CHAPTER 4: FUTURE DIRECTIONS--DRAFT

Since the last SRTP, much has changed on the fiscal landscape—both nationally and locally—which directly impacts the future direction of the District. The nation is suffering significant deficits, which directly translate into state and local issues. For AC Transit, the downturn in the economy has resulted in lower than expected revenues and shortfalls for the next several years. This condition has lead to cuts in service, personnel lay-offs, and other cost controls necessary to keep the District in operation.

In December 2003, AC Transit will reduce service hours by the greatest percentage experienced in the last 20 years. Unlike the more robust future anticipated in the 2001-2011 SRTP, the future direction of AC Transit relies heavily on efforts to maintain the existing service and keep the system useful and operational. In fact, the greatest challenge the District faces is avoiding further service cuts. Even our System Expansion Plans indicated ways to not only improve the service but to rebuild the service levels that AC Transit has been forced to cut previously.

This chapter sets out how AC Transit intends to maintain and expand services within the 10-year horizon of the SRTP. The District’s plans for future services and capital investment are based on anticipated funding levels. This chapter details the District’s priorities for maintaining existing services and expanding them as new revenues become available. It also describes the investment planned to improve travel times on major corridors, which can also assist in making the service more efficient. This chapter also summarizes the District’s capital and financial plans, which are contained in full in Appendices A and B.

The plans here are those that AC Transit anticipates are possible with anticipated levels of funding, together with the new revenues expected from sources such as the new parcel tax in District 1. The District’s aspirations should more funding become available are set out in the Strategic Vision in chapter 5.

District Priorities

With the 2001 SRTP, the AC Transit Board adopted a policy statement that clearly articulated the District’s service priorities for the foreseeable future. The highest priority of the District is to preserve the existing system—which includes our current levels of service as well as a well-maintained fleet of buses and facilities. Despite the current financial situation, this priority remains sound. In fact, preserving the system and the current service levels without resorting to further cuts is the biggest challenge facing the District today.

Due to this challenge, the next priority is to rebuild and enhance the system. This priority includes planned improvements to the most heavily used core transit services described further in this chapter, in addition to system rebuilding efforts that may reinstate some services that were recently cut.

Rebuilding the system and enhancing the most heavily used core transit services is consistent with the Service Deployment Policies discussed in Chapter 3, which call for the District to devote more resources to the routes in the densest parts of the East Bay. The
The only exception to this policy would be associated with the rebuilding of service to 2002 levels, which may involve other strategies to meet rider demands, geographic coverage or social equity concerns. Expansions to other services, including lesser-used lines or times of day, Transbay or regional express service, or new, innovative flexible service, would be funded only once the needs of the major corridors and other demand-based routes have been met, or if funding was obtained specifically for these purposes.

**System Preservation Policies**

These policies should guide the District in achieving their highest priority—Maintenance of the existing system.

<table>
<thead>
<tr>
<th><strong>Policy:</strong> Vehicle Replacement</th>
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<tbody>
<tr>
<td>Optimally, vehicles should be replaced every 12 years. The District can expedite the replacement process by using leasing options, timing the award of vehicles to funding availability or by other appropriate methods.</td>
</tr>
<tr>
<td><strong>Rationale:</strong></td>
</tr>
<tr>
<td>In order to keep the fleet modern, safe, efficient and environmentally up-to-date, it is essential that vehicles be replaced once they have completed their useful life.</td>
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<table>
<thead>
<tr>
<th><strong>Policy:</strong> Vehicle Rehabilitation</th>
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<tbody>
<tr>
<td>The District should continue to seek funding to complete mid-life overhauls, engine re-powering or other projects that can assist in either extending the life of the vehicle or ensure that the buses are as useful and efficient as possible.</td>
</tr>
<tr>
<td><strong>Rationale:</strong></td>
</tr>
<tr>
<td>Intensive vehicle rehabilitation can affect the safety and efficiency of the District’s fleet.</td>
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<table>
<thead>
<tr>
<th><strong>Policy:</strong> Maintenance of Service and Facilities</th>
</tr>
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<tbody>
<tr>
<td>The District should continue to advocate for stable funding sources to ensure that existing service levels are maintained and facilities are kept in optimal shape.</td>
</tr>
<tr>
<td><strong>Rationale:</strong></td>
</tr>
<tr>
<td>In order to maintain service levels – even in the event of a downturn in the economy – it is necessary to have stable sources of operating revenue so that basic levels of service envisioned in the Financially Constrained Operating Plan can be maintained. This includes the routine up-keep of facilities that are used to house employees as well as maintain the District’s fleet.</td>
</tr>
</tbody>
</table>
Policy: Neighborhood Appropriate Vehicle Size

The District should match the size and type of bus with anticipated services in the areas in which the buses operate.

Rationale:
In order to improve community satisfaction with buses that operate in all types of neighborhoods, the District should have a mix of vehicles to provide the most appropriate vehicle type for the services offered, including smaller vehicles for low-density or flexible services, as well as articulated vehicles for high ridership trunk corridors. To make that determination, an assessment of the service area should include: land uses, topography and street configuration, acceptable noise levels, bus ridership and load factors, vehicle durability and maintenance needs, service characteristics and Title VI and Environmental Justice considerations. The mix of fleet should also take into consideration temporal changes in both service and neighborhood activity to assess the most efficient and neighborhood-appropriate vehicle for the anticipated services.

System Expansion Policies

System Expansion Policies are based on the understanding that the District’s priority for expansion needs to include efforts to rebuild the system to levels that are necessary to operate a useful and efficient system. In December 2003, the District was forced to cut a significant portion of the service due to budget deficits. Planned increases to service have been put on hold until the financial picture improves. As such, service levels over the next ten years may not be adequate to meet the needs of the community. The District anticipates needing the rebuild the system to provide more local service to our riders, and to take advantage of new funding sources that may be available for increases in our Transbay and Express service. After the system has been rebuilt, the District can begin to expand, recognizing that the Major Corridor enhancement represents the highest priority for true expansion.

Policies: System Rebuilding

Rebuild the system in the most productive way possible using the service deployment policies to determine the most appropriate reinstatements--taking into consideration geographic access, social equity and rider demand.

Rationale:
Much of the service that was eliminated in December 2003 was relatively unproductive and inefficient. However, some of the service was only eliminated because there were not sufficient revenues to support their retention. When rebuilding the system, some of the more productive of the services that were cut should be considered for reinstatement.

Policies: Major Corridors and Demand-based Routes

- Use revenue increases to improve service levels along trunk and demand-based routes
- Implement “Limited Stop” express service on most heavily used trunk corridor service
- Work with Cities and Counties to purchase hardware or to coordinate traffic signals, and develop policies for the implementation of signal priority for buses on
the major corridors or arterials
- Implement “Proof-of-Payment” fare collection on trunk routes, contingent upon successful pilot project

**Rationale:**
Trunk and/or demand-based routes operate in the areas with the most dense residential and commercial development, carry the most people and are consequently the most efficient. Priorities relative to the major corridors and demand-based routes can also help both the District and our partner agencies in planning efforts to increase the efficiency of bus operations, including signal priority, proof of payment, or other capital improvements that can assist bus operations. Additionally, some routes, which operate on crosstown or feeder routes, may require additional night and weekend service when warranted by usage.

**Policy: Lower Productivity or Flexible Routes**
Services should be increased on lower productivity routes (or during the off-peak hours when ridership is significantly lower), only after improvements to the major corridors or demand-based routes have been made, or contingent upon funding specifically for that purpose.

**Rationale:**
While the five major corridor routes carry over 40% of the system’s daily passengers, there is still a network of over 90 lower productivity routes that carry the remaining 60%. As a result, there should be enhancement strategies for those routes – or time periods – when productivity and efficiency is low. The District has been successful in obtaining funding for Welfare-to-Work services (during the off-peak time period) from a variety of sources including; Federal programs and earmarks, Measure C in Contra Costa County, and Alameda County CalWORKS funds. If the District continues to be successful in obtaining these grant funds, they can be used to implement programs that may be useful to the community but are somewhat inefficient to operate.

**Policy: Transbay and Express Routes**
Use Transbay policies developed in the Transbay Comprehensive Service Plan to expand, enhance or sustain service on existing Transbay routes.
- Any increases in Transbay service should be determined by the availability of external funds, or the ability of the increase to sustain itself.
- Use opportunities for express bus funding to develop innovative service to expand into new markets.

