ALAMEDA
County Transportation Commission

Alameda Countywide Transit Plan

June 2016

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ACRONYMS

Acronym	Definition
511	Traffic, transit, rideshare, and bicycling information system
AB	Assembly Bill
AC Transit	Alameda-Contra Costa Transit District
ACE	Altamont Corridor Express
AHSC	Affordable Housing and Sustainable Communities
Alameda CTC	Alameda County Transportation Commission
ATP	Active Transportation Program
BART	Bay Area Rapid Transit
BATA	Bay Area Toll Authority
BRT	Bus Rapid Transit
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBTP	Community Based Transportation Plans
CFD	Community Facility District
CIG	Capital Investment Grants
CMA	Congestion Management Agency
CMAQ	Congestion Mitigation and Air Quality
CMP	Congestion Management Plan
CSTA	California State Transportation Agency
CTP	Countywide Transportation Plan
FAST	Fixing America's Surface Transportation
FTA	Federal Transit Administration
GGRF	Greenhouse Gas Reduction Fund
GHG	Greenhouse Gas
IGA	Intergovernmental Agreements
HSR	High Speed Rail Authority
LAVTA	Livermore Amador Valley Transit Authority
LCTOP	Low Carbon Transit Operations Program
LTF	Local Transportation Fund
MPO	Metropolitan Planning Organization
MTC	Metropolitan Transportation Commission
OBAG	One Bay Area Grants
PDA	Priority Development Area
PILOT	Payments in Lieu of Taxes
RM2	Regional Measure 2
RTP	Regional Transportation Plan
SCOA	Sustainable Communities Operational Analysis
SCS	Sustainable Communities Strategy
SEP	Service Expansion Plan
SFCTA	San Francisco County Transportation Authority
SFMTA	San Francisco Municipal Transportation Agency
SJRRC	San Joaquin Regional Rail Commission
SIB	State Infrastructure Bank

Acronym	Definition
SOV	Single Occupancy Vehicle
SRTP	Short Range Transit Plan
STBG	Surface Transportation Block Grant Program
TCI	Transit Competitiveness Index
TEP	Transportation Expenditure Plan
TIF	Tax Increment Financing
TIRC	Transit and Intercity Rail Capital
TOC	Transit Oriented Communities
TOD	Transit Oriented Development
TCRP	Transit Cooperative Research Program
TDA	Transportation Development Act
TIFIA	Transportation Infrastructure Finance and Innovation
TIGER	Transportation Investment Generating Economic Recovery
TNC	Transportation Networks Companies
TSP	Transit Sustainability Project
US DOT	United States Department of Transportation
WETA	San Francisco Bay Area Water Emergency Transportation Authority

