and may be available 2007 to 2009.
• Require all transit agencies to purchase alternative fuel buses (eliminate the diesel fuel path)
• Reopen the alternative NOx strategy exemption to all transit agencies; those transit agencies that receive the exemption would be able to purchase noncomplying urban bus engines 2004-2006 but would have to demonstrate reductions in NOx emissions through some mechanism.
• Add a new optional 2004-2006 engine exhaust emission standard for early introduction of advanced engine technology, set at 1.2 g NOx/bhp-hr, the expected level of compliance for 2007-2009 engines.
• Eliminate the 2007 California urban bus engine exhaust emission standards. Bus engines would certify to the applicable heavy-duty diesel truck engine standards beginning with the 2007 model year. This would result in one standard for all heavy-duty diesel engines nationwide beginning with the 2007 model year.

In the following draft regulations for comment, staff has illustrated the last two options from the list above. In addition, the draft regulations include modifications to the Fleet Rule for Transit Agencies, including the addition of standards for non-urban buses and a revision of the zero-emission bus requirements. Each of the proposals will be discussed in greater detail at the workshops on December 2nd (El Monte) and 3rd (Sacramento). Please refer to the workshop notice issued on November 3, 2003, for the specific locations and times.

As requested in the workshop notice, please send your comments by January 16, 2004, to Ms. Kathleen Mead by e-mail at kmead@arb.ca.gov or by mail to Ms. Kathleen Mead, Air Resources Board, Mobile Source Control Division, P.O. Box 2815, Sacramento, California 95812. Please also send a copy of your comments to Dr. Nancy L.C. Steele, nsteele@arb.ca.gov.
Interested Stakeholders
Page 3

**1956.1 Exhaust Emission Standards and Test Procedures - 1985 and Subsequent Model Heavy Duty Urban Bus Engines and Vehicles**

(a) The exhaust emissions from new 1985 and subsequent model heavy-duty diesel cycle urban bus engines and vehicles fueled by methanol, natural gas, liquefied petroleum gas, and petroleum shall not exceed the following, by model year:

1. [No Change]
2. [No Change]
3. [No Change]
4. [No Change]
5. [No Change]
6. [No Change]
7. [No Change]
8. [No Change]
9. [No Change]
10. [No Change]
11. [No Change]
12. 2007 and subsequent -- 0.2 g/bhp-hr NOx, 0.01 g/bhp-hr PM, 0.05 g/bhp-hr NMHC, 5.0 g/bhp-hr CO, and 0.01 g/bhp-hr formaldehyde.

(12) 2004-2006 optional standards for diesel-fueled, dual-fuel, and bifuel engines except for heavy-duty pilot ignition engines -- Manufacturers may choose to certify 2004 – 2006 model year diesel-fueled, dual-fuel, and bi-fuel bus engines to an optional 1.2 g/bhp-hr NOx plus NMHC standard, measured as the arithmetic sum of the NOx and NMHC exhaust component certification values, without restriction on individual component certification values; provided that engines certified to this optional reduced-emission...
Interested Stakeholders
Page 4

NOx plus NMHC standard may not participate in any averaging, banking, or trading program set forth in the test procedures document incorporated by reference in subdivision (c) of this section. Manufacturers certifying to this optional standard must also certify to a PM standard of 0.01 g/bhp-hr.

(b) [No Change]
(c) [No Change]

New Sections for the Fleet Rule for Transit Agencies:

Sections 2020 through 2027, title 13, California Code of Regulations (CCR) have been set aside for diesel particulate matter control measures for in-use vehicles. Currently, the Fleet Rule for Transit Agencies resides in title 13, CCR, sections 1956.2 – 1956.4. ARB staff proposes moving the Fleet Rule for Transit Agencies to title 13, CCR, section 2023, but keeping the urban bus certification requirements in title 13, CCR, section 1956.1.

Section 2023 will contain definitions and requirements pertinent to both urban bus and non-urban bus engines; section 1956.2 requirements and section specific definitions will be placed section 2023.1; section 2023.2 will contain the new non-urban bus requirements; section 1956.3 will be moved to section 2023.3; and 1956.4, record keeping requirements, will be moved to 2023.4 and expanded to incorporate non-urban bus record keeping requirements.

Proposed Modifications to the Fleet Rule for Transit Agencies:

_ is used for the deletion of previously adopted language. __Underline__ is used for addition of new language.

2023 Fleet Rule for Transit Agencies
Definitions:

(a) For purposes of the fleet rule specified in sections 2023.1 through 2023.4, the following definitions apply:
   (1) “Alternative fuel” [No change]
   (2) “Active fleet” [No change]
Interested Stakeholders
Page 5

(3) “Emergency contingency vehicle” [No change]
(4) “Heavy-duty pilot ignition engine” [No change]
(5) “Spare bus” [No change]
(6) “Transit agency” [No change]

(7) “Urban bus” means a passenger-carrying vehicle powered by a heavy heavy-duty diesel engine, or of a type normally powered by a heavy heavy-duty diesel engine, with a load capacity of fifteen (15) or more passengers and intended primarily for intra-city operation, i.e., within the confines of a city or greater metropolitan area. Urban bus operation is characterized by short rides and frequent stops. To facilitate this type of operation, more than one set of quick operating entrance and exit doors would normally be installed. Since fares are usually paid in cash or token, rather than purchased in advance in the form of tickets, urban buses would normally have equipment installed for the collection of fares. Urban buses are also typically characterized by the absence of equipment and facilities for long distance travel, e.g., restrooms, large luggage compartments, and facilities for stowing carry-on luggage.

(8) “Non-urban bus” means a passenger-carrying vehicle powered by a medium or heavy heavy-duty diesel engine, or of a type normally powered by a medium or heavy heavy-duty diesel engine; with a load capacity of fifteen or more passengers owned or operated by a transit agency; and which is not an urban bus.

(b) The following subparagraphs apply to Sections 2023.1 and 2023.2:
(These sections have been moved from 1956.2 so that they apply to the new non-urban bus requirements in addition to the urban bus requirements.)

(1) A transit agency that installs a diesel emission control strategy to reduce diesel PM shall use a diesel emission control strategy that is verified by the Executive Officer in accordance with section 2700 et seq., title 13, CCR, or an urban bus retrofit device that has been exempted under Vehicle Code section 27156 as an engine rebuild kit and that reduces PM to 0.10 g/bhp-hr when used on an engine model 6V92TA DDEC for the model years specified for that engine.
Interested Stakeholders
Page 6

(2) A transit agency that installs a diesel emission control strategy on an urban bus engine shall use the following percentage reductions from the engine certification standard value when calculating its total diesel PM emissions: 25 percent for a Level 1, 50 percent for a Level 2, and 85 percent for a Level 3 diesel emission control strategy.

(3) Beginning July 1, 2002, a transit agency shall not operate its diesel buses on diesel fuel with a sulfur content in excess of 15 parts per million by weight, except that a transit agency may operate its diesel buses on a fuel that is verified by the Executive Officer as a diesel emission control strategy that reduces PM in accordance with section 2700 et seq., title 13, CCR. A transit agency with fewer than 20 urban buses in its active fleets, and that operates in a federal one-hour ozone attainment areas, is not subject to this low-sulfur fuel requirement until July 1, 2006. In areas redesignated as one-hour ozone non-attainment areas prior to July 1, 2006, a transit agency initially exempt from the low-sulfur fuel requirement shall submit a plan to the Executive Officer within 30 days of redesignation for achieving compliance with this requirement.