**Rationale:**
The Service Deployment Policies recommended that “The District Should Ensure that Transbay Service is Self-Sufficient (Cost Neutral).” Funding Transbay services through separate allocations from state and federal sources has long-term benefits for the District. Approximately $4 million of District revenues currently spent on Transbay services each year could be used to further the District’s Priorities on local service. By securing separate Transbay and/or express allocations, this type of service will not be considered as competing for Local transit service funding.

If separate allocations are not forthcoming, the District continues to have a commitment towards maintaining the operation of Transbay and/or express service.
due to congestion improvement or community support. Increases to these services should be the result of additional funding coming to the District via federal, local or state grant sources.

Financial Overview (TO BE UNPDATED PRIOR TO ADOPTION)

Financially Constrained Service Plan
Overview
In 1999, the AC Transit Board voted to reinstate service to many of the routes and times of day that it was forced to cut in 1996 due to lack of funds. The District used reserve funds to cover the cost of the service until proceeds from the reauthorization of Measure B were available. With the 2001 SRTP, the District developed a plan to improve ridership, system effectiveness and system usefulness by adding a small amount of service in addition to maintaining some of the reinstated services using anticipated revenue increases from Measure B.

However, revenues from all sources have not been as robust as was planned in the previous SRTP. As a result, in 2003, the District was forced to reduce service by approximately 14% over the previous year—eliminating all of the planned growth in service hours. Despite this service level reduction, the District has developed a multi-phased approach to service enhancement that uses near-term service reductions as a basis for future system growth.

While the District’s previous plans to enhance the system still make sense, the direction over the next several years will be to avoid further service cuts and rebuild the system. However, the District will continue to advocate for funds to expand and sustain the system.

System Rebuilding Plan
Because the District was unable to fully implement the Service Deployment Plan as envisioned with the planned service levels, the first step towards enhancing the system must be the rebuilding and stabilization of the District’s service. As stated, the greatest challenge over the next 10 years is ensuring that no further service cuts are needed. Beyond that, the District must consider how it intends to build the system, in incremental steps, to ensure that improvements can be sustained. This plan could include both increases in general revenue to fund overall service improvements, or more focused revenues such as those associated with proposed increases in bridge tolls that would fund specific projects or programs. The District estimates that service levels should be increased by at least 10% to simply meet basic mobility needs.

Using the Service Deployment Policies as a guide, as discussed in the previous chapter, the District intends to improve service in the following areas:
- Rebuilding the system to sustainable service levels
- More frequent service on trunk routes, including limited stop service on some routes
- Completing the Service Deployment Plan to simplify the network to make it easier for passengers to use the bus
- Implementing Rapid Bus service on several of the major corridors’ trunk routes
- Maintaining frequencies on core routes
• Expanding the span of service on a few routes that warrant more service on weekends or later at night
• Expanding Express and Transbay service provided it is cost-neutral or external funds can be secured through Regional Bridge Tolls or other sources
• Implementing “Flexible Service” in areas of low-density or low-ridership in place of traditional fixed route service

The next several phases will be implemented when additional resources are secured. This includes the continued restructuring of service in the Central Alameda County service area, which was the only part of the District that had not experienced prior service improvements that occurred in the 1990s. Each phase is discussed below.

**Phase One: Rebuilding System and Central Alameda County – 2004-2005**
The District intends to rebuild the system to higher, yet sustainable levels, than we are currently experiencing. This includes service restructuring in both Alameda and Contra Costa County. Because Measure B allocated a higher portion of operating funds to expand service in Central Alameda County, the first phase will:

a) Implement the remaining elements of the Central Alameda County Transit Development Plan to the level that funds are available
b) Reinstate some service in Northern Alameda County that was eliminated in December 2003 when funds are available
c) Restructure service in Contra Costa County within existing revenue levels (i.e. at no increase in costs)

The proposed revisions to Central Alameda County, which have been developed with elected officials and staff from the two cities, the County and other public and private agencies, will increase the efficiency of routes, introduce service to new areas, and extend the span of service.

Because Phase One includes a substantial effort to determine any corrective actions related to service reductions that were implemented in December 2003, the District anticipates that some routes warrant reinstatement when funds are available, while other routes may be better served by some sort of flexible service. Toward that end, the District is currently in the process of determining service characteristics and operating scenarios for flexible service in the Southern Alameda County area that can be applied elsewhere in the service area. The District hopes to be able to apply flexible service operation where it is cost effective and useful to the community.

During this phase, the District will closely monitor service levels, bus loading issues, and other relevant measures to develop the most effective and efficient corrective action.

**Phase Two: Major Corridor Routes**
Re-Configuration Northern Alameda County – As funds become available

This phase combines both a restructuring and an extension of service in North County. It also improves arterial and trunk services on several of the high-ridership corridors that are candidates for capital improvements. These changes will be developed in consultation with the local jurisdictions and the public. This phase is wholly dependent upon new operating
revenues coming to the District. As such, which lines or areas that are implemented first will be subject to further review based on revenue projections.

**Focus on Major Corridors**
Even though AC Transit operates more than one hundred bus routes, just five of these carry more than 93,000 passengers daily – more than 40% of the entire local system patronage. As a result, there is a pressing need for the District to set priorities for new services and capital projects in these corridors, and to set standards for service frequency and reliability.

The ultimate goal is to develop a system of trunk lines with high quality, frequent and reliable service. In turn, this will support the entire AC Transit system by reducing travel time and wait time on the busiest lines, and facilitating transfers to and from the more lightly-used cross-town and local routes. The rapid routes of the trunk line system should be easy to understand and navigate for new or veteran users. The investment here should pay returns in terms of increased operating efficiencies, greater ridership and substantial benefits to users of the system.

Improving trunk line service gives priority to areas with the greatest potential for transit use, with good patronage rewarded by better service and shorter waits. This supports many of the Service Deployment Policies discussed in Chapter 3, such as coordinating service with land use, and advocating for and/or implementing transit priority measures.

AC Transit, unlike a grade-separated rapid transit system, operates in an external and complex environment. Buses generally operate on the street system along with all the other traffic. Until recently, the District had little influence over these conditions. As traffic worsened, bus service experienced more delays. In the last seventeen years, the system average speed declined from 14.2 mph to 11.5 mph – about a 20% slowing. For every one percent decrease in average speed either increases costs by a like amount, or requires a decrease in service. Improving running time is a high priority objective to meet the goal of an effective and efficient transit system.

In the last several years, local cities and other agencies with jurisdiction over local streets have warmed to transit preferential projects designed to speed bus flows and help the District carry more passengers at a lower cost. Experiments along Hesperian Boulevard in San Leandro indicated substantial improvements in bus times, while the San Pablo Rapid is aiming to decrease overall running times by at least 10% – 20%.

A 10% – 20% increase in speeds by 2010 should be the minimum objective for operations in each of the trunk corridors operated by AC Transit. After these projects have been completed, the District should aim to at least maintain average speeds each year. The specific treatments that should be pursued, such as bus-only lanes and Proof-of-Payment fare collection, are discussed below.

**Setting Priorities**
In the Service Deployment Policies work completed in 2001 an evaluation of the each corridor was ranked according to the following factors.

- High Existing Ridership
• High Potential for New Riders

In April 2002, the AC Transit Board of Directors established criteria for evaluating and assigning priority to infrastructure improvements in trunk corridors.
1. Service Readiness or Commitment
2. Institutional Readiness
3. Other Criteria
   • Timeline
   • Cost-effectiveness
   • Benefits (ridership)
   • Compatible with other projects, enhancements

Service readiness/commitment and institutional readiness were the determining factors that established the priority order. Projects that had funds to implement the capital and operating improvements associated with Rapid service ranked higher than those with no programmed funds. Factors such as the time to implement, cost-effectiveness and ridership were a second tier of the evaluation and were used to distinguish between similar corridors. As a result, the highest priority corridors are those that being implemented (San Pablo) or had a high degree of institutional readiness and committed funding (Telegraph/International/E. 14th Street).