ES

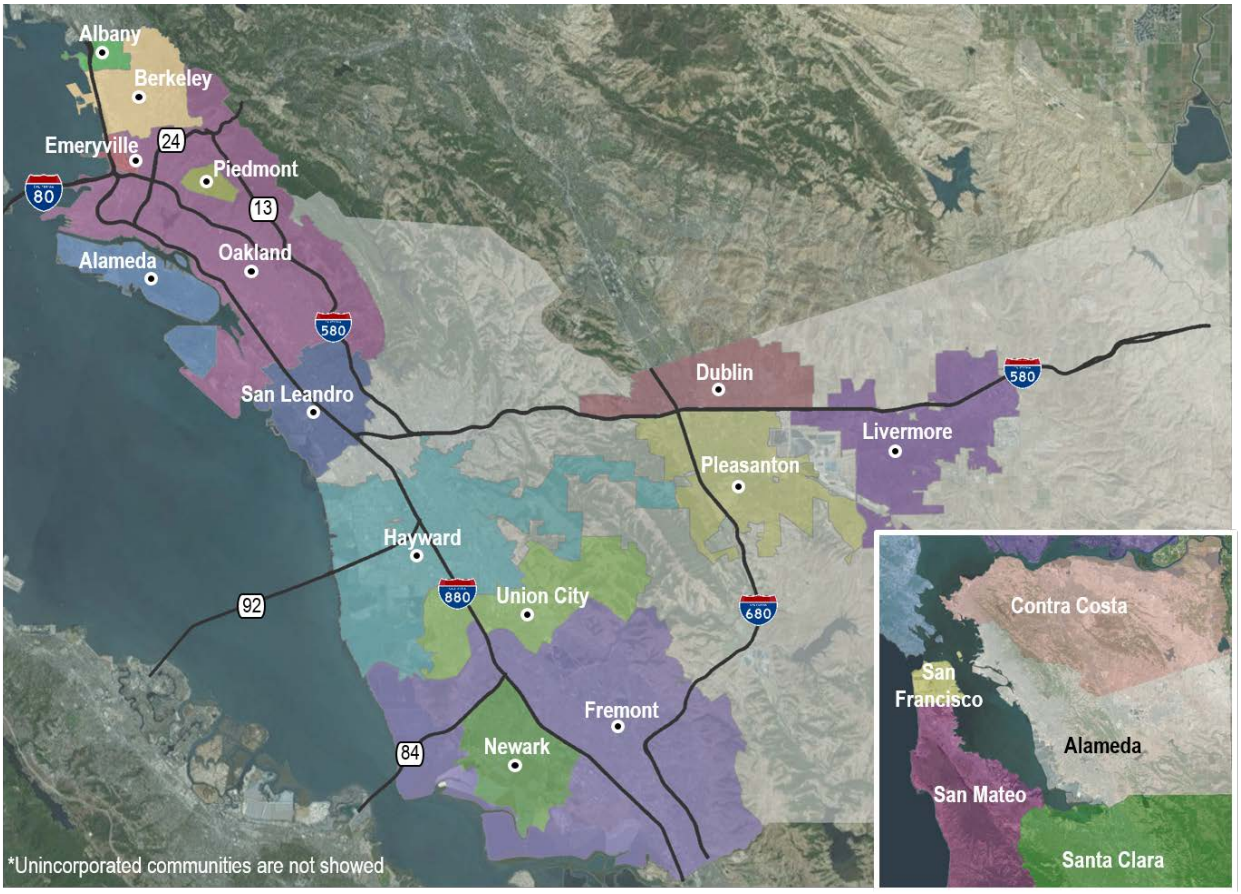
Executive Summary

Background and Context

Public transit is one of the foundations of our transportation system. It provides numerous economic, environmental, and social benefits. A robust transit system can reduce household costs by enabling households to own fewer vehicles or go car free. High quality transit improves access to employment, education, health care, and other opportunities while enabling employers to have access to a larger pool of employees. More people using transit instead of driving improves air quality, and reduces greenhouse gas emissions and energy consumption. Transit allows urban areas to accommodate higher densities where appropriate and reduces demand for parking, freeing up land for higher-value uses.

Alameda County's central location, diverse population and workforce, and extensive transportation network, make it a critical part of the San Francisco Bay Area. It features a mosaic of diverse travel markets and is served by an array of travel modes. Alameda County's 14 cities and unincorporated areas (Figure ES 1) have a combined population of 1.6 million[1]. Its population and worker base are growing and Alameda County recognizes that continuation of its economic vitality is closely tied to the ability to efficiently move people and goods throughout the region. The number of Alameda County residents commuting to areas outside the county has been increasing for several years due, in part,

Figure ES 1: Study Area



[11] Report E-4 Population Estimates for Cities, Counties, and the State, 2011-2015, with 2010 Benchmark. California Department of Finance. http://www.dof.ca.gov/research/demographic/Estimates/

to significant job growth in San Francisco and the Peninsula/South Bay. As housing needs continue to increase throughout the Bay Area, a significant amount of high-density, multi-family residential development is planned along several of Alameda County's primary transportation corridors.

Increasing transit mode share and growing rail, bus and ferry ridership are critical to meeting the mobility needs of the county today and in the future. Meeting current and future demands for fast, frequent, and reliable transit will require careful planning and deliberate actions on the part of the agencies, jurisdictions, and entities that serve Alameda County and the Bay Area.

Alameda County's multimodal transportation network includes seven transit agencies that provide bus, rail, and ferry services in the county and across county lines (Figure ES 3). There are also a multitude of shuttle services that are either fully or partially privately funded. Land use characteristics, commuting patterns, population density and growth, and economic conditions have created strong markets for transit today. These conditions and trends point toward an increasing demand for transit use in the future.

Transit is a competitive mode choice in most Alameda County communities based on favorable transportation and land use characteristics, such as limited parking availability, population and employment densities and projected growth, and roadway congestion. The presence of strong transit markets in Alameda County, however, has not always translated to high transit ridership. Only 14 percent of commute trips currently take place on transit[2] and the rate of ridership growth on most of the county's transit services has not kept pace with increasing operating costs. These trends have pointed to the need to assess how Alameda County's transit agencies can better take advantage of transit-competitive markets and capture a larger percentage of trips, including commute trips.

Further, for a decade there has been minimal ridership growth on intra-county bus service. Bus agencies may be better able to increase market share in strong transit markets with faster, more frequent, and more reliable bus service. Improving speed and reliability, however, will be challenging given projections of worsening congestion and travel times on county roadways.