(4) A transit agency with fewer than 20 urban buses in its active bus fleet or fewer than 20 non-urban buses may apply for an extension to comply with the provisions of section 1956.2 2023.1 and section 2023.2 by submitting documentation of financial hardship to the Executive Officer, in writing, at least 30 days before the requirement becomes applicable for approval by the Executive Officer. Documentation of financial hardship shall include, but is not limited to, an analysis of the cost of compliance, the sources of available funds, and the shortfall between funds available and the cost of compliance. The transit agency must also specify the date and means by which compliance will be achieved in the request for a delay.

(5) A transit agency that is unable to comply with an implementation deadline specified in section 2023.1 (f) (1), (2), (3), or (4) or Section 2023.2 (b)(1), (2), (3), or (4) because of the unavailability of technology may apply in writing no later than ninety days prior to the applicable implementation deadline to the Executive Officer for an extension, for a time of up to, but not to exceed, one year. The applicant must demonstrate that the technology is unavailable; shall explain why the transit agency cannot comply by replacing older buses; and shall provide a schedule for compliance.
Interested Stakeholders
Page 7

(6) A transit agency that owns, operates, or leases fewer than 20 diesel fueled, dual-fuel, bi-fuel, or diesel hybrid-electric urban or non-urban buses in its active fleet and that operates in a federal one-hour ozone attainment area may delay implementation of the intermediate total diesel PM emission reduction requirements provided the transit agency complies with the implementation deadlines set forth in section 2023.1 paragraphs (f)(3)(A) or (f)(4) or section 2023.2 paragraph (b)(3).

Move section 1956.2 Fleet Rule for Transit Agencies to 2023.1 and modify:

2023.1 Fleet Rule for Transit Agencies – Urban Bus Requirements

Requirements:

(c) Transit agencies on the alternative-fuel path shall meet the following requirements:

(5) Transit agencies on the alternative-fuel path shall not purchase any diesel-fueled, dual-fuel, or bi-fuel buses with 2004 – 2006 model year engines certified to emissions levels in excess of those specified in paragraph (a)(11) or (a)(12) of section 1956.1, title 13, CCR, except as provided in paragraph (c)(8) or (c)(9) of this section.

(d) Transit agencies on the diesel path shall meet the following requirements:

(4) Transit agencies on the diesel path shall not purchase any diesel-fueled, dual-fuel, or bi-fuel buses with 2004 – 2006 model year engines certified to emissions levels in excess of those specified in paragraph (a)(11) or (a)(12) of section 1956.1, title 13, CCR, except as provided in paragraph (d)(7) or (d)(8) of this section. Beginning July 1, 2003, a transit agency may not purchase alternative fuel buses certified to a PM emission level in excess of the optional standard of 0.3 g/bhp-hr when making new bus purchases.

PM Requirements

(f)

(3) No later than January 1, 2007:
(A) The diesel PM emission total for a transit agency on the
diesel path shall be no more than 15 percent of its diesel PM
emission total on January 1, 2002 or equal to 0.01 g/bhp-hr
times the total number of current diesel-fueled active fleet
buses, whichever is greater.

Add Proposed New Requirements for Non-Urban Buses Operated by Transit
Agencies:

2023.2 Fleet Rule for Transit Agencies - Non-Urban Bus Requirements

(a) A transit agency may not own, operate, or lease a fleet of non-urban
buses with average NOx emissions in excess of the following:

(1) Beginning January 1, 2007, a non-urban bus fleet average of 3.2
g/bhp-hr.
   (A) A transit agency may retire all 1997 and earlier model year
   non-urban bus engines by January 1, 2007, to comply with
   the fleet average standard requirement.

(2) Beginning January 1, 2010, a non-urban bus fleet average of 2.4
g/bhp-hr.
   (A) A transit agency may retire all 2002 and earlier model year
   non-urban bus engines by January 1, 2010, to comply with
   the fleet average standard requirement.

(3) A transit agency shall calculate its NOx fleet average based on nonurban
buses owned, operated, or leased by the transit agency. Zero emission
buses used to satisfy the requirements set forth in
subdivision (e) of section 2023.1 may not be used to meet the
requirements of this subparagraph.

(4) A transit agency may use a retrofit system verified by the Executive
Officer as a diesel emission control strategy that reduces NOx by a
specified percentage in accordance with section 2700 et seq., title 13,
CCR to comply with the fleet average requirement, in addition to bus
purchases, retirements, or engine repowering.

(5) A transit agency shall provide documentation of compliance with
section 2023 (a) requirements in accordance with the provisions of
subdivision (e) of section 2023.4, title 13, CCR.
Interested Stakeholders
Page 9

(b) A transit agency shall reduce the total diesel PM emissions of its diesel non-urban buses relative to its total diesel PM emissions from non-urban buses as of January 1, 2005, according to the schedule below. A transit agency shall calculate its diesel PM emission total for non-urban buses by summing the PM (FTP) certification standard, in grams per brake horsepower-hour (g/bhp-hr), for each non-urban bus, as identified in the Executive Order for the specific engine used in the bus. For 1987 and earlier model year engines, the PM certification standard shall be deemed to be 1.0 g/bhp-hr. A transit agency shall provide documentation of compliance with these requirements in accordance with the provisions of subdivision (e) of section 2023.4, title 13, CCR.

(1) No later than January 1, 2007, the diesel PM emission total for a transit agency’s non-urban buses shall be no more than 75 percent of its diesel PM emission total on January 1, 2005.

(2) No later than January 1, 2009, the diesel PM emission total for a transit agency’s non-urban buses shall be no more than 50 percent of its diesel PM emission total on January 1, 2005.

(3) No later than January 1, 2011, the diesel PM emission total for a transit agency’s non-urban buses shall be no more than 20 percent of its diesel PM emission total on January 1, 2005, or equal to 0.01 grams per brake horsepower-hour (g/bhp-hr) times the total number non-urban buses in the current fleet, whichever is greater.

Move 1956.3 Zero-emission Bus Requirements to 2023.3

Move section 1956.4 Reporting Requirements for all Urban Bus Transit Agencies to 2023.4, and modify:

2023.4 Reporting Requirements for all Urban Bus Transit Agencies

(a) The following reports on new urban bus purchases and/or leases by transit operators agencies on the alternative-fuel path shall be submitted as described below:

(b) The following reports on new urban bus purchase and/or leases by transit operators agencies on the diesel path shall be submitted as described below:
Interested Stakeholders
Page 10

(c) Each transit agency shall submit the following reports on the urban bus NOx fleet average requirement:

(d) Each transit agency shall submit the following reports on the total diesel PM emission requirements for its urban buses:

(e) Each transit agency shall submit the following reports for its non-urban buses:

(1) An annual report of the number, manufacturer, make, and model year of engines, and fuel used for each non-urban bus it currently owns, leases, or operates as of January 1st of each year, beginning in 2006. The first report shall be submitted by January 31, 2006, and subsequent reports shall be submitted annually by January 31 through the year 2016.

(2) For the NOx fleet average reduction requirements set forth in section 2023.2 (a):

(A) Initial documentation submitted by January 31, 2006, of the nonurban bus fleet NOx emission average as of January 1, 2006

(B) A report submitted by January 31, 2007, detailing the non-urban bus fleet NOx emission average as of January 1, 2007, or documenting the retirement of all model year 1997 and earlier non-urban bus engines by January 1, 2006.

(C) A final report submitted by January 31, 2010 detailing the nonurban bus fleet NOx emission average as of January 1, 2010, or documenting the retirement of all model year 2002 and earlier non-urban bus engines by January 1, 2010.

(3) For the total diesel PM reduction requirements set forth in section 2023.2 (b):

(A) Initial documentation submitted by January 31, 2006, of the PM engine certification value of each non-urban bus engine and the non-urban bus diesel PM total as of January 1, 2005.