Since the initial corridor evaluation, changing conditions have warranted further examination. On the positive side, San Pablo Rapid service was implemented, which moves the corridor from the “planning phase” to a “monitoring phase”. Also, Senator Perata has included the Berkeley/Oakland/San Leandro corridor in the Tier 1 list of projects for a proposed Bridge Toll increase that will be taken to the voters in March 2004. However, on a more somber note, the state funding landscape has worsened dramatically, putting in jeopardy most state-funded projects that currently programmed. Additionally, District service reductions were recently approved that have altered the route structure of lines serving some of the major corridors.

As a result, the District reviewed the impact of these circumstances relative to the major corridor improvements. While the District must continue to plan in anticipation that financial conditions will improve, so that corridor priorities can be included in long-range plans like the Regional Transportation Plan (RTP), the District must also consider existing and near-term conditions in developing corridor-level work plans. These corridors are important arterial streets with heavy transit ridership. As such, improvements along the corridors stand to have a great impact on the system.

**Major Corridor Capital Improvements**
For the Major Corridors and Trunk Routes, the investments are based on three levels of investment:
• Basic Improvements
• Rapid Bus
• Bus Rapid Transit (BRT)
The three tiers are additive, meaning that the lower tiers of improvements contribute to the achievement of the next higher level. The Rapid Bus tier incorporates all of the Basic tier and the BRT tier incorporates most of the Rapid Bus tier. The BRT improvements are the most capital intensive and would be applied to only the most heavily used corridors. Other corridors would still warrant improvements to signals or stops, yet might not necessarily be designated as “Rapid”. This is primarily due to the anticipated service levels.

**Tier One: Basic Improvements**

Basic improvements are defined here as changes to bus operations and new infrastructure that offer modest reductions in vehicle travel time, enhance the environment for passengers and help contribute to a unified corridor identity. They represent the minimum investment needed to result in measurable changes in ridership and system efficiency, and can generally be implemented at low cost through normal procurement channels or other existing programs. However, some basic improvements such as traffic signal systems are capital-intensive and are dependent on as yet unidentified sources of revenue.

**Future Corridors**

**Basic Improvements - Bancroft, Sixth/Hollis, Sacramento, MacDonald/MLK, Mission/E.14th, Hesperian**

These bus routes have somewhat lower daily ridership than the top five trunk lines. However, each corridor provides important connectivity and is a key element of an improved trunk line system. None of these corridors would have limited stop service but each could benefit from basic improvements to fixed infrastructure and service enhancements. The District would need to evaluate the additional capital and operating requirements if limited stop service is pursued in these corridors.

In December, 2002, the Central County Policy Advisory Committee established the Mission/outer E.14th Street corridor as their priority for further action. This is due to redevelopment efforts currently underway, in addition to the current construction of bus and pedestrian related improvements along the corridor and changes to other infrastructure priorities. Additionally, the Hesperian Corridor has also been included in MTC’s approved and final 2001 Regional Transit Expansion Program of projects.

**Timeline:** Identify funds for Planning and Operations Study by 2004

**Basic Improvements—Capital Elements**

**Vehicles**

The heavy ridership on the priority corridors warrants bus technology that speeds boarding and alighting, in order to reduce dwell time at stops and overall travel time. At present, while passengers can exit through any door, they are required to board through the front door, and are often forced to squeeze through crowded narrow aisles and doors. Apart from the latest low-floor models, the buses also have interior steps.

To increase operational efficiency, speed boarding and alighting for all passengers and contribute to a unified corridor identity, buses should have the following features:

- Three doors on a 40-foot coach and four doors on a 60-foot articulated coach, permitting passengers to enter or exit from any door. The multiple doors make a
Proof-of-Payment fare validation system possible, and significantly reduce dwell times at stops.

- Simplified ramp access and securement for wheelchairs
- Low-floor design from front door to rear seats
- Modern design with large window area and rear windows
- Large, bright, color-coded head signs
- Low emissions, compliant with CARB regulations
- Customer-friendly seating arrangement
- Quiet

Stop Relocation
The current system of bus stops has evolved over time, and stops have traditionally been placed at locations that do not interfere with traffic or access to adjacent properties. As such, bus stop placing is a mixture of near side, far side and mid-block locations.

A systematic review of bus stop placement should be based on the goal of reducing travel time and realizing other operational efficiencies in priority corridors. Unless prohibitively difficult, all near side bus stops should be moved to far side locations, as traffic signal priority systems function best with far side stops. For many intersections, the only costs will be to relocate poles and flags, paint the curb and potentially install bus pads. For locations that would affect access to adjacent properties, there would be the added costs of relocating driveways.

Shelters and Other Stop Improvements
The current system of bus stops is a mixture of poles with flags and benches and stops without benches. The installation and maintenance of the benches is the responsibility of a private firm that earns revenue by selling advertising space, and many are placed with the needs of advertising rather than passengers in mind. There is an immediate need to upgrade bus stops to improve the comfort of passengers, increase ridership and contribute to a unified corridor identity.

AC Transit is in the process of installing bus shelters in the cities of Albany, Berkeley, Emeryville, Fremont, Hayward, Newark, San Leandro, and the unincorporated areas of Alameda County through its contractor, LamarTransit Advertising. The contractor will be responsible for the installation, maintenance, and upkeep of these shelters, which will protect passengers from the weather, provide a safe waiting location, provide bus information, and make AC Transit more identifiable in the community.

AC Transit, LamarTransit, and the local jurisdictions are now working together to install transit shelters throughout Alameda County. Installation of the shelters is expected to be complete by the end of 2004, with priority given to shelter installation at heavily used bus stops along trunk routes. The City of Oakland also has an advertising shelter program that has just begun to install shelters at bus stops. The first to be installed were located at one of the District’s most heavily used transfer locations: Broadway at 14th Street in downtown Oakland.

Bus Arrival Information
From the passenger’s perspective, the time spent waiting for a bus is more onerous than the time spent riding in the vehicle. As well as cutting the actual time spent waiting through
increasing frequencies, AC Transit can reduce the perceived wait time by providing accurate bus arrival information. Such systems use satellite-based tracking to predict the arrival of buses at stops, and provide information via electronic signs at stops, the Internet, and portable devices such as personal digital assistants and phones.

The capital components for a bus arrival information system include:

- Automatic vehicle location transponders on buses
- Electronic information signs for shelters and stations
- Wireless communications system
- Software to manage data and predict arrivals
- Interface with World Wide Web and portable devices

Traffic Signal Improvements
Traffic signal improvements should be sought for every trunk route in the District. Currently, every bus is susceptible to delays from traffic congestion and poorly timed traffic signals, resulting in slower average travel speeds, compromised schedule reliability and added operating costs.

While Transit Priority is one alternative described below, in some instances there are other lower cost solutions that can also provide benefit through the corridors. Transit signal timing also has the ability to ease congestion along some streets and when coupled with the relocation of bus stops, can provide significant running time benefits.

Hot Spots
There are many intersections along major streets that contribute to significant delays to current bus service. There is an immediate need to address problems at these hot spots in advance of other transit priority measures for the corridors as a whole. This should be given the highest priority for improvements because benefits to operations and to the public could be realized very quickly. The following are examples of transit preferential measures that should be considered at key locations:

- West Grand Avenue: Re-establish HOV lanes westbound
- College Avenue: Develop overall plan including signal timing optimization, relocation of curb cuts, and selected queue jumps
- Broadway (Oakland): Re-time outbound signals
- MacArthur Boulevard: Identify issues related to one-way operation

A complete list of hot spots targeted for immediate transit priority treatments should be undertaken as part of the general implementation of trunk line improvements.

Tier Two: Rapid Bus
Rapid includes all the Basic Improvements listed above, plus additional measures to speed up service and increase reliability, described below. The improvements begin to allow for high quality limited stop service with close headway spacing. The District recently implemented Rapid Service on San Pablo Avenue and riders have experiencing a 17% reduction in travel time as well as similar increases in ridership.

Many transit agencies are advocating that the Federal Transit Administration adopts a definition for BRT that is closer to AC Transit’s Rapid concept. The idea is to permit more
projects to qualify for Federal New Starts funding, which is generally restricted to projects with a transit guideway component. However, the three tiers of improvements outlined here could remain the same, regardless of the final Federal definition for BRT.