Therefore, the Countywide Transit Plan has been developed to establish a framework for Alameda CTC and Alameda County's jurisdictions and transit agencies to align transit, land use, and economic development goals and objectives. It identifies needs and near- and long-term transit capital and operating priorities for fixed route and paratransit services. The Transit Plan is designed to work in concert with the Multimodal Arterial Plan— which lays out the approach to accommodating all modes traveling on major streets within the county— and the Countywide Goods Movement Plan— which addresses the critical importance of

ABOUT ALAMEDA CTC

The Alameda County Transportation Commission (Alameda CTC) was created as a joint-powers authority in 2010 by its predecessor agencies (ACCMA and ACTIA), AC Transit, BART, Alameda County and its constituent cities. It was established to plan, fund, and deliver transportation programs and projects that expand access and improve mobility in Alameda County. Alameda CTC also serves as Alameda County's congestion management agency. The CTC's governing board is comprised of 22 elected officials representing the county's 14 cities, the five members of the County Board of Supervisors, and one representative, respectively, from BART and AC Transit.

[2] 2014 Performance Report – State of the Transportation System in Alameda County. Alameda County Transportation Commission.

regional goods movement in the county and the interplay between the movement of goods and people on the county's rail and roadway systems.

By articulating a clear vision and priorities for transit in Alameda County, the Countywide Transit Plan will enable Alameda CTC and stakeholders to leverage existing funds and advocate for additional resources to improve local, regional, and inter-regional transit. Moving forward with the recommendations and strategies for better agency coordination will raise the bar for provision of transit service and travel options for residents, visitors, and workers in Alameda County. While the plan envisions a fully built out system by 2040, incremental provision of enhancements over time will result in a steady increase in ridership and service between now and 2040.

Vision and Goals

Alameda CTC works to create a transportation system that promotes environmental sustainability and economic vitality while facilitating mobility and connectivity. Alameda CTC recognizes the need to achieve financial sustainability by allocating limited transportation resources in a way that results in enhanced efficiency for transit operations and produces the most effective results for investments. The Countywide Transit Plan's vision was developed to reflect these considerations (Figure ES 2).

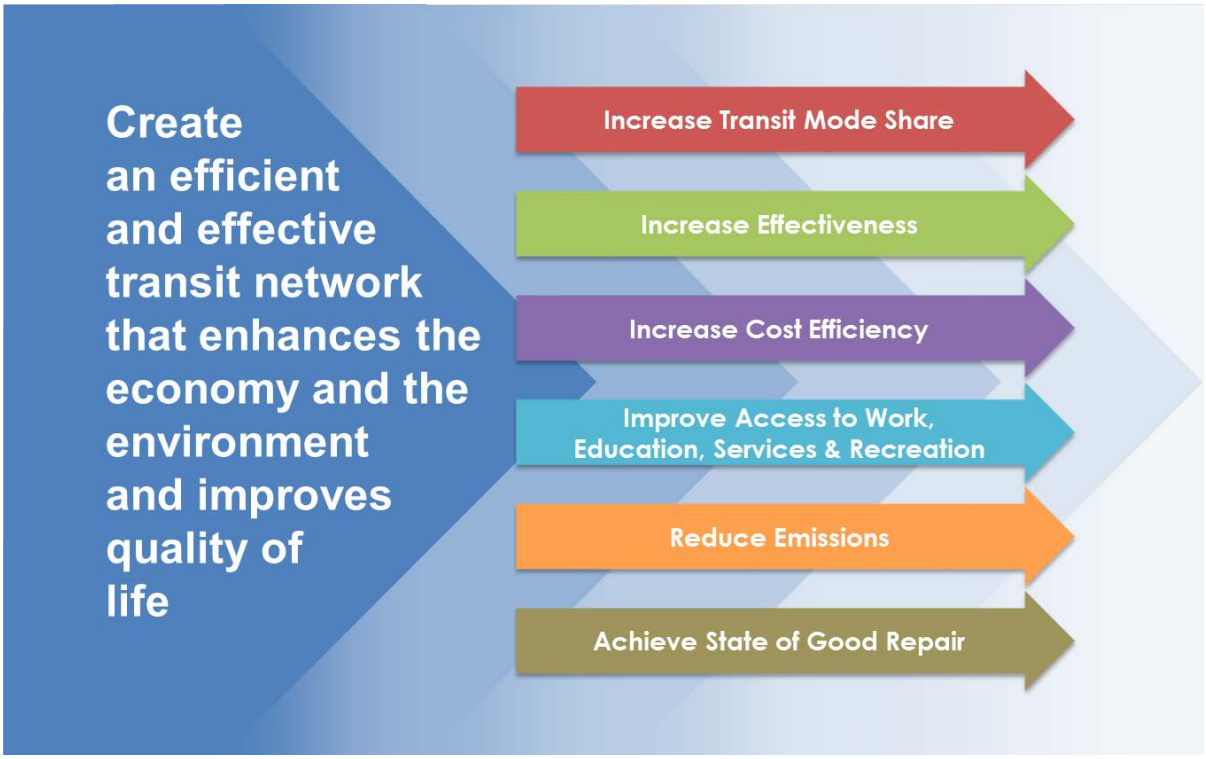
Based on the vision and an understanding of the current conditions in the county and region, seven transit goals for the Countywide Transit Plan were adopted by Alameda CTC (Figure ES 2).