(B) A report submitted by January 31, 2007, of the non-urban bus diesel PM total as of January 1, 2007, and the
Interested Stakeholders
Page 11

percentage diesel PM reduced, documenting compliance
with the requirement in section 2023.2 (b)(1) of title 13, CCR.

(C) A report submitted by January 31, 2009, of the non-urban
bus diesel PM total as of January 1, 2009, and the
percentage diesel PM reduced, documenting compliance
with the requirement in section 2023.2 (b)(2) of title 13, CCR.

(D) A final report submitted by January 31, 2011, of the non-urban
bus diesel PM total as of January 1, 2011, and the
percentage diesel PM reduced, documenting compliance
with the requirement in section 2023.2 (b)(3) of title 13, CCR.

(E) If a diesel emission control strategy has been applied to an
engine, each report specified above must include the Diesel
Emission Control Strategy Family Name in accordance with
the requirements of section 2705 (g)(2), title 13, CCR; and
the date of installation correlated to a specific non-urban bus
engine.

(f) The following reports on the zero-emission bus demonstration program.....

(g) The following reports on new zero-emission bus purchases....

(h) Transit agencies exempted from the requirements ....
Appendix D - Fuels and Vehicle Technologies

This appendix provides general, background information on bus fuels and technologies. Actual operating performance and emissions associated with different fuels and vehicles can vary dramatically according to how a fuel is produced, vehicle design, and engine specifications. Detailed information on performance and emissions are incorporated in the body of this report as they relate to appropriate buses for the intercommunity service.

D.1 Biodiesel

Biodiesel is a non-petroleum based, alternative diesel fuel that is produced from a variety of renewable energy sources, such as soybean oil, waste cooking oil, and animal fats. Biodiesel can be used in pure, “neat,” form, or as an additive to conventional diesel. The most common form of biodiesel is B20, where the fuel composition is 20% biodiesel and 80% petrodiesel. Although, vehicle fleets do operate on B100 (pure biodiesel). A major benefit of biodiesel is that it can be used interchangeably with diesel fuel in standard diesel engines with only minor modifications. Due to its designation as an alternative fuel by the federal Departments of Energy (DOE) and Transportation (DOT), biodiesel has been used increasingly by federally-regulated fleets. Disadvantages associated with the fuel include a six-month shelf life, modest increases in nitrogen oxide (NOx) emissions, poor cold-weather performance, and that it is not a verified emission reduction strategy in California.

Emissions

During its evaluation for emissions and potential health effects under Clean Air Act section 211(b), biodiesel demonstrated numerous emissions benefits as compared to conventional diesel. B100 showed a 67% reduction in unburned hydrocarbons (HC), 48% reduction in carbon monoxide (CO), 47% reduction in fine particulate matter (PM), and a 100% reduction in sulfates. Unfortunately for transit fleets in California, biodiesel has slightly higher (2% for B20 and 10% for B100) levels of NOx than conventional diesel which will impede its ability to be certified as an emission reduction strategy. Irrespective of biodiesel’s performance on federal testing, it has not been through CARB’s process for the verification of emission reductions for alternative diesel fuels. Until biodiesel has completed this verification, it will not be a fuel alternative for transit fleets.

Infrastructure & Capital Costs

Due to the fact that biodiesel fuel can be used with standard diesel engines, there is only a minor incremental cost to modify diesel buses to use biodiesel fuel. The more significant cost is associated with the limited production and distribution network of biodiesel. Fueling stations exist in Santa Barbara, Ventura, and Goleta – none of which would be convenient for the intercommunity service. If a new biodiesel fueling station were built it would be comparatively inexpensive because biodiesel has similar characteristics to petrodiesel. But, the cost per gallon for biodiesel averages $0.70 higher than traditional diesel.11

Applicability

Because biodiesel has not been verified in California to reduce emissions and does not meet CARB fuel standards, it cannot be used as a fuel source for a transit fleet. Therefore, biodiesel is not a viable fuel source for the intercommunity service.

D.2 Clean Diesel

“Clean diesel” is the name given to a combination of approaches that improves the emissions of diesel buses. There are three primary components to clean diesel – ultra-low sulfur diesel fuel, enhanced fuel combustion, and an after treatment (typically a particulate trap). Ultra-low sulfur diesel meets a standard of 15 parts per million (ppm) of sulfur. Enhanced fuel combustion includes technologies such as cooled exhaust-gas recirculation (EGR) and advanced combustion emissions reduction technology (ACERT). In order for clean diesel to reap all of its advertised benefits, all three components must be utilized. As of this writing all diesel engines can run on ultra-low sulfur fuel, but new, clean diesel equipment can only function with ultra-low sulfur fuel. Current CARB regulations require all diesel fuel sold in California be ultra-low sulfur by mid-2006.12

Benefits of clean diesel include: fuel efficiency superior to many alternative fuels; being a proven technology with known maintenance costs; having an established fuel distribution network; having multiple vehicle manufacturers; and having a lower vehicle cost than alternative fuel vehicles. Challenges and disadvantages associated with clean diesel include the limited capacity of oil refineries to produce 15 ppm ultra-low sulfur fuel, the stigma of standard diesel’s negative health and environmental impacts, the lack of 2004 model year diesel engines which meet CARB’s emissions standards.

Emissions

Exhaust from diesel-propelled transit buses is well documented as containing nitrogen oxides (NOx), sulfur dioxide (SO2), nonmethane hydrocarbons (NMHCs), and fine particulate matter (PM) – which contributes to heart attacks, cancer, and asthma, among other diseases. However, it is important to note that regulated changes in the composition of diesel fuel are expected to reduce overall on-highway diesel emissions by over 75%.13

Infrastructure & Capital Costs

As suggested above, the infrastructure requirements for clean diesel are quite low because diesel production and distribution networks already exist. Both Santa Barbara MTD and LA MTA get ultra-low sulfur diesel in Santa Barbara and SMAT is scheduled to open a new maintenance and operations facility in July 2004 that will dispense ultra-low sulfur diesel fuel. If the intercommunity vehicles are permitted to use SMAT’s facility, there will be no need to construct an additional fueling facility.

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12 This requirement currently applies to agencies with 20 or more urban buses or those in federal one-hour ozone non-attainment areas. Source: CCR Title 13, Section 195632 f6.
13 The 2007 federal emission standards for diesel engines are 0.2 g/bhp-hr of NOx, 0.01 g/bhp-hr of PM, and 0.14 g/bhp-hr of NMHC.
Applicability

Clean diesel is not considered an alternative fuel, which may make it more challenging to qualify for federal Congestion Mitigation and Air Quality (CMAQ) for vehicle purchases. Because no 2004 model year heavy, heavy-duty diesel engines have been certified to CARB’s 2004 emissions standards, any diesel vehicles used for the service would have to be older model years or medium-duty vehicles. Given the potential for CMAQ funding, readily available vehicles and fuel, and the low cost of technology – older (pre-2004 model year) or medium-duty clean diesel buses should be considered as a viable technology for the intercommunity service.

D.3 Fuel Cell or Hydrogen

A fuel cell produces electricity directly from the reaction between hydrogen (in pure form or from a hydrogen containing fuel) and oxygen from the air. Seen as the most promising technology of the future, fuel cells are currently only available as demonstration vehicles. Fuel cell buses have been, or are currently being, demonstrated by AC Transit (San Francisco Bay Area), Valley Transit Authority (San Francisco Bay Area), and SunLine Transit (Coachella Valley).