In September 2003, the District adopted a definition for its Rapid service, which established minimum thresholds of service and capital improvements to match this designation. Because there is a mix of nomenclature that varies nationally and regionally, the District felt that such a definition would help to communicate the vision for the corridors to our partner agencies. This definition also help to communicate which elements will be included when the District implements Rapid service in specific corridors.

At a minimum, Rapid service should exhibit the following characteristics:

- 12-minute headways (or better)
- Headway based scheduling
- Bus stops 1/2 to 2/3 of a mile apart
- Far-side bus stops when possible
- Traffic signal treatments such as signal timing or coordination, transit priority, or queue jump lanes
- Distinctive shelters with Rapid branding and bus arrival information signs
- Distinctive vehicles with Rapid branding and features to reduce dwell time.

Future Corridors

Rapid Bus -- Foothill, MacArthur, Shattuck/Alameda, College/University/Broadway

Foothill Boulevard and MacArthur Boulevard serve densely populated East Oakland neighborhoods. Each of these routes carries over 15,000 daily riders. The College/University/Broadway corridor and the Shattuck/Alameda corridor links Berkeley with downtown Oakland, with the latter serving Alameda. Each of these corridors would have a high-frequency limited stop service. Portions of “bus-only” lanes or queue jump lanes would be sought only where substantial benefits to operations are possible. Additional feasibility studies would be needed to determine if these corridors warrant a Bus Rapid Transit type of service and to determine the capital and operating impact to the District. Both the Foothill and MacArthur Corridors have been included in MTC’s approved and final 2001 Regional Transit Expansion Program of projects.

Timeline: Begin Planning and Operations Study (including System Engineering Study for Signal Treatments) by 2004

Additional Capital Components

In addition to the elements listed under the Basic Improvements, Rapid Bus also includes the following capital components:

Transit Priority

Transit priority is a technology that allows a bus to communicate its location to the traffic signal network and activate signals as it approaches. The software gives priority to the approaching transit vehicle but minimizes the impacts to cross traffic. Essentially, as a bus approaches an intersection, the signal will lengthen the amount of green time or shorten the amount of red time to allow the bus to proceed through the intersection with the least
practical delay. This system works most effectively if all stops at signalized intersections are located on the far side of the intersection.

Transit priority traffic signals require the following capital investments:
- Upgrades to traffic signal heads and controllers under jurisdiction of Cities, Counties, and Caltrans
- Hard wire interconnection linking all traffic signals in a corridor with a traffic management center
- Transponders installed on buses
- Software to manage system
- Traffic/Transit Management Center

**Limited Stop Service**
The most important single element of Rapid Bus service is the efficient operation of high-speed limited stop service in conjunction with a background local bus service. This combination provides both a faster trip for passengers willing to walk a little further to a bus stop and preserves the easily accessible Local service that stops every few blocks. Limited stop services would likely stop at intervals up to half a mile apart.

**Queue Jump Lanes**
Queue jump lanes are short bus-only lanes located on the approach to intersections (usually at the curb) that allow the bus to “jump the queue” of automobiles waiting at red signals and move to the front of the line. The benefit of the lane can be increased by use of a bus-only signal that allows buses through the intersection before other traffic.

Queue jump lanes require the removal of parking on the approach side of the intersection. The greater the average length of queues during the peak, the longer the queue jump lane should be for maximum benefit. The pavement in a queue jump lane should be upgraded to be able to withstand the acceleration, deceleration and lateral forces associated with heavy vehicles.

**Other Traffic Improvements**
In all likelihood, an Rapid Bus program would require that improvements be made to the roadway system to either speed traffic as a whole or to mitigate the impacts of queue jump lanes. This may include re-striping lanes or upgrading signals.

**Tier Three: Bus Rapid Transit (BRT)**
Bus Rapid Transit (BRT) involves the highest level of capital investment, with the construction of fixed infrastructure, and is intended for the most heavily used corridors. BRT uses a dedicated, bus-only right-of-way to speed service, and features highly developed stations, together with most of the basic improvements and Rapid Bus improvements described above. The intent is to create a more attractive riding experience for passengers and achieve the fastest, most reliable bus service possible. BRT also focuses on supporting transit-oriented development and increasing the comfort and safety of passengers.
Bus-Only Lanes
The key operational and visual feature of BRT Corridors is the provision of dedicated bus-only lanes, either in the median or along the curb, to permit buses to bypass the vagaries of traffic congestion. Other motor vehicles would be prohibited from traveling in these lanes, and turns across them would only be permitted only at signal-controlled locations.

The lanes also permit the bus to travel a straighter path along the street, increasing the comfort of passengers and allowing the bus to pull more precisely parallel to the boarding platforms or curb stops. Bus-only lanes also reduce conflicts between buses and bicycles and other motor vehicle traffic.

Transit Stations
BRT stations would resemble smaller versions of light rail transit stations, rather than conventional bus stops. They could have varying designs for basic stations and for major transfer points or centers of activity. Each station would have the following basic features:
• Shelters and seating
• Fare vending machines
• System information such as maps and schedules
• Electronic bus arrival signs, as discussed above
• Boarding platforms level with the bus floor

One on-going issue that will need to be addressed is that some difficulty exists with state legislation, which generally defines “Transit Stations” as being rail specific. This is especially the case when the stations are included as part of a Transit Oriented Development (TOD) project.

Lane Assist and Precision Docking
Emerging bus guidance technologies can aid the driver of the bus, improve the comfort of passengers, reduce accidents and increase operating efficiency. They can be manually overridden by the driver at any time. Automatic guidance offers two applications for BRT:
• Lane assist, which uses the guidance system to travel between stations. This may help conserve right-of-way by allowing for narrower lanes. Additional benefits include a smoother ride for passengers and greater safety.
• Precision docking at bus loading platforms. Tolerances of less than a half inch are possible that could allow direct platform to bus boarding of wheelchairs and easier entry and exit for all passengers.

Two technologies are available:
• Optical systems. These are in use in several French cities, and involve a camera mounted in front of the steering wheel, which can read coded markings painted on the road. The system keeps the vehicle on the required route with a tolerance of a few inches, and fits it accurately into bus bays at bus stops for effortless level access. The optical guidance bars are merely painted on the road surface and can be relocated at minimal expense.
• Magnetic systems. A magnetic guidance system, developed by the PATH program at UC Berkeley, is ready for commercial implementation. It uses ceramic magnets imbedded just below the pavement surface, read by on-board detectors. The system is more accurate than the optical system and is capable of precision movement within tolerances of two inches.
Proof-of-Payment
A Proof-of-Payment system with all-door loading allows passengers with valid passes, tickets or transfers to board through any door, without having to show their pass to the driver. It allows passengers to board the bus faster, reducing dwell time (which can account for ten percent of a route’s running time) and increasing the overall average speed of the bus.

The system combines flexibility and low cost with the fewest impediments to passengers, in particular those with disabilities. All passengers would be required to display upon request a fare receipt (a transfer, monthly pass, valid multiple ride pass, etc.) while on any trunk line of the system. Roving inspectors would ensure compliance by randomly inspecting for fare payment, and issuing a citation for those who do not have a fare receipt. Proof-of-Payment systems are often combined with “self-service” ticket vending machines, and work more effectively if a high proportion of fares are prepaid.

The San Pablo Avenue Rapid between Oakland and Richmond was originally selected as the first to implement Proof-of-Payment. Depending on the timing of the pilot program for proof-of-payment, the District may decide to begin with the Berkeley/Oakland/San Leandro corridor rather than San Pablo, as initially envisioned, since that corridor will be the District’s first BRT corridor. Following evaluation of the test, the District would implement Proof-of-Payment throughout its entire network of major corridors. All passengers on all lines should have fare receipts or passes at all times. However, all-door boarding with random inspection would be restricted to appropriate trunk routes, and most lines would continue to operate in essentially the same manner as today: passengers will board at the front door only and drivers will collect fares.

Mitigation of Unavoidable Environmental Impacts
Installation of bus-only lanes and BRT stations could require removal of traffic lanes, medians or some adjacent parking. Mitigation of traffic congestion and parking loss would be an important cost component of any BRT project and a critical element in gaining and retaining the support of the public and city officials.