Transit Market Analysis

Central to the development of the Countywide Transit Plan is a transit market analysis. The market analysis employed a Transit Competitiveness Index (TCI) tool that identifies locations and markets where transit service can effectively compete with other travel modes.

Over half of all Alameda County trips occur in strongly competitive transit travel markets based

Figure ES 2: Vision and Goals



TRANSIT COMPETITIVENESS INDEX

To design an effective transit system, it is useful to identify locations and markets where transit service can be competitive relative to automobile use. The Transit Competitiveness Index (TCI) tool assesses the underlying market conditions and location characteristics, independent of current or proposed transit service. It provides a quantitative measure of transit ridership potential by aggregating the conditions that contribute to successful transit service into a single number. The TCI analysis uses land use density and diversity, roadway congestion, parking cost and search time, household characteristics, trip purpose, central business district characteristics, and tolls as factors to determine transit market competitiveness. The TCI tool is derived primarily from data obtained from the 2014 Alameda CTC travel demand model.

on factors including increasing roadway congestion and concentration of future land use growth, primarily in Priority Development Areas (PDAs), which are places that local jurisdictions have identified for potential infill development near transit.

Across the region, transit competitiveness is expected to increase due to increasing residential densities and congestion, decreasing vehicle availability per household, and smaller households. Population and employment in Alameda County are forecast to grow by more than 30% by 2040[3]. Improving transit's market share is necessary to accommodate a growing population and its mobility needs.

While total daily trips are forecasted to increase significantly, only a minimal expansion in roadway capacity is anticipated to occur during this period. Despite some expected changes in land use, no major changes in travel patterns are anticipated.

EXISTING CONDITIONS, ISSUES, AND CHALLENGES

There is extensive transit service operating in Alameda County and conditions in Alameda County are supportive of transit, however, transit serves a relatively small share of total trips made within, to, from, or through Alameda County, and single occupant vehicles are the dominant mode of travel. The cost of providing transit service is increasing, while service levels and ridership in some markets are declining. Deteriorating traffic congestion on roadways could increase bus delays and worsen on-time performance. These and other key themes that emerged from analysis of existing conditions of the transit system are summarized below.