The widely touted benefit of fuel cell technology is that when powered by hydrogen, the only byproducts of burning the fuel are heat and water. But, when fuel sources other than hydrogen are used - running emissions are produced (albeit at much lower levels). When fuel cell buses become commercially available, they are expected to cost twice as much as conventional vehicles and at this point there is a great deal of uncertainty associated with operating, maintenance, and facility costs.

Emissions

As mentioned above, one of the greatest benefits of fuel cells is its reduction in running emissions. When using natural gas to produce hydrogen, the reduction in greenhouse gases is expected to be around 60%, while pure hydrogen or the electrolysis of water using renewable energy would generate no greenhouse gases.

Infrastructure

Infrastructure requirements for fuel cell vehicles will largely be dictated by the chosen source of hydrogen. In its pure form, hydrogen is expensive to store and distribute which suggests that alternative sources will be more likely, at least in the short term. Possible alternatives include diesel, methanol, and natural gas and their infrastructure requirements are discussed in their respective sub-sections.

14 Medium-duty vehicles from model years 1995 through 2003 have a manufacturer’s gross vehicle weight rating (GVWR) of 14,000 pounds or less. Note that medium-duty vehicles have their own standards and are not currently regulated by the transit fleet rule. (California Code of Regulations, Title 13, Division 3, Chapter 1, Article 1, Section 1900)

15 Bechtold.
Applicability

Due to the fact that fuel cell vehicles are not commercially available and that there is still a great deal of uncertainty associated with hydrogen sources and facility design, fuel cells are not a viable fuel for the intercommunity service.

D.4 Hybrid Electric

Hybrid-electric vehicles (HEVs) utilize promising technology that can rely on standard fuel sources (gasoline and diesel) or alternative fuels – providing varying levels of improved fuel efficiency and emissions reductions. There are three basic engine, motor/generator, and battery configurations on HEVs – parallel, series and split. In a series hybrid, the engine drives the generator, and the generator can either charge the batteries or power an electric motor that drives the wheels. In a parallel hybrid, both the engine and the generator/motor can supply power to the wheels, switching back and forth as driving conditions vary. In a split hybrid, the engine drives one axle and the electric motor drives the other. In addition to the engine and batteries as energy sources, the energy produced by braking can be stored (in batteries) for use later – increasing fuel efficiency and vehicle range. These innovations allow for less engine wear, smaller engines, lighter vehicles and smoother operation.

Benefits of hybrid-electric buses include the ability to utilize existing, readily available fuel sources, reduced maintenance costs due to electrical components replacing mechanical ones, improved operating efficiencies, and increased range. Challenges stem from the relatively small number of manufacturers producing hybrid-electric buses and a short history of vehicle performance. Although there is a strong future in heavy-duty HEVs, commercial production is relatively new.

Emissions

The emissions benefits of HEVs can vary widely depending on characteristics of a particular bus and the type of fuel that is used to power the engine. The most widespread fuels for HEV transit buses is diesel and gasoline, but propane, natural gas, and fuel cells may become more common in the future.

Research cites that a properly rated diesel engine in a hybrid-electric bus will exhibit energy consumption and emissions that are 30-40% lower than current diesel buses. Reduced NOx and PM emissions can be realized by using alternative-fuel engines instead of diesel. New York City’s Metropolitan Transit Authority cites expected emissions improvements of 90% for PM, 60% for NOx, 90% for NMHC, and 90%+ for its diesel-electric demonstration vehicles. (These vehicles run on ultra-low sulfur fuel and have particulate traps installed.) Gasoline-electric vehicles are being used with greater frequency in the South Coast Air Basin due to the stringent emissions standards in that area. Omnitrans has had 2 hybrid-electric gasoline vehicles in service for a couple of years and Long Beach Transit has 27 vehicles on order.

Infrastructure & Capital Costs

Infrastructure requirements will vary according to the primary fuel source. For diesel and gasoline powered engines, no special infrastructure changes are needed because the buses can be refueled at public service stations. If alternative fuels are used, more extensive infrastructure investments may be needed. Please refer to subsequent sections for information on the infrastructure requirements of alternative fuels. More significant for hybrid-electric vehicles is the cost of vehicles and batteries. Current year HE vehicles (gas or diesel) cost over $400,000, roughly twice the cost of a diesel bus.

As mentioned previously, HEVs are expected to have lower operating and maintenance costs due to the replacement of mechanical systems with electric ones. For example, vehicle braking on hybrid vehicles is done electrically, with no mechanical wear – reducing a common maintenance expense. However, the presence of batteries does introduce a maintenance cost – because they have to be replaced every 7 to 10 years, with a replacement cost from $20,000 - $50,000.

Applicability

HEVs that rely on diesel fuel are not considered alternative fuel vehicles according to CARB standards, although CARB is working on establishing a standard that HE-diesel engines can meet. Until such a change is made, only hybrid-electric gas buses are a viable option for the intercommunity service. The major drawback to hybrid-electric vehicles is their cost which may be over $200,000 more than a diesel bus.

D.5 Methanol and Ethanol

Both methanol and ethanol are alcohol-based, oxygenated fuels that can be produced domestically from natural gas, wood fiber, corn, and sugar cane. Currently there are no methanol vehicles in production, but future innovations with fuel cells might use methanol to generate hydrogen. Health and safety concerns associated with contaminating groundwater have limited the use of methanol as a fuel into and of itself. Ethanol does not have these same environmental and safety limitations and is regularly used as an additive to gasoline. Higher concentrations of ethanol are possible as fuels, with concentrations of 85% or more classified as alternative fuels. However, the use of ethanol is often limited by its availability and cost.

The Los Angeles County Metropolitan Transportation Authority (LACMTA) at one time had the largest fleet of ethanol vehicles in the country, but experienced significantly higher maintenance costs and reduced engine life compared to its diesel buses due to the corrosive nature of the fuel. Ethanol fuel is consistently more expensive and full-size buses are not readily available, which brings into question its appropriateness for the service.

Emissions

Both methanol and ethanol have consistently lower NOx emissions than diesel and have emissions similar to gasoline. Ethanol has lower CO and CO₂ emissions than both gasoline and diesel. The production of methanol is considered very clean, while total ethanol emissions vary by the method of production used. When produced from the fermentation of crops, green house gases from ethanol production can be
reduced by 25%. No net green house gases are released when ethanol is produced from cellulose. If methane is used as fuel for a fuel cell, green house gas emissions may be reduced by up to 50%.18

**Infrastructure & Capital Costs**

Production and distribution of ethanol is very limited, with its highest popularity in the Midwest where it is produced from corn. The fuel is generally transported by truck or rail due to its affinity for water, which will contaminate ethanol. Using such a fuel would require the construction of a fueling facility with relatively high safety standards.

**Applicability**

The lack of commercially available vehicles, limited range, high fuel costs, and the challenge of obtaining fuel make an alcohol-based technology inappropriate for the intercommunity service.

**D.6 Natural Gas – Compressed (CNG) or Liquid (LNG)**

In terms of the number of vehicles in operation, compressed natural gas is the most common fuel for transit buses after diesel. Roughly one-in-five new transit buses are powered by natural gas, which is found in gas wells or is produced in conjunction with crude oil.

The benefits of natural gas include that it is: a clean burning fuel; readily available in the United States; a lower cost fuel than diesel; and a large number of manufactures produce the vehicles and fueling stations. LNG is increasing in popularity as it has more consistent fuel quality and its infrastructure requirements are less demanding than for CNG. However, the fuel is less well known and has more limited availability. The challenges of natural gas include infrastructure requirements to accommodate the pressurized fuel, and increased costs for compressor stations and vehicle maintenance. Santa Barbara County has a history of problems with CNG not meeting CARB’s fuel standards, which limits its applicability for the intercommunity service.