Mitigation measures may include, but are not limited to the following:
- Street widening
- Displacement of structures
- Off-street parking lots or garages
- Signal upgrades on adjacent or parallel streets
- Streetscape improvements for removal of medians

Berkeley-Oakland-San Leandro BRT Project
Based on the criteria used to evaluate the corridors presented above, the highest priority in the District is Telegraph-International-E.14th Street, which reflects the current planning activity and funding status of the project. This corridor is included in both Track 1 of the RTP and the Regional Transit Expansion Plan (RTEP), and is recommended for funding as part of Senator Perata’s bridge toll measure. Congresswoman Barbara Lee and Congressman Pete Stark have also submitted this project in the reauthorization of TEA-21.
This corridor also enjoys a higher degree of readiness to implement capital elements due to existing working relationships with the local jurisdictions and the Congestion Management Agency.

**Project Description**

**Project Features:** The Board adopted Bus Rapid Transit as the preferred technology for the Telegraph Avenue/International Boulevard/E. 14th Corridor, with the understanding that light rail should be considered as a long-term goal. The BRT system in the corridor will be designed in a way to maximize the possibility of a potential future upgrade to light rail. The project is currently under environmental review. The BRT system will include the BRT features referenced above:

- Dedicated transit lane along the corridor
- Traffic signal priority and coordination throughout the corridor
- Frequent BRT service with a background local service (five to 7.5 minutes between BRT buses)
- Wider BRT station spacing than existing bus service (1/3 to two miles between BRT stations)
- BRT stations including shelter, boarding platform, benches, security features, fare machines, real-time bus arrival information and other amenities
- Proof-of-Payment ticketing
- Low-floor, multi-door, level-boarding, clean-fuel BRT buses

**Route Alignment**

The recommended alignment primarily uses Telegraph Avenue in the northern portion of the corridor and International Boulevard/E. 14th in the southern portion. It begins in the north near the Downtown Berkeley BART station. From there, the alignment uses Shattuck Avenue Bancroft Way/Durant Avenue, Telegraph Avenue and Broadway to Oakland City Center. It leaves downtown Oakland using some combination of 11th, 12th or 14th St., and proceeds on International Boulevard and E 14th through Oakland and San Leandro, with a possible deviation into the San Leandro BART station. It terminates at Bay Fair BART.

A dedicated transit lane is being studied on Shattuck Ave, Telegraph Ave, and Broadway, and on the sections of E. 14th between the Oakland/San Leandro border and Davis Street and between San Leandro Boulevard and Bay Fair Drive. Options such as converted sections of various streets to a transit-only mall are also being considered which would provide significant travel time benefits to the rider. The study will also consider details of service to the Jack London District and the Oakland Amtrak Station.

**Purpose and Need**

*Better accommodate high existing bus ridership:* The corridor encompasses some of AC Transit’s most heavily used bus routes, and some of the highest employment and residential densities in the East Bay. Services frequently operate with standing loads during both peak and off-peak periods, despite six-minute frequencies and the use of 60-foot articulated buses.

*Improve speed and reliability of local transit service:* The average speed of buses in the AC Transit service area has declined at a rate of one percent per year for the last two decades. It currently takes up to an hour and 40 minutes to travel the 18 miles from Berkeley to San Leandro. Heavy passenger loadings combined with steadily worsening
traffic conditions have eroded reliability, reduced travel speeds and increased operating costs.

**Serve under-served travel markets:** A key objective of the project is to improve access to important employment and educational centers in the East Bay. There is a large existing travel market of 255,000 daily trips trying to reach major employment centers and educational institutions in the East Bay, including downtown Oakland, UC Berkeley, downtown Berkeley, and downtown San Leandro. Of these 255,000 total weekday trips, 115,000 are currently not well served by either BART or existing AC Transit service. These trips could be better served by an investment in improved AC Transit service in this corridor. In addition, there are over 60,000 students enrolled at UC Berkeley, Laney College and the public high schools, junior high schools and middle schools in the corridor. All these institutions are located in dense, built-up urban areas where the costs of expanding roadways or parking are prohibitive.

**Reduce auto use and congestion:** To attract current auto users, transit must be reliable and time-competitive. The reliability and speed improvements from BRT – as well as the more comfortable and secure buses and stops, and amenities such as real-time information – will help make transit a viable and competitive alternative with the private car for travel in the corridor.

**Contribute to transit oriented development:** The project is intended to take advantage of existing transit-supportive land use patterns, and also help spur new development and redevelopment efforts. Downtown Oakland has around 80,000 jobs, and Mayor Brown is seeking to bring more new residents to that area. The East Oakland neighborhood, which accounts for about a third of the corridor, has a population density of more than 25,000 persons per square mile, while other parts of the corridor have more than 11,000 persons per square mile. The improved service is intended to focus and catalyze redevelopment efforts along Telegraph Avenue and International Boulevard in both Oakland and Berkeley, and E. 14th Street in San Leandro and Alameda County by providing better access.

**Further goals of Environmental Justice:** The corridor has 50% more non-white residents and twice as many people living in poverty than the average for the AC Transit service area. Transit investment in this corridor would contribute to improved mobility for area residents and greater access to jobs.

**Project Phasing**
Recognizing that implementing the full BRT program will take several years, the AC Transit Board agreed to implement Rapid Bus features, such as bus priority at traffic signals, as a first phase. This will provide immediate benefits for corridor riders, while putting in place many of the elements of the eventual BRT system.

**Phase 1 – Rapid Bus:** The first phase consists of the improvements possible with the Track 1 funding identified in the Metropolitan Transportation Commission’s Regional Transportation Plan. This currently amounts to $175 million in dedicated and potential funds. The goal is to begin construction for most of these improvements by 2004:
- New, high-frequency limited-stop bus service
- Transit priority at traffic signals
• Bus arrival information
• Proof-of-Payment fare verification
• Improvements at some local bus stops

In addition, the following BRT components could also be implemented as part of the Track 1 project. These elements could be completed by 2007:
• A portion of the final design effort
• A portion of the total length of bus-only lanes
• A portion of the BRT Stations with associated guideway improvements
• Mitigation of some environmental impacts

**Phase 2 - Bus Rapid Transit:** The Track 2 portion of the project would consist of the following elements:
• Completion of final design
• Line haul portion of guideway between BRT stations
• Mitigation of environmental impacts
• Major utility relocation

**Express/Transbay Bus Improvements**
The Service Deployment Policies recommended that “The District Should Ensure that Transbay Service is Self-Sufficient (Cost Neutral).” Funding Transbay services through separate allocations from State and State sources has long-term benefits for the District. By securing separate Transbay and/or express allocations, this type of service will not be considered as competing for Local transit service funding.

The District continues to have a commitment towards maintaining the operation of Transbay and/or express service. However, Increases to these services should be the result of additional funding coming to the District via federal, local or state grant sources.

As of December, 2003, AC Transit operates 26 distinct routes to the Transbay Terminal in downtown San Francisco. These routes operate in areas that are generally remote from BART and provide all-day one-seat rides to downtown San Francisco. In addition, line N operates as an “Owl” route, connecting San Francisco to the East Bay 24 hours a day. The District also operates Express service across the San Mateo Bridge. And, through a consortium, provides service across the Dumbarton Bridge.

**Future Express/Transbay Services**
The future is bright for Transbay Express services. MTC’s recently completed *Bay Crossing Study* estimated future travel demand on all the bridge corridors and evaluated many options to mitigate the travel increases. The study forecasted that daily vehicle volumes on the Bay Bridge will increase by 100,000—from 325,000 to about 425,000 vehicles by 2025. The San Mateo Bridge is forecast to increase by about 60,000 trips—to about 160,000 daily. And, the Dumbarton Bridge can expect another 23,000 vehicle trips—to about 101,000 daily.

The Bay Crossing Study “alternatives evaluation” gave the express bus option high marks as one of the most cost-effective options available. The study estimated that Bay Bridge
bus patronage would increase from about the current 15,000 daily passengers to about 43,000. San Mateo Bridge ridership would increase to about 6,000 daily passengers and Dumbarton services would increase to about 2,200.

The Bay Crossing Study recommended various HOV improvements in the bridge corridors, in conjunction with additional operations funding to provide peak hour bus trips in the Bay Bridge, the San Mateo Bridge and Dumbarton Bridge corridors. This includes the construction of street improvements and park-and-ride lots.