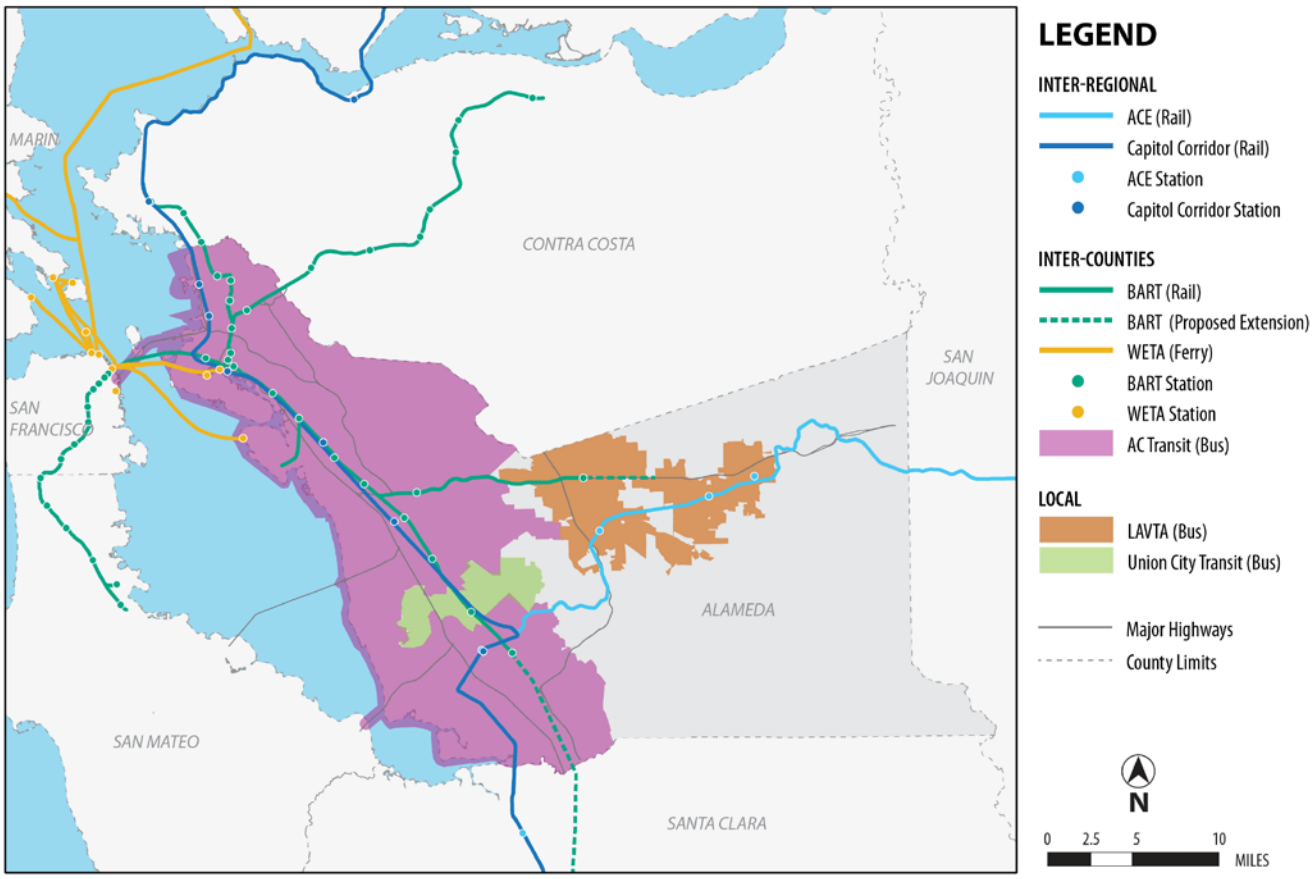
STRONG TRANSIT MARKETS ARE NOT RESULTING IN STRONG TRANSIT RIDERSHIP

The presence of strong transit markets in Alameda County has not yet translated to high transit ridership. Single-occupant vehicles are the predominant mode of travel accounting for slightly less than three-quarters of all work trips originating in Alameda County. Transit serves a relatively small share of total trips made within, to, from, or through Alameda County. Only 14 percent of commute trips in the county currently take place on transit (Figure ES 4) and an even smaller proportion of *total* trips (including non-work trips) take place on transit.

A significant majority of transit routes in Alameda County currently operate in transit-competitive markets. However, transit ridership in areas with a high TCI are lower than what would be expected given the "competitive" transit conditions. Many of the transit routes serving these areas have

[3] Plan Bay Area, Metropolitan Transportation Commission, 2013. Alameda County population is expected to increase by over 30% and employment by 36% between 2010 and 2040.

Figure ES 3: Transit Network in Alameda County



Note: AC Transit also serves parts of Contra Costa County, however, service area outside Alameda County is not shown in the map above.

mode shares below that suggested by the TCI—suggesting that untapped transit markets or latent passenger demand exists within or near these transit routes.

Similarly, whereas over two-thirds of *all* trips (trips on all modes) associated with Alameda County take place entirely within the county, only one third of trips *served by transit* take place entirely within in the county, which indicates a potential untapped market for intra-county transit trips (see next theme). The other two thirds of transit trips are regional trips that cross county boundaries (Figure ES 5). These regional trips occur between Alameda County and adjacent counties. .

In particular, a high level of Transbay coverage is provided to San Francisco. Although San Francisco is not the most significant regional destination for all trips to and from Alameda County (it is second compared to Contra Costa County), it is the market with the richest transit service and high demand due to congestion on the San Francisco Oakland Bay Bridge, the concentration of employment sites in downtown San Francisco, and the cost and availability of parking in San Francisco.

While transit service coverage extends throughout the county, transit service operations and frequency (i.e., routes and schedules) are most concentrated in the inner East Bay's urban core, with the system becoming less dense and service less frequent in the southern and eastern parts of the county (Figure ES 3).

Among all transit agencies, BART and AC Transit combined carry nearly 97 percent of all trips made on transit (Figure ES 6). The other transit services in Alameda County carry the remaining three percent.