**Emissions**

CNG and LNG experience similar reductions in the emission of NOₓ, air toxics, and PM. However, emission reductions are extremely sensitive to fuel system calibration, such that if not calibrated properly, NOₓ emissions can actually be worse than for diesel. When replacing diesel engines, natural gas engines can result in PM reductions of up to 90% and NOₓ reductions around 50%.19 The Natural Gas Vehicle Coalition estimates larger benefits, but on the same scale as those listed here.

**Infrastructure & Capital Costs**

At this point in time, vehicle and fueling station requirements are well known and established for CNG. Due to the high compression required for CNG the cost of storage – at facilities and on the bus – is quite high, due in part to the cost of liability insurance. Fuel station installations have high up-front costs, but

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19 Bechtold.
their long effective lives reduce life-cycle costs. In addition to construction costs, all high pressure fuel tanks require regular inspections.

LNG offers some benefits to CNG in that the pressure requirements are lower, which reduce facility and vehicle costs. But, because the fuel is not as well known, there is more uncertainty associated with operating and maintenance costs. In addition, LNG fuel tends to be more expensive than CNG fuel, offsetting any cost savings generated by reduced capital costs.

Currently, there are no LNG stations in the area and two CNG stations (Lompoc and VAFB), although they are not public facilities.

**Applicability**

Due to the history of poor fuel quality in Santa Barbara County and high vehicle and infrastructure costs, natural gas is not a viable fuel source for the intercommunity service.

**D.7 Propane or Liquid Petroleum Gas (LPG)**

Liquefied petroleum gas (LPG), commonly called propane, is a by-product of natural gas processing and petroleum refining. LPG buses have demonstrated reliable performance, good safety records, and have operational characteristics similar to conventional liquid fuels. In the recent past, most LPG vehicles have been converted from diesel buses. However, there are commercially available LPG vehicles and they are becoming more common.

Physical characteristics of propane make it easier and cheaper to store but its octane rating leads to worse fuel consumption than CNG. Propane is more expensive than CNG or LNG, but one source found that it was the most economical alternative fuel (on a per mile basis) when all costs (operating, ownership, and infrastructure) were considered. Because a portion of the LPG used in the U.S. is produced domestically, it also has energy security benefits.

**Emissions**

LPG-powered buses have emissions similar to CNG and LNG vehicles – fewer reactive organic compounds, less nitrogen oxide, and less carbon monoxide than a similar gasoline-powered vehicle. However, NOx emissions are not significantly different from gasoline-powered vehicles.

**Infrastructure & Capital Costs**

The well established, national distribution system for propane is one of the fuel’s major advantages. According to the Alternative Fuels Data Center, five LPG refueling stations are within 25 miles of Santa Maria and two are actually in Santa Maria. If it is determined that a fueling facility is needed to serve the intercommunity service, the cost of such a facility would be fairly modest because station designs are well established and fuel tanks can be stored above ground. The maintenance and operating costs for LPG fueling facilities are similar to diesel facilities.

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20 Owned by the Lompoc Unified School District, the station is located at 1301 N. A Street in Lompoc.
22 Santa Maria stations are: Main Street Shell at 1204 E. Main Street and AmeriGas at 912 W. Betteravia Road.
Experience with LPG vehicles has shown that they often need less frequent servicing and/or vehicle lives are longer than experienced with comparable diesel vehicles. One cautionary note with regards to LPG is that vehicles are restricted from using some bridges, tunnels, and parking garages. It will be important to confirm that no such restricted facilities are along the service alignment, prior to selecting LPG as the fuel/technology of choice.

Applicability

LPG-propelled buses are a realistic alternative for the intercommunity for a variety of reasons. First, propane fuel is widely available and if an additional fueling station is needed, the cost to build one is relatively modest. Second, the fuel has beneficial emission properties which should allow for a choice of buses which meet the relevant emissions standards. Finally, multiple well-known manufacturers produce LPG buses suggesting that any required support will be available in the future. A relatively minor drawback to propane is that because the vehicle emissions generally do not exceed current standards, a CMAQ grant proposal for LPG vehicles would not be able claim emission reductions from vehicle operation.
## Appendix E - Specific Vehicle Characteristics