In September 2003, the California Legislature approved SB 916 which would increase tolls on Bay Area state-owned bridges by one dollar (subject to voter approval in March 2004). During the development of the plan, the District submitted a program of Transbay projects to improve mobility in the Southern bridge corridor (Bay Bridge, San Mateo Bridge and Dumbarton Bridge). If passed, the measure would generate funds operating Transbay and express services, as well as necessary capital projects, including:

- Constructing Richmond Parkway Park and Ride Lot
- Expanding HOV facilities, park and ride lots, and Express service across the Dumbarton and San Mateo Bridges
- Implementing Owl Bus service when BART is not operating

**Transfer Centers/ Park and Ride Lots**

The AC Transit vision, as articulated in the District’s Short Range Transit Plan is to be the mobility manager for the East Bay; allowing anyone to go anywhere they want safely, quickly and efficiently. The District’s efforts have been focused on providing fixed-route and paratransit service, with some attention to infrastructure to support the service, such as at transit centers. But the major assumption has been that people will access bus service at the origin and destination of their trips either by walking/wheeling, bicycling, or using other mass transit.

However, one of the components of successful Transbay/express service is the park & ride transfer centers. Studies around the Bay Area highlight that need:

- The Metropolitan Transportation Commission’s 2002 HOV Lane Master Plan recommended an investment program to “add as many as 387 new miles of carpool lanes around the region…and build more than a dozen new express bus/park-and-ride stations around the Bay Area.”
- Caltrans has recently begun a state-wide Park and Ride and HOV Transit Enhancements Project in consultation with local transit providers.
- Caltrans’ Bay Area System Plan for Regional Express Bus Service, being conducted by the UC Berkeley Transportation Center, will identify “Needed Infrastructure Improvements,” including park and ride lots.

Newer AC Transit Transbay express bus markets are located in the outer portions of the District and are increasingly dependent on park and ride facilities to bring passengers from their origins to Transbay service. Unlike traditional Transbay service, which penetrates dense neighborhoods in urban areas and relies on patrons who walk to the bus, Express buses serve outlying areas by collecting riders at a few locations before entering the freeway, often with high-occupancy vehicle (HOV) lanes, and proceeding to one or more
destination stops. In some cases, the pedestrian environment may be too poor to warrant traditional Transbay or Express service, due to lack of sidewalks or waiting areas.

Existing Transbay lines are currently supported by several park and ride lots within the District, but the lots have not been guided by any official planning or policy recommendations. As a consequence, the location of the lots is based almost solely on availability of land, with little analysis of how well they serve express bus markets. Additionally, almost no attention is given to security and maintenance of the lots, which is a critical component to attracting customers.

The two most successful park and ride centers served by Transbay buses are the Richmond Parkway Transit Center (RPTC) and the Ardenwood Transit Center at the Dumbarton Bridge; both of which fill very early in the morning and there is significant demand for additional spaces. Other park and ride facilities that the District uses--such as Castro Valley, Island Drive in Alameda, and the Hilltop Park and Ride--suffer from poor locations that are not easily visible, have no on-site security and thus have limited usage.

The development of Park and Ride lots in the District’s suburban fringes is consistent with AC Transit’s service policies, which clearly identify the need to provide transit service differently in the suburban fringe than service that is provided in the urban core. While the District’s basic service model for local and East Bay Rapid service is on-street operation and pickup which reinforces a walkable and pedestrian oriented urban design, there may be some cases when it is appropriate to structure service around the construction of a park and ride lot. Specifically, when densities are too low to efficiently provide service, or when pedestrian access to potential Transbay/Express routes is poor. Under those cases, it is appropriate that the District consolidate passengers at Park and Ride locations to maximize patronage, minimize bus operating cost and provide greater passenger access.

These park and ride lots are anticipated to be multi-modal transfer centers, providing connections between local and Express buses for multiple operators if necessary. The District envisions park and ride lots that provide both passenger amenities, such as shelters and bicycle lockers, as well as safety and operational improvements to ensure the security of our riders and their property. Capital costs for the park and ride lots owned and operated by the District would be funded by external capital sources, with on-going operation to be paid for by the users of the parking facility especially if on-site security is included.

**Park and Ride/Transfer Center Locations**

The following is a list of potential or proposed Park and Ride/Transfer Center locations and/or associated Transbay/Express service access improvements that the District will be investigating further:

**Richmond Parkway Transit Center**
Includes new garage, improved HOV bus access, new HOV off-ramp from north I-80 into Parkway, and possible on-line station.

**Gilman Street, Berkeley**
Includes park and ride station for buses at the foot of Gilman Street in Berkeley. Could be merged with the Water Transit Authority’s proposed Berkeley ferry terminal.
West Grand Avenue, Oakland
Includes bus access improvements for West Grand Bay Bridge approach, possible new park and ride near Maritime and West Grand.

San Mateo Bridge Bus Access Improvements, Hayward
Includes park and ride facilities at BayFair BART, Hayward Airport, Chabot College (and/or adjacent location). Also includes Transit Oriented Development study for Hesperian Blvd from Winton to Highway 92. Includes HOV on-ramp to Highway 92 from Hesperian Boulevard.

Dumbarton Bridge Bus Access Improvements, Fremont-Newark
Includes expanded park and ride facilities at Ardenwood Transit Center (Highway 84 and Ardenwood) and Fremont Boulevard and Decoto Road.

Capital Overview

Summary
AC Transit’s planning for capital projects involves integration of Federal and State grant-funding processes with the District’s internal planning, budgeting, and project approval processes. This section provides an overview of the various programs and projects that are included in the Capital Plan, which is reproduced in full in Appendix A. This Capital Plan is submitted to the Metropolitan Transportation Commission, which uses the information to develop the Regional Transportation Plan (RTP) that determines State priorities for capital projects in the nine-county Bay Area.

One part of the Capital Plan is the Capital Improvement Plan, which describes the District’s Capital Replacement Program. This plan ensures the continued viability of the equipment needed to support the baseline services. Current Federal and State legislation requires that programs and projects for which the District is seeking funding must first be submitted in the Capital Improvement Plan in this SRTP, whether as a specific project or as a general program. Each year, AC Transit staff and the Board work together to determine which programs and projects should be submitted for possible Federal, State or Local grant funding.

Another important planning document is the District’s Annual Budget. The capital element of the Budget is based on the projects in the Capital Improvement Program, but it also reflects any subsequent changes that have taken place due to new funding opportunities, changes in funding allocations, and changes to the District’s capital needs that are identified in the budgeting process. However, the District budget no longer includes all the grant funded capital projects.

These programs or projects should also be included in County Congestion Management Plans, and in the State Transportation Improvement Program (TIP) and Regional Transportation Improvement Program (RTIP) that are developed by the Metropolitan Transportation Commission and County Congestion Management Agencies. The TIP
includes projects for which Federal and State funding is sought, while the RTIP is used to request State administered transportation funds.

**Highlights**
AC Transit’s Capital Plan includes the following highlights:
- New buses and other vehicles, including European-style buses that offer features unavailable on their American counterparts
- Preventive maintenance
- Maintenance and replacement of facilities and equipment, such as heavy equipment, buildings and information systems
- On-board equipment for communications and fare collection
- Transit centers
- Special programs, such as hydrogen fuel technology and low-emission engines

**Vehicles**
The District’s Fleet Replacement Plan includes both revenue vehicles (buses) and non-revenue vehicles (service and support vehicles, such as road supervisors’ cars).

**Revenue Fleet**
The District’s ongoing Revenue Vehicle Replacement Program prescribes the replacement of buses and small transit vehicles that have exceeded their useful lives. The program establishes an acceptable life of 12 years for a bus, 16 years for over-the-road coaches, in line with those established by the Federal Transit Administration and in the Bay Area Region. Although the District follows the Vehicle Replacement Program, it also continually strives to purchase innovative vehicles. Following the procurement of the District’s first low-floor buses, the Board established that only low-floor vehicles would subsequently be purchased for local service. The District has also used innovative funding strategies to purchase European-style vehicles that offer features unavailable on current American models. The average age of the current fleet is 9.99 years. Current plans indicate a need for vehicles necessary to accommodate the rebuilding of service when the economy improves.