Figure ES 4: Mode-share for Commute Trips

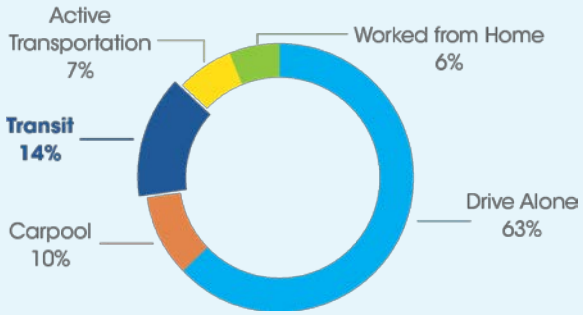


Figure ES 5: All Transit Trips by Type

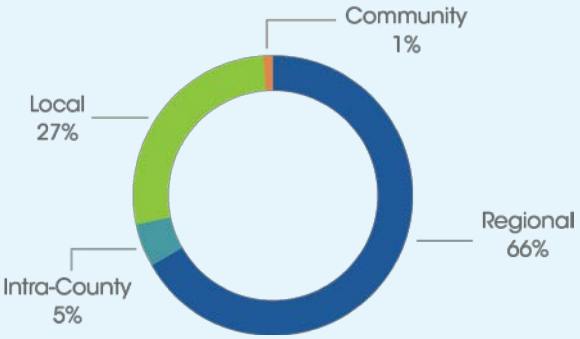
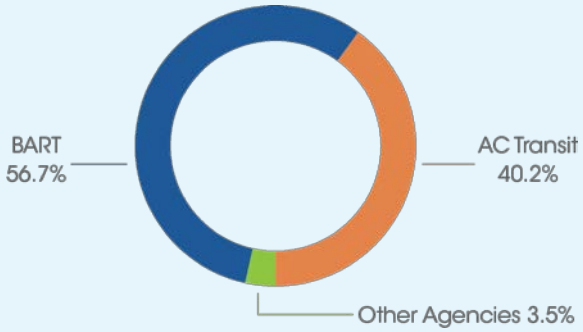


Figure ES 6: Ridership by Transit Agency



Source: Ridership data provided by transit agencies

Decade-Long Trend of Flat Intra-County Bus Ridership Growth

Despite positive market conditions for transit in Alameda County, bus ridership declined between 2006 and 2012; it remained relatively flat until 2014, the most recent year for which data was collected. This trend may be linked to the recession, service cuts and congestion-related on-time performance problems[4]. Where transit markets are strong and transit service is frequent, reliable, and highly competitive with the auto, such as the East Bay-San Francisco Transbay corridor, transit ridership has grown significantly.

Transit Speed and Reliability Could Worsen if No Actions Are Taken

Improving bus speeds will present a challenge given that traffic congestion and auto travel times are projected to worsen as population and density increases in many areas of the county.

Increasing roadway congestion threatens to increase bus delay and worsen on-time performance. In order to address this trend it is critical to develop ways for bus service to avoid the unpredictability of congestion and road incidents.

Rate of Ridership Growth is Not Keeping Pace with Increasing Operating Costs

The cost of providing transit service is increasing faster than inflation and outpacing growth in ridership and fare revenues. Higher operating costs combined with fluctuations in transit funding and revenues due to the recession have necessitated cutbacks in service which have a negative impact on ridership. This situation also presents on-going challenges to maintain existing services and provide new service where it is needed most. At the same time, population and employment in Alameda County have continued to grow, but transit ridership has not kept pace.

[4] Alameda CTC 2014 Performance Report

Despite Extensive Coverage, Transit Gaps Still Exist

Gaps are areas deficient in transit service, and occur in the form of either spatial, temporal, or service-level gaps. There is a lot of work underway by many transit operators and transportation agencies to address temporal and spatial gaps in service. For example, trips to and from Contra Costa County and Santa Clara County are served by only a few transit routes. Ongoing efforts like the AC Transit's Major Corridors Study and Service Expansion Plan seek to close the Contra Costa County gap, and the BART Silicon Valley extension proposes to extend BART service to San Jose and Santa Clara.

An example of a temporal, service-level transit gap exists in the Alameda County-San Francisco market, where existing supply of transit does not meet demand during commute hours resulting in crowding on trains and buses. The MTC Core Capacity Transit Study focuses on investments to transport more commuters on BART, AC Transit, and WETA from the East Bay (including Alameda County), and it explores potential new connections across the Bay.

These gaps, issues, and challenges support the need for additional network improvements and development of strategies to achieve a more physically and insitutionally integrated transit system in the future.