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Vehicle Name</th>
<th>Fuel</th>
<th>Length (feet)</th>
<th>Engine</th>
<th>Transmission / Propulsion</th>
<th>Range</th>
<th>Delivery Time Frame</th>
<th>Vehicle Cost</th>
<th>Purchase</th>
<th>Lease</th>
<th>Lease</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Flyer</td>
<td>GE40LF</td>
<td>Hybrid-electric gas</td>
<td>40'</td>
<td>Ford Triton V10 6.8 L</td>
<td>ISE-Siemens ThunderVolt TB40-HG</td>
<td>107 gallons tank</td>
<td>Q1 2005; LBT(27,100)</td>
<td>No</td>
<td>$400,000 - $600,000</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>New Flyer</td>
<td>DE40LF</td>
<td>Hybrid-electric diesel</td>
<td>40'</td>
<td>Cummins ISL</td>
<td>Allison Ev 40 drive</td>
<td>535 miles (5 mpg)</td>
<td>Q3 2005 (80 weeks), options on Sound Transit (Seattle)</td>
<td>No</td>
<td>$450,000 - $650,000</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Thomas</td>
<td>SLF 232</td>
<td>Propane</td>
<td>32'</td>
<td>Cummins Electronic B Gas Plus</td>
<td>Allison B300R, 5 speed</td>
<td>450 miles (~3 mpg)</td>
<td>6-12 months, no options available</td>
<td>Yes</td>
<td>$250,000- $300,000</td>
<td>$58,850/year (5 yr term).</td>
<td></td>
</tr>
<tr>
<td>Thomas</td>
<td>SLF 235</td>
<td>Diesel</td>
<td>35' or 29'</td>
<td>Mercedes Benz 906</td>
<td>Allison B300R automatic</td>
<td>Unknown</td>
<td>Unknown</td>
<td>$225,000- $275,000</td>
<td>Unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thomas - New 2002 model</td>
<td>SLF 235</td>
<td>Diesel</td>
<td>35'</td>
<td>Mercedes Benz 906</td>
<td>Allison B300R automatic</td>
<td>Immediately</td>
<td>$38,445.91 for 7 years</td>
<td>$120,000 - $150,000</td>
<td>$38,445.91 for 7 years</td>
<td></td>
<td></td>
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<tr>
<td>Orion Bus Industries</td>
<td>Orion VII Low Floor</td>
<td>Hybrid-electric diesel</td>
<td>30', 35', and 40'</td>
<td>Cummins ISB 5.9L</td>
<td>BAE HybriDriveTM</td>
<td>will look up 100 gallons</td>
<td>Q1 2006, no options available</td>
<td>No</td>
<td>450000</td>
<td>NA</td>
<td></td>
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<tr>
<td>Blue Bird</td>
<td>Ultra LF</td>
<td>Diesel</td>
<td>35'</td>
<td>Cummins ISB-02</td>
<td>Allison LCT 2000 or B300R</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
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<tr>
<td>Blue Bird</td>
<td>Ultra LF</td>
<td>Propane</td>
<td>35'</td>
<td>Unknown</td>
<td>Unknown</td>
<td>90 miles / 180 miles</td>
<td>7-8 months</td>
<td>$240,00- $260,000</td>
<td>3-4% higher</td>
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</tr>
<tr>
<td>El Dorado</td>
<td>Transmark RE</td>
<td>Propane</td>
<td>32'</td>
<td>Cummins B5.9L or C8.3L</td>
<td>Allison MT-643 (B300, B300R)</td>
<td>200 miles</td>
<td>8-10 months</td>
<td>$150,000 - $200,000</td>
<td>Yes, through another company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>El Dorado</td>
<td>E-Z Rider II</td>
<td>Propane</td>
<td>35'</td>
<td>Cummins B5.9L or C8.3L</td>
<td>Allison B300, B300R, B400, B400R</td>
<td>200 miles</td>
<td>8-10 months</td>
<td>$150,000 - $200,000</td>
<td>Yes, through another company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North American Bus Industries (NABI)</td>
<td>35-LFW</td>
<td>Diesel</td>
<td>35' - 40'</td>
<td>Unknown</td>
<td>Unknown</td>
<td>250-300 miles</td>
<td>Over 1 year</td>
<td>NA</td>
<td>$300,000- $400,000</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Vehicle Name</td>
<td>Seated Pax</td>
<td># Doors</td>
<td>Weight (GVWR, lbs)</td>
<td>Agencies using</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>New Flyer</td>
<td>GE40LF</td>
<td>Up to 39</td>
<td>2</td>
<td>38,700</td>
<td>LBT - on order, Omnitrans - (3 retrofitted by ISE)</td>
<td></td>
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</tr>
<tr>
<td>New Flyer</td>
<td>DE40LF</td>
<td>Up to 39</td>
<td>2</td>
<td>40,600</td>
<td>Portland (on order), Philadelphia, Austin, King County</td>
<td></td>
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</tr>
<tr>
<td>Thomas</td>
<td>SLF 232P</td>
<td>27 with 2 doors</td>
<td>1 or 2</td>
<td>20,750 (CW)</td>
<td>Omnitrans, Riverside Transit, Thousand Oaks, West Covina</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Thomas</td>
<td>SLF 235</td>
<td>31 with 2 doors</td>
<td>1 or 2</td>
<td>28,570 lbs</td>
<td>Prince George County, Valley Metro, TARTA</td>
<td></td>
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<tr>
<td>Thomas</td>
<td>SLF 235 (MY 2002)</td>
<td>31 with 2 doors</td>
<td>2 or 2</td>
<td>28,570 lbs</td>
<td>Same as above</td>
<td></td>
<td></td>
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<tr>
<td>Orion Bus Industries</td>
<td>Orion VII Low Floor</td>
<td>Up to 38</td>
<td>1 or 2</td>
<td>42,540</td>
<td>NYC (300+), Las Vegas</td>
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<tr>
<td>Blue Bird</td>
<td>Ultra LF</td>
<td>Up to 35</td>
<td>Unknown</td>
<td>28,660</td>
<td>Unknown</td>
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<tr>
<td>Blue Bird</td>
<td>Ultra LF</td>
<td>Up to 35</td>
<td>2</td>
<td>17-19,000</td>
<td>Unknown</td>
<td></td>
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<tr>
<td>El Dorado</td>
<td>Transmark RE</td>
<td>29-33</td>
<td>1 or 2</td>
<td>29,000</td>
<td>LADOT, City of Glendale, UCLA, San Diego County DOT</td>
<td></td>
<td></td>
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<tr>
<td>El Dorado</td>
<td>E-Z Rider II</td>
<td>Up to 29</td>
<td>2</td>
<td>31,280</td>
<td>LADOT, City of Duarte, Sonoma County Transit, Sac. Intl. Airport</td>
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<tr>
<td>North American Bus Industries (NABI)</td>
<td>35-LFW</td>
<td>35</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
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## Appendix F - Agency Experiences with Proposed Vehicles

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>Thomas SLF</th>
<th>GLTC (Lynchburg, VA)</th>
<th>Riverside Transit</th>
<th>Valley Metro (Roanoke, VA)</th>
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<tbody>
<tr>
<td>Model Year</td>
<td>2001</td>
<td>2003 (10)</td>
<td>2001</td>
<td></td>
</tr>
<tr>
<td>Fuel</td>
<td>Diesel</td>
<td>CNG</td>
<td>Diesel</td>
<td></td>
</tr>
<tr>
<td>Operating speeds</td>
<td>Low- urban/suburban service</td>
<td>High - used on new commute routes (express service)</td>
<td>High - express service</td>
<td></td>
</tr>
<tr>
<td>Terrain</td>
<td>Hilly - low-end torque and power</td>
<td>Flat</td>
<td>Generally flat</td>
<td></td>
</tr>
<tr>
<td>Heavy loads</td>
<td>--</td>
<td>No, very light loads.</td>
<td>--</td>
<td></td>
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<tr>
<td>Complaints</td>
<td>Parts are costly and manuf. Specific, a/c problematic, have suspension problems - porpoising, damage to lower body panel due to super low floor, bus width makes it hard for wheelchairs to maneuver.</td>
<td>Low floors are too low - causing damage to bus body; bus dives down if you brake too hard. Parts availability has been an issue.</td>
<td>Performance and maintenance a bit worse than other buses (Gilligs), has had multiple problems - blames on the buses being first off the line; parts have been costly and hard to get.</td>
<td></td>
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<tr>
<td>General comments</td>
<td>Not very satisfied - performance, parts availability, low floors, width.</td>
<td>Very satisfied, thinking about ordering more. Riders like the buses.</td>
<td>Important to have a good dealer/vendor.</td>
<td></td>
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<table>
<thead>
<tr>
<th>AGENCY</th>
<th>El Dorado Transmark</th>
<th>LA Dept. of Transportation</th>
<th>UCLA - Fleet Services</th>
<th>City of Glendale</th>
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<tbody>
<tr>
<td>Model Year</td>
<td>1998 -1999</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Fuel</td>
<td>Propane</td>
<td>CNG</td>
<td>CNG</td>
<td></td>
</tr>
<tr>
<td>Operating speeds</td>
<td>Slow – 25 mph</td>
<td>Primarily 25 mph, except for special trips</td>
<td>25 - 35 mph</td>
<td></td>
</tr>
<tr>
<td>Terrain</td>
<td>Varies, hills and flats</td>
<td>Couple of hills</td>
<td>Lot of flats, some big hills (limit 25-35 mph). Buses do pretty well on hills, can be sluggish w. heavy loads.</td>
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<tr>
<td>Heavy loads</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Complaints</td>
<td>Vehicles slow considerably on hills with heavy loads, turn off A/C to increase available power. More problems with engine than vehicle.</td>
<td>None</td>
<td>Has some overheating problems with a/c, smaller engine can be a problem for crush loads.</td>
<td></td>
</tr>
<tr>
<td>AGENCY</td>
<td>El Dorado Transmark</td>
<td>LA Dept. of Transportation</td>
<td>UCLA - Fleet Services</td>
<td>City of Glendale</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------</td>
<td>-----------------------------</td>
<td>-----------------------</td>
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</tr>
<tr>
<td>General comments</td>
<td>El Dorado has been very responsive to any problems with the vehicle or engine. Have worked out all of the issues that have come up. Would like a bigger engine, but do not expect one to be made for propane. Allison transmission works well.</td>
<td></td>
<td>Vehicles are holding up well, no major problems.</td>
<td>Advantage that they are made locally, great lift, good w. parts, good value - but you get what you pay for.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>El Dorado E-Z Rider II</th>
<th>LA Dept. of Transportation</th>
<th>Sonoma County Transit</th>
<th>Sacramento Int'l Airport</th>
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<tbody>
<tr>
<td>Model Year</td>
<td>1998 - 2002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel</td>
<td>Propane</td>
<td></td>
<td>CNG w. John Deere engine</td>
<td>CNG</td>
</tr>
<tr>
<td>Operating speed</td>
<td>Slow – 25 mph</td>
<td></td>
<td>20-25 mph</td>
<td>35 mph max</td>
</tr>
<tr>
<td>Terrain</td>
<td>Varies, hills and flats</td>
<td></td>
<td>Relatively flat</td>
<td>Flat</td>
</tr>
<tr>
<td>Heavy loads</td>
<td>Yes</td>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Complaints</td>
<td>Vehicles slow considerably on hills with heavy loads, turn off A/C to increase available power. More problems with engine than vehicle.</td>
<td>No</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>General comments</td>
<td>El Dorado has been very responsive to any problems with the vehicle or engine. Have worked out all of the issues that have come up. Would like a bigger engine, but do not expect one to be made for propane. Allison transmission works well.</td>
<td>Minor problem with leaf springs - addressed by dealer.</td>
<td>Gave buses a high rating and plans to buy 6 more this year; mentioned that ADA passengers love the buses.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix G - Sample Letter Soliciting Stakeholder Feedback