**Non-Revenue Fleet**
The District has established a non-revenue Vehicle Replacement Program that is currently funded with its own funds, as it has not received Federal money for this purpose since FY 1993/94. This program dictates that vehicles are replaced at the end of their cost-effective useful lives or when they have operated more than 100,000 miles. Although FTA guidelines allow a shorter life span of four to five years, the MTC capital planning procedures require a seven-year life for these vehicles.

AC Transit has included replacement of non-revenue vehicles in the District-funded Capital Budget since the unavailability of grant funding for this program has resulted in many vehicles that have far exceeded their useful lives.

**Preventive Maintenance**
The new flexibility under TEA-21 allows for the capitalization of preventive maintenance costs, including both labor and materials, and without a limit on the total amount that may be capitalized. The District has requested the use of 5307 funds for preventive maintenance several times over the last few years. The first time was in 1999 prior to the
passage of Measure B to augment service levels for 4 years. Then again in 2003, the District submitted a request to use the funds to keep essential services in operation.

Under an arrangement with MTC, the District has substituted a Preventive Maintenance Project for funds originally programmed for bus replacement, in order to facilitate the purchase of European-style buses. Since these buses will be procured from outside the U.S., the Federal funds that are normally used to purchase buses cannot be used. Instead, AC Transit will use non-Federal funds from its operating budget to purchase the buses, and use the Federal money for preventive maintenance.

**Facilities and Equipment Program**
The Facilities and Equipment Maintenance Program reflects the District’s priority of maintaining the existing system before embarking on expansions. The program was established to ensure that the District’s facilities are properly maintained to avoid deterioration, and that heavy equipment is upgraded or replaced to ensure optimum performance. This program, which includes maintenance of facilities, heavy equipment and information services upgrades and replacement, will help the District achieve the maximum economic life from existing assets at the lowest cost.

The District does not anticipate receipt of adequate funding for this program from Federal, State or State resources in the foreseeable future. In an attempt to address critical deferred maintenance and equipment replacement needs, part of this program has been included in the District-funded Capital Budget, while a portion has received funding from some Federal and State sources.

**Operating Facilities**
Transit to support its constituent cities' urban design and neighborhood compatibility objectives, the District may develop new bus maintenance and storage facilities, or may relocate and/or expand such facilities to more appropriate and efficient locations. The District is looking at options to build a new facility in South Oakland or Central Alameda County. This would house approximately 250 buses, leaving some room for future growth.

These new or relocated facilities may be combined with other District functions, such as central maintenance, or may be combined with park and ride facilities, depending on location and accessibility. In the short term, the District may elect to expand an existing facility to address immediate needs. Improvements to the Hayward facility may provide space for additional buses to fulfill the anticipated service expansion plans associated with the Central County service restructuring and planned express bus routes.

This program would also include any park and ride lots that the District may embark upon operating over the horizon of the plan. A detailed description of potential sites and issues associated with park and ride lot operation is presented later in this chapter.

**Fixed Asset Replacements**
The Facilities and Equipment Program also covers the anticipated needs of the District’s other fixed assets, such as replacement or upgrades for heavy equipment. In addition, it includes improvements that are necessary to meet increasingly stringent Federal, State, and Local building codes, environmental protection standards and toxic waste disposal and handling restrictions.
As noted above, the District-funded Annual Capital Budget has provided funds for a small portion of this program, and limited funding has been received from some State and Federal sources. However, many scheduled replacements have been delayed due to the lack of sufficient funding.

**Information System Replacements**

The Information Systems projects directly benefit AC Transit service by providing timely, reliable and up-to-date information to facilitate decisions on all aspects of District operations, including fleet maintenance. The District has established an executive-level Information Technology Steering Committee, which is developing a five-year Information Technology strategic capital plan to determine how and when equipment and software will be replaced or upgraded.

AC Transit has so far received limited external funding for its Information Systems capital replacement needs. It was awarded $3 million from the Federal Congestion Mitigation and Air Quality Program to replace its Maintenance and Materials Management Information System with a new state-of-the art Enterprise Asset Management System, which is now complete.

Further external funding for IS projects is very unlikely as the result of the economic downturn resulting in scarce available funds. As such, further IS projects will need to come from the District’s budget.

The District will continue to utilize its own funds to maintain and upgrade information systems. The PeopleSoft Human Resources and Payroll systems were implemented in 1999, and provide ready access to time reporting, payroll, human resources and benefits information. Other projects proposed include improving telecommunications throughout the District, fully computerizing fuel islands, and further upgrading management information systems, the computer network and computer hardware.

**On-Board Equipment**

On-Board Equipment refers to additional or special devices installed on revenue and non-revenue vehicles to facilitate or enhance efficient bus operation.

**Radio Communication System/SATCOM**

The District has received Federal funds from several different sources for the Radio Communication System/SATCOM project, which continues to be a priority for the District. There are a variety of sub-components to the SATCOM project, including:

- Advanced scheduling software upgrades
- Automatic Vehicle Location/Monitoring
- Internal and external announcements
- Materials Management Information Systems
- Technology improvements to allow strategies such as signal priority, schedule prediction information, and real-time passenger information at stops and kiosks and over the Internet
Tire and Tube Replacement
The Tire and Tube Replacement project directly benefits passengers as it enables the District to maintain a fleet of buses that are safe and reliable. Historically the Tire and Tube Replacement Program has been funded with District operating funds. The amount allocated annually for this project is approximately $1.25 million. In recent years, the District received STP funding for this project which will provide funding through FY 2002/03. Outside funding opportunities for this project are minimal.

Engine and Transmission Replacement
Funding awarded for this project under the State Transportation Improvement Program is providing $1.7 million per year over a four-year period, beginning in FY 1999/2000. It will partially fund the rehabilitation of approximately 80 engines and 80 transmissions per year. These rehabilitated engines will enable the District to maintain the major components of its transit vehicles to ensure that the vehicles achieve the planned service life. Only a small piece of the existing funding remains to be allocated for this project. Additional grant sources of funds for this project are minimal.

Transit and Transfer Centers
To ease passenger transfers between routes and improve passenger comfort, transit centers are being developed at key points throughout the system. Transit centers allow several buses from different routes to be present at once so that patrons can transfer with minimum waiting times. The facilities allow buses to arrive and depart without blocking other buses, and provide a safe and pleasant waiting environment. The centers are strategically located where several routes naturally converge, resulting in high transfer activity.

The centers are also located at major activity centers that generate a significant number of walk-in passengers, and at intermodal stations to facilitate bus to train connections. Most BART stations in the AC Transit service area serve as transit centers to facilitate both State and local travel.

From the time the transit centers were initially envisioned in 1987, construction costs were consistently adjusted for inflation. However, other economic factors have resulted in rising construction costs. Therefore, the District will be seeking additional funds to complete the transit centers. A description of the transit centers can be found in the Capital Plan in Appendix A.

ADA Pedestrian Enhancements at Transit Centers
This project would implement Transit Center Design Enhancements that were developed in conjunction with the District’s Accessibility Advisory Committee. These enhancements will improve safety and mobility for persons with visual and other disabilities by providing clear travel paths to and from bus loading areas, and navigation assistance through the use of tactile surfaces.

Consistent with the guidelines of the State program for this area, these improvements go beyond the specific ADA requirements. The improvements are estimated to cost $50,000 per transit center site, and the District has received Federal funding for the four located in Contra Costa County. The District will continue to seek funding to implement the improvements at sites in Alameda County. The full list of sites is as follows:
• BART Sites (Major transfer points)
  1. Coliseum
  2. Fruitvale
  3. Union City
  4. El Cerrito del Norte
  5. Hayward
  6. West Oakland
  7. El Cerrito Plaza
  8. Richmond
  9. Fremont
 10. South Hayward

• Non-BART Sites
  1. Contra Costa College
  2. New Park Mall
  3. Eastmont Town Center

Special Programs
Special Programs are comprised of projects that may not fall under general replacement or construction categories, yet are active elements of the AC Transit’ s Capital Plan. This section includes plans or programs that are geared to improve District operation, increase ridership or plan for upcoming Federal mandates.

Hydrogen/Fuel Cell Technology
Hydrogen fuel cell technology offers the promise of quiet, emission-free public transportation. Though still in its infancy, it will profoundly change the way we travel, equivalent to the transition from horse and buggy to automobile.