Opportunities

One critical outcome of the Plan is the recommendation for a *Vision Network* designed to help Alameda County realize its vision for public transportation. The Vision Network focuses on how Alameda CTC can improve the transit system and transit service by focusing investments in those areas that will have the greatest benefit to existing riders and the potential to attract new riders.

Network Recommendations

The Vision Network recommendations include short-and long-range solutions designed to improve the transit system. They are the result of a thorough consideration of existing conditions, current plans and studies, and market and transit operational analyses. They are also designed to support Alameda CTC's vision and goals for transit. Fourteen core Vision Network recommendations were developed in response to the evaluation of current transit service, current and forecasted transit market conditions, and other on-going planning studies.

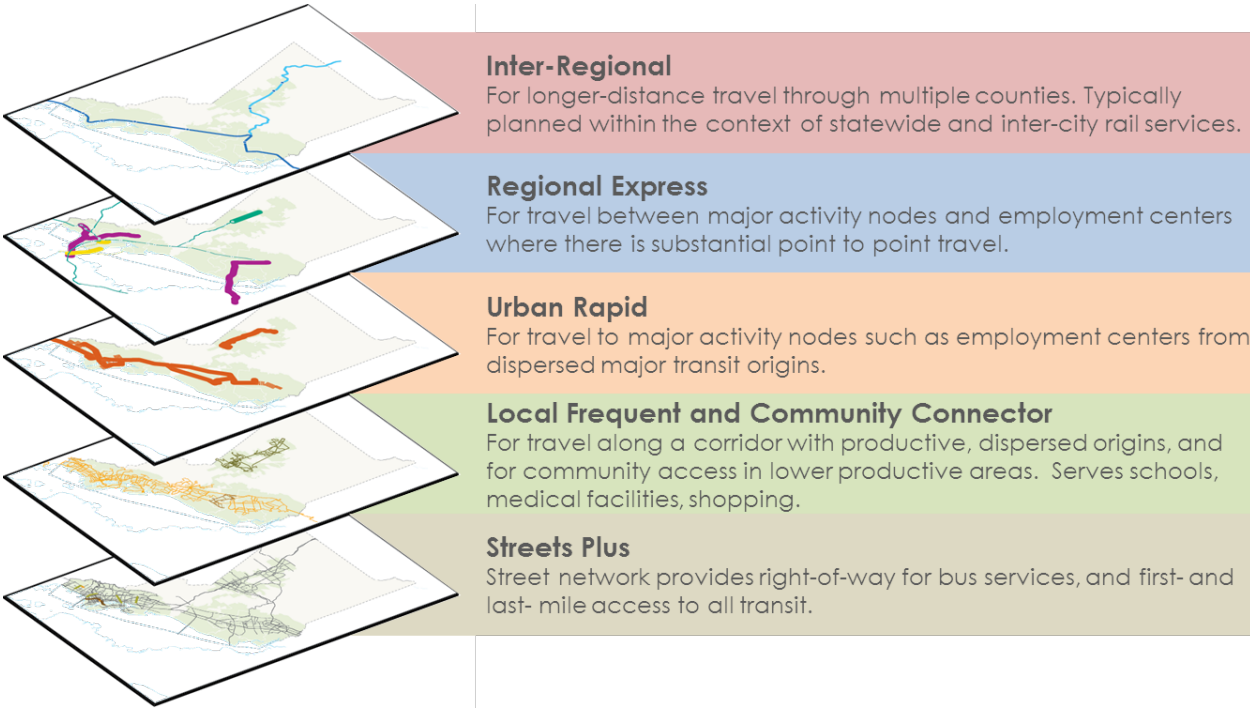
The Vision Network recommendations are not intended to identify new routes; rather, based on market analyses, they identify a network of transit corridors that have the potential to capture the greatest market share of transit riders throughout the county. This will inform where transit funding investments can be made to best capture increased market share.

The Plan also identifies capital improvements to facilitate improved frequency and reliability of services. Since the recommendations focus on a network of corridors, a critical next step for moving the Plan forward will be to identify specific corridor improvements for the recommended corridors linked to improvements identified in Alameda CTC's Multimodal Arterial Plan and projects identified in the 2014 Transportation Expenditure Plan. Agency partnerships and public and business outreach will be essential to move forward the Vision Network recommendations.

Transit Tiers

A tiered structure forms the framework for the Vision Network recommendations. Five tiers were identified (Figure ES 7). The tiered structure is an organizational tool to frame the discussion of the existing array of transit services, the methodology used to identify future needs, and the recommendations themselves. The structure does *not* imply a hierarchy of importance among the transit services or tiers. Rather, the five tiers of

Figure ES 7: Transit Tiers



service function as an integrated system to deliver effective transit options to the community.

