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.

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 the following chapter.

**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
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 polices should guide the District in achieving their highest priority—Maintenance of the existing system.

**Policy: Vehicle Replacement**
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.

**Rationale:**
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.

**Policy: Vehicle Rehabilitation**
The District should continue to seek funding to complete mid-life overhauls, engine repowering 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.

**Rationale:**
Intensive vehicle rehabilitation can affect the safety and efficiency of the District’s fleet.

**Policy: Maintenance of Service and Facilities**
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.

**Rationale:**
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.

**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**

These 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. After the system has been rebuilt to appropriate levels, the system 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 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 user demand.
**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 inefficient to operate.

**Policy: Transbay and Express Routes**
Use Transbay policies developed in the Transbay Comprehensive Service Plan to expand 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 State 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. 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 UNPREDIT 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 17% 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. The District will continue to advocate for funds to expand the system.

Using the Service Deployment Policies as a guide, as discussed in the previous chapter, the District intends to improve service in the following areas:

• Rebuild the system to sustainable service levels
• More frequent service on trunk routes, including limited stop service on some routes
• Simplifying 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

The next several phases are planned for when additional resources are secured, most likely after 2005-2006. 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. Because Measure B allocated a higher portion of operating funds to expand service in that area, the first phase will:

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

The proposed revisions to Central County, which have been developed with elected officials and staff from the two cities, the county and the local school districts, 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. During this phase, the
District will closely monitor service levels, bus loading issues, and other relevant measures to develop the most 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)
   - Conflicts with other projects

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 he intends to take 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 are in the pipeline. 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 would 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. Additionally, the Hesperian Corridor has also been included in MTC’s approved and final 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
doors, 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 20% reduction in travel time.

Many transit agencies are advocating that the Federal Transit Administration adopt 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 about 20,000 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. 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 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 one available 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 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

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 rail-like 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

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 has been selected as the first to implement Proof-of-Payment. Following evaluation of the San Pablo Avenue test, the District would implement Proof-of-Payment throughout its entire network, starting with the Telegraph Avenue/ International Boulevard/E. 14th and City of Alameda/Shattuck Corridors, and MacArthur Boulevard. Ultimately, 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 International Boulevard and 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 Phase 2 t several details of the recommended alignment, particularly in the downtown areas of Berkeley, Oakland and San Leandro, and how to reconfigure automobile traffic in the Telegraph Avenue area. 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/E. 14th and in each of the downtowns, through 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

**Capital Overview (TO BE COMPLETED PRIOR TO ADOPTION)**

**Business Plan (TO BE COMPLETED PRIOR TO ADOPTION)**