Along with other members of the California Fuel Cell Partnership, AC Transit will play a vital role in developing and testing methods for operating an entire fleet of fuel cell buses under the demands of a large and busy system. The demonstration is designed to show how fuel cell buses can be fueled and maintained efficiently and perform consistently. In the next two years, the District will build a $3 million hydrogen fueling and maintenance center and acquire as many as nine buses. It will also apply for additional funding to expand the initial fleet to twelve. Maintenance personnel will study patterns of performance to determine whether a problem is due to random failure or from conditions unique to the route, and report back to the partnership on the results.

Hydrogen ICE Hybrid-Electric Transit Bus
The District is seeking additional grant funds to build demonstration hydrogen ICE (internal combustion engine) hybrid-electric 40’ bus that would utilize the same vehicle and electric drive system as the fuel cell bus, but an ICE would provide the electrical supply in place of a fuel cell. Hydrogen fuel cell technology offers considerable promise to significantly reduce and potentially eliminate harmful emissions, while leading the way toward a sustainable energy economy.

AC Transit has recognized the long-term value of utilizing hydrogen as a source of fuel and committed itself to the development of a $15 million fuel cell demonstration program in partnership with public agencies and private industry. Notwithstanding this effort, the high...
cost and long lead-time to make fuel cell buses commercially viable require the development of affordable transition or “bridging” technologies that can utilize in the near term the many environmental advantages of hydrogen fuel. If the District is able to secure the necessary funds to build this bus, it will be evaluated much in the same way as the fuel cell buses.

**Gasoline Hybrid-Electric Buses**
As another possible transition technology, AC Transit is exploring the possible use of gasoline hybrid-electric buses in future procurements of 30’ low-floor community service buses. These engines not only have very low emissions, but they are also very quiet, and extremely energy efficient, expending half the fuel of a standard diesel bus. Additionally, their electric drive systems are expected to be considerably cheaper to maintain and operate than standard ICE drive systems.

**Bus Catalyst Retrofit Program**
The District received approximately $3 million in funding for the retrofit of particulate traps on 378 buses to meet the emission requirements of CARB. MTC requested operators to further reduce NOx emissions to address air quality issues in the Region. Accomplishing this goal requires a more expensive piece of equipment than a particulate trap, known as a bus catalyst. This device will reduce NOx emissions by 25% and particulate material by 85%. To provide for the additional costs of the bus catalyst equipment, MTC agreed to provide CMAQ funds for the incremental costs of adding this equipment to approximately 769 buses. The funding requires an 11.47% match. However, MTC expects to allocate Bridge Toll funds to cover the matching portion if sufficient funds are available in the Bridge Toll program.

**Business Plan**
The District originally developed the Business Plan in 1997 as a tool to summarize the large-scale projects that it would undertake in the 10 years of the plan’s horizon. It provides an overview of the Financially Constrained Operating Plan and related capital plans, and provides a correlation between its daily bus service and the longer-range aspects of its operation. It is the tool to help the District carry out its Vision, Mission and Goals.

For the 2003 Short Range Transit Plan, however, the Business Plan represents a more focused approach to service delivery. Due to the financial outlook, the District does not intend to increase service levels at all under the Financially Constrained Operating Plan. As such, only projects or programs that are “cost-neutral” will be implemented over the 10 year horizon in the Financially Constrained Plan.

However, the Business Plan does include projects that the District intends to implement if outside funding can be obtained for their operation. This includes those projects that have been included in the new Regional Measure 2 Bridge Toll increase that will be taken to the voters in March 2004. If passed, the measure will provide operating and capital funds for several projects listed in the business Plan.

The Business has been divided into the following areas: Financially Constrained Operating Plan, System Rebuilding Plan, Optimal System Operating Program, and Major Projects
and Programs. The Base Operating Program includes projections of service levels and operational projects that contribute to those service hours, and assumes no growth over the 10 year horizon of the Business Plan. The Service Rebuilding Plan provides projections of service levels and ridership increases associated with services that the District would like to operate, yet are reliant on increased funding levels. The Optimal System Operating Program also provides projections of service levels and ridership associated with programs aimed at increasing ridership significantly over the next 10 years. The Major Projects section includes projects that the District intends to complete over the next several years with committed or anticipated funds.

**Financially Constrained Operating Plan**
The AC Transit Financially Constrained Operating Program represents the fixed-route system that the District can both operate and maintain through the year 2013. The fixed-route System is predicated upon the existing ten-year budgetary projections, approved in June 2003 in conjunction with the FY 2004/05 and 2005/06 budget. This system assumes no growth in service hours over the next 10 years. However, it does assume a small amount of ridership growth associated with a very modest economic recovery—in fact, a 13% increase in passengers is anticipated by 2013.

**System Rebuilding Plan**
The System Rebuilding Plan presents projections of service hours that would be associated with the rebuilding of service to 2002 levels, which may involve a variety of strategies to meet rider demands, geographic coverage or social equity concerns. Expansion to other services would only occur if funding was obtained specifically for these purposes, including that associated with the proposed increase in Bridge tolls.

**Optimal System Operating Plan**
The Optimal System Operating Plan represents changes to the system that, if fully funded and implemented, would render a significant increase in ridership. The strategies in the plan are described in Chapter 5: Strategic Vision.

**Major Projects and Programs**
Even though the Business Plan focuses on operational projects, there are also programs and projects that are keeping the District in its forward trajectory for the next several years. These Major Projects and Programs are grouped in categories for easy reference. They include both funded projects, such as the Telegraph/International Rapid service, as well as projects or programs that would be associated with an increase in the Bridge toll (Regional Measure 2). However, this is only a representation of the types of programs and milestones that have been identified. The projects listed are by no means the only important ones that the District is undertaking during the life of the SRTP.

Due to the financial condition of the District, many of the milestones for projects listed in the Business Plan have been put on hold. The greatest challenge to the District is ensuring that no further service cuts are needed. As such, undertaking major projects and programs—even those listed below—will be evaluated on a year-to-year basis as part of the budget review process.
Major Corridor Improvements
Timelines for the Major Corridor Improvements are listed on the Business Plan chart (Figure 4-3), and are dependant upon outside funds. The project components are more fully described in the “Focus on Major Corridors” section earlier in this chapter.

Research and Study Programs
Research and Study programs include projects that assist the District in identifying both long and short term needs. They can help the District during the development of service options, as well as in determining how best to market the services to customers. The Research and Study Programs are categorized into several main areas, below.

- Data Collection and Surveying
- Telegraph/International/E. 14th Corridor:
- Maintenance and Administrative Facility Upgrades:

Environmental Programs
Environmental Programs are those that help the District to become a more environmentally “green” organization. These programs not only help the District be a good neighbor within the community, but also will help the District move towards sustainability goals.

- Fuel Cell Buses
- Engine Re-powering Program
- Environmental “Green” Programs
- Signal Priority Programs

Fare Programs
Fare programs are those that either help the District sustain its revenue sources or those that could facilitate the collection of fares on vehicles. These include Capital and Operating projects associated with Proof-of-Payment alternatives or specialty pass programs.

- TransLink
- Eco and Class Pass Program
- Fare Collection Programs

Marketing and Public Information Programs
Marketing and Public Information Programs are campaigns or efforts designed to inform the public, heighten the public image of AC Transit, or improve the information provided to the community and riders.

- New Service Campaigns
- Service Marketing Campaigns
- Image and Awareness Marketing
- Public Information Programs
- Community Outreach and Education
- Customer Service Programs
- Technological Opportunities
- Revenue Generating Projects
- Historical Projects
Resource Development Programs
- Apprentice and Journey Mechanic Training

Passenger Access and Amenities Programs
- Transit and Transfer Center Development and Construction
- Street Furniture and Passenger Amenities
- Telephone Center Upgrades
- ADA and Pedestrian Access Improvements
- Transit Signage Upgrades
- Advertising Bus Shelters
- Electronic Signage

Additional Service Needs
These projects are those that, if fully funded and implemented, would result in ridership increases and improvements to the community's general mobility within the service area. They are more thoroughly described in the following chapter, and include:
- Implement Optimal Service Levels
- Enhancements in County Wide and Corridor Management Plans (Alameda and Contra Costa County)
- Enhancements on Bridge Services
- Serving Emerging Markets
- Access to Jobs/Welfare-to-Work
- Flexible Routing Service
- Ferry Service Coordination/Administration
- Construction Mitigation Projects