Policy Strategies

The Plan also includes recommended strategies intended to provide a guiding framework for agencies to consider how to begin strategically implementing the recommended improvements (Table ES 1). The strategies are conceptual. Refinements and additional actions will be necessary to achieve a more physically and institutionally integrated transit system through policy modifications, service coordination, finance approaches, land use considerations, and additional study where needed. The transit tier structure forms the framework for targeting policy strategies.

Moving Forward

A series of important steps will be necessary to move the recommendations and strategies forward, secure funding for delivery, and determine coordination and collaboration opportunities.

The transit system in Alameda County is a mature system, and many major system infrastructure elements need capital rehabilitation or replacement. At the same time, rapid change and growth calls for expansion of the transit system to ensure continued, adequate access to transit in Alameda County. Striking the right balance between these needs will be critical.

Taken as a whole (excluding the BART extension to Livermore/ACE), the estimated capital cost of the Vision Network recommendations is $2.6 billion (in 2015 dollars). Annual operating and maintenance costs (2015 dollars) are estimated at $149 million.

Development of precise financing strategies will require more detailed analysis as each project goes through its specific planning and engineering phases, but should be based on five overall approaches:

1. Develop consensus on phased implementation.
2. Develop a funding strategy team
3. Identify funding sources and financing options
4. Develop a financial model and identify several funding and financing scenarios
5. Develop funding strategy and timeline.

This plan's recommendations and strategies will serve the mobility needs of the county today and in the future capitalizing on the strength of transit markets and abundance of opportunities for improving transit service in Alameda County. Some of the recommendations and strategies would require rethinking the transit capital project and transit service delivery practices. Successfully utilizing the potential funding sources and financing mechanisms to move the recommendations and strategies forward will require further project development and extensive interagency coordination.

Project Development – The Vision Network recommendations are based on market analysis that relies on existing transit performance, future land use plans, and demographic projections. As these recommendations are further analyzed and developed, and specific capital and service improvements are identified, specific funding and implementation strategies will need to be developed.

Project Schedule – Each corridor served by the Vision Network recommendations is unique in its strengths and challenges that would affect the project delivery timeline. Project specifics and delivery schedules, created during the course of project development, will be key in identifying specific funding sources and financing mechanisms that are best aligned to meet the projects financial needs.

Interagency Coordination – One of the biggest challenges to developing and financing multi-jurisdictional transit projects is the coordination of various interested parties, including transit agencies, local jurisdictions, residents, businesses, private property owners and other stakeholders. A politically and economically feasible 'project' may require extensive outreach efforts and a new funding and delivery mechanism.

Pilot Programs – Some of the strategies could be tested out through pilot programs conducted at agency- or county-level. A pilot program could be used to test heavily discounted transfers across transit agencies. Pilot programs could also be deployed to explore arrangements that maximize the public benefit from integration of public-private partnerships, such as services offered by transportation network companies.

Advocacy – For strategies that are best implemented at the regional level, Alameda CTC, transit agencies, and local jurisdictions could coordinate their advocacy efforts. A regionally-focused universal fare program would be ideal for such advocacy efforts.

Table ES 1: Summary of Tier Based Policy Strategies

Tier	Strategies	
All Tiers	Maintain assets, including transit facilities and vehicles,, to maximize useful life and enhance safety	- Conduct State of Good Repair (SOGR) assessments at each agency
Inter-Regional	Separate goods movement and passenger rail service	- Conduct a detailed study on passenger and freight rail needs
Regional Express	Target resources to expand Transbay service capacity	- Prioritize funding for supplemental Transbay bus and ferry service; address implications to facilities and labor; evaluate differently from local services - Conduct additional analysis to determine the extent of need and fleet requirements
	Enhance interagency coordination	- Explore potential Intergovernmental Agreements - Create/expand committee for interagency coordination - Encourage funding integration
	Refine corridor plans through clearly defined improvements	- Coordinate corridor plans with parallel planning initiatives including the Goods Movement Plan and Arterial Plan
	Establish an integrated fare structure and policy allowing riders to transfer between systems and routes	- Upgrade regional passes (Clipper card) - Eliminate transfer penalties - Implement mobile ticketing
	Develop a regional coordinated schedule across all operators to improve service connections and address possible overlaps in service	- Synchronize service spans (hours of operation/frequency) - Synchronize schedules to minimize wait time between buses - Share seasonal and special condition service change information - Create a joint information platform to merge real-time information
	Expand affordable fare strategies	- Expand the use of fare programs to employers and institutions - Consider results of MTC's