December 17, 2003

Contact Name
Contact Address

Dear Recipient:

My firm, Urbitran Associates, Inc. is beginning a project to develop an implementation plan for intercommunity transit service between Lompoc, Vandenberg Air Force Base (VAFB), and Santa Maria. This is a coordinated effort in which we are working with Santa Barbara County Association of Governments (SBCAG), Santa Barbara County Public Works Department, VAFB, Caltrans, and the cities of Lompoc and Santa Maria. We are contacting you to solicit your input which will be of critical importance in the successful development of the intercommunity transit service.

Much of the groundwork has already been laid for this project over the past several years. For example, through the annual unmet transit needs hearings and extensive survey work in the North County, it has been learned that there is demand for transit service in the study area. In fact, a preliminary implementation proposal has already been drafted for this service. Based upon this proposal, bi-directional service between Lompoc, VAFB, and Santa Maria would operate along the Highway 135/Highway 1 corridor on weekdays between 5:45 AM and 6:45 PM with service scheduled to meet commuter peak hour travel and general purpose mid-day travel needs.

Please respond to me with your suggestions, comments and concerns regarding this intercommunity transit service. Any feedback that you have would be greatly appreciated; however, specific comments on the hours of service, frequency of service, route alignment, proposed bus stop locations, or requested bus/bus stop amenities would be particularly valuable. You can email comments to me at scorbett@urbitran.com or call me at (510) 839-0810. Comments can also be mailed to me at the address on this letterhead. If you have any questions about the study in general, feel free to also contact SBCAG representatives, Michael Powers or Ruth Garcia at (805) 961-8900.

If interested, I would also like to extend the invitation to meet with me in person to discuss any issues related to the Lompoc-VAFB-Santa Maria intercommunity transit service. Feel free to contact me to arrange a meeting time and place.

Thank you very much for your time and I look forward to hearing from you.

Sincerely,

Sam Corbett

Sam Corbett
Director of Planning, Western Region
## Appendix H - Stakeholders

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<thead>
<tr>
<th>Organization</th>
<th>City</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of America</td>
<td>Santa Maria, CA</td>
<td>Sheri Bryant</td>
</tr>
<tr>
<td>Bank of America</td>
<td>Santa Maria, CA</td>
<td>Marcel Bloomer</td>
</tr>
<tr>
<td>Bank of Santa Maria</td>
<td>Santa Maria, CA</td>
<td>Jim Blines</td>
</tr>
<tr>
<td>Bonita Packing Co.</td>
<td>Santa Maria, CA</td>
<td>Henri Ardantz</td>
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<tr>
<td>Wells Fargo Bank</td>
<td>Santa Maria, CA</td>
<td></td>
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<tr>
<td>Arbor Medical Group</td>
<td>Santa Maria, CA</td>
<td>Franseca Muller</td>
</tr>
<tr>
<td>Mafi-Trench</td>
<td>Santa Maria, CA</td>
<td>Rick Krull</td>
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<tr>
<td>Union Asphalt</td>
<td>Santa Maria, CA</td>
<td>Maureen Asmussen</td>
</tr>
<tr>
<td>Security Farms</td>
<td>Santa Maria, CA</td>
<td>Sammy Minami</td>
</tr>
<tr>
<td>Radisson Hotel</td>
<td>Santa Maria, CA</td>
<td>Sonia Hortata</td>
</tr>
<tr>
<td>J C Penney Company</td>
<td>Santa Maria, CA</td>
<td>Jean Roth</td>
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<tr>
<td>Mervyn's</td>
<td>Santa Maria, CA</td>
<td>Elsa Para</td>
</tr>
<tr>
<td>K Mart</td>
<td>Santa Maria, CA</td>
<td></td>
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<tr>
<td>Robinson May Company</td>
<td>Santa Maria, CA</td>
<td>Tony Lassos</td>
</tr>
<tr>
<td>Santa Maria Inn</td>
<td>Santa Maria, CA</td>
<td>Dawn Rust</td>
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<td>Target</td>
<td>Santa Maria, CA</td>
<td>Tim Hollister</td>
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<tr>
<td>Sears Roebuck &amp; Co.</td>
<td>Santa Maria, CA</td>
<td>Linda Tovar</td>
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<td>Costco Wholesale</td>
<td>Santa Maria, CA</td>
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<td>E. Gottschalk &amp; Co.</td>
<td>Santa Maria, CA</td>
<td>Patricia Keser</td>
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<td>Santa Maria Times</td>
<td>Santa Maria, CA</td>
<td>Tanya Astrosky</td>
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<td>Teixeria Farms</td>
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<td>Mark Teixeria</td>
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<td>Carrows Restaurant</td>
<td>Lompoc, CA</td>
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<td>Mervyn's</td>
<td>Lompoc, CA</td>
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<td>Wal-Mart</td>
<td>Lompoc, CA</td>
<td>JoAnne Haney</td>
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<td>Lynn Mathis</td>
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<td>Bev Goforth</td>
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<td>Lompoc, CA</td>
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<td>Santa Barbara, CA</td>
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<td>Santa Maria, CA</td>
<td>Sara MacDonald</td>
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<td>Citizens Planning Association</td>
<td>Orcutt, CA</td>
<td>Olga Howard</td>
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<td>COAST</td>
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<td>Jessica Sheeter</td>
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<td>Robert Hatch</td>
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<td>Joni Gray</td>
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<td>Organization</td>
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<td>--------------------------------------------------</td>
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<tr>
<td>Mayor, City of Santa Maria</td>
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<td>Larry Lavagnino</td>
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<td>Department of Social Services</td>
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<td>Bobbi Thompson</td>
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<td>Maureen Withers</td>
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<td>Ali Rowell</td>
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<td>Brad Hendricks</td>
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<tr>
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<td>Douglas Brown</td>
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<td>Heather Johnson</td>
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<td>Isabel Johnson</td>
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<td>Santa Maria Independent Living Environment</td>
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<td>Judith Monte</td>
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<td>Marian Residence</td>
<td>Santa Maria, CA</td>
<td>Linda Maloney</td>
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<tr>
<td>Foodbank of Santa Barbara County</td>
<td>Santa Maria, CA</td>
<td>Robert Huber</td>
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<td>First Steps</td>
<td>Santa Maria, CA</td>
<td>Ruth Griffin</td>
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<tr>
<td>Santa Maria Valley Youth &amp; Family Center</td>
<td>Santa Maria, CA</td>
<td>Ruth Murphy</td>
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<td>Salvation Army - Santa Maria</td>
<td>Santa Maria, CA</td>
<td>Theresa Bartlett</td>
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<td>Parks, Recreation &amp; Urban Forestry</td>
<td>Lompoc, CA</td>
<td>Vincent Elizondo</td>
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<td>American Cancer Society</td>
<td>Lompoc, CA</td>
<td>Virginia Dover</td>
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Appendix I - Summary of Written Public Comments

Schedule and Bus Stop Locations

Comment #1: There should be an initial period of "trial and error" for times, rates, frequency, stop locations, etc.

Comment #2: I would like you to consider having buses run until 8:00 p.m. so that more people from both communities can have access to transit. This would be invaluable for students and those who work in both communities. I also would like to have stops made available and the Allan Hancock College Lompoc Campus and the main campus of Allan Hancock College. This would bring students and teachers more flexibility for educational opportunities and provide those with disabilities and low incomes with necessary transportation. Also we would need a stop at Marian Medical Center, The County Offices on Betteravia and have an area for Park and Ride at Clark Ave closest to the 135 freeway.

Comment #3: I work mostly in Santa Maria, but also have to commute to Lompoc at least twice a week. To me this route will be beneficial to get to and from work. I also think it will be of great benefit to those young soldiers on the base on limited incomes with no other means of transportation.

Comment #4: The route should have drop offs in both Santa Maria and Lompoc near major shopping centers and work offices. For example, the Albertson's shopping Center in Lompoc and the Mall in Santa Maria. The time for these drop offs should work in accordance to allow for catching either SMAT or COLT within 15 minutes after drop-off. This would allow for planning to be on time to work or to appointments without wasting 1-2 hours just for transportation.

Comment #5: The bus schedule in the morning should run in 15-30 minute increments during the weekdays. In other words, if it starts at 5:45 am, the next bus should arrive at 6:15 am, then 6:45 am...and so on up to 9:00 am. The same should happen in the late afternoon starting at 4:00 pm. After 9:00 am one bus every few hours would probably work fine for doctor’s appointments and other use of transportation.

Comment #6: LOVARC operates supported employment crews at the air force base on the following shifts: Mon.-Fri 5:30am-1:30pm and 11:00am-7:00pm. We also run a shift from 8:00pm-4:00am.

Comment #7: This is great news. I would recommend that the bus run daily, Mon thru Fri starting at 7:00 am and running until the evening (9:30 p.m.) to accommodate our AHC students. I strongly recommend that the WRC be added to the scheduled stops. The morning (7:00 am) run should be an express bus only stopping at the locations that have the most potential for employment; i.e., VAFB, City Hall in S.M., Betteravia Gov. Center, etc. This would benefit our clients who need to be at work by 8:00 a.m.

Comment #8: Here's a few ideas that helped out last time we had transportation in place:
Drop off/pick up spot at Juvenile Court/SBSO on Foster Road, as many times during day as possible including an early morning one for those that have 8:30am appts. in SM, and have other bus stops be close to SMAT stops.

Comment #9: As a medical group with 2 separate offices near Marian Medical Center, we would be very interested in seeing a bus stop near the hospital (1400 East Church Street.) This would allow access to many doctors' offices located in the vicinity. Based on our anecdotal experience, we see quite an unmet need for transportation between Lompoc and Santa Maria for our patients. It would be nice to see a bus come through at least once an hour. The proposed hours of operation would be adequate for our patients who have appointments during the day. As with many doctors' offices, we are closed on the weekends, so weekdays would be enough for our patients. The service might also be appropriate for those of our staff who commute from Lompoc.

Comment #10: The hours listed in your letter appear to be appropriate to serve the needs of most riders. A suggestion for bus stop locations would be to select three or four strategic locations that are currently used by COLT (city transit) such as the stop near our building, Vandenberg Village, the stop near North Avenue and near Laurel Avenue and O Street.

Comment #11: The hours of service and the frequency of available transportation is of great importance. In the past, the program that was available did not accommodate some of the needs. Such as weekend service for Social Security medical appointments, evening service for the college students, extended day service for out-patients (medical procedure done and have to wait before they can travel back home.) I believe that the hourly service that was available in the past would be a good start.

Vehicles, Shelters and Other Capital Requirements

Comment #12: I would recommend that the type of transit vehicles selected be extremely fuel efficient and low emission. In addition, these vehicles should be of a size that can be used for multiple venues.

Comment #13: If the buses are clean, comfortable, punctual, courteous, and reasonable, they will be used.

Comment #14: Bus stops are a downer. They are not attractive, they are not protective, and half the time people can't find them. They need a re-do.

Comment #15: Safety would be a big concern for the sight to wait for a bus. Brightly lighted areas would be beneficial, A payphone in the immediate area to make calls if needed. Enough bench seats to allow people to sit comfortably to wait for the bus.

Comment #16: What about internet connections for those business people waiting for the bus? A speaker with music of some sort? Heated area during the winter, Cooling during the hot summer time. Brochure stands with useful information to read while they are waiting. Could get those from different businesses for free and it would not matter if they were stolen.
Comment #17: Buses should be bicycle compatible.

Comment #18: Don’t need huge buses, smaller buses would probably be fine.

Marketing

Comment #19: The importance of offering a few days of free use with written feedback requested (filling out cards on bus) is crucial to get people out to try it and maybe love it. The rates are not as important as the opportunity to try the service, experience the plusses, figure out savings, and know that it is a reliable source of transportation.

Comment #20: For those individuals that are solely Spanish speaking, the services offered should be advertised on Spanish radio which is the source of community information for this segment of the population.

Comment #21: I hope that there is some involvement by the College in this venture.

Comment #22: Marketing is very important, and should include social service agencies, the courts, adult/ juvenile probation departments, traffic solutions, large employers, etc. It’s also important to advertise in all three area papers: SM Times, Lompoc Record, and SB News-Press.

Demand for Service

Comment #23: Our MIA program requires that for an application the patient bring in a copy of the Social Security Card or that they apply for disability or unemployment benefits. Both the Social Security Office and the Unemployment Office are located in Santa Maria. Some of our homeless clients have been unable to go to the shelter in SM when the shelter here in Lompoc was full. There are also services and programs that the patients have not been able to participate in because the service is in Santa Maria, i.e. therapy and detoxification programs. Some of our patients have also needed to attend a court hearing and have been unable to do so.

Comment #24: The patients here at the Lompoc Clinic have encountered a variety of problems dealing with the lack of transportation to and from Santa Maria, CA. First of all there are clinic patients that have to be seen in the Santa Maria Clinic for medical care that is not available in the Lompoc Clinic. There is also a need for our patients to see other physicians in the Santa Maria area, not available in either the Lompoc or the SM clinic, e.g., chemotherapy, pediatric dentistry and specialty physicians.

Comment #25: Lompoc residents, especially juveniles, have a hard time getting to court in Santa Maria. There is no adult drug court in Lompoc, so people have to go to Santa Maria. Mental health treatment is also only in Santa Maria. Thursday and Friday are the busiest court days for Lompoc juveniles.

Comment #26: The transit system would have to be able to service the elderly and children.
Comment #27: Our Teenage Parenting Project helps young parents go to college. Many of our teen parents cannot continue their education due to the fact that some college courses at Alan Hancock College are only available at the Santa Maria Campus.

Comment #28: I've worked in Lompoc over five years for a non-profit agency and have always been interested in transportation issues. There is a critical need for low income persons to get from Lompoc to Santa Maria, especially for doctor appointments, college classes, etc.

Comment #29: Up until about 5 years ago, I often heard students complain about the lack of transportation from surrounding communities and how difficult it was for many of them to get to classes. However, to be honest, I have heard far fewer complaints over the past few years - this isn't necessarily indicative that the need no longer exists!

Comment #30: Our office currently receives an estimated 10 inquiries per month regarding bus service between the two communities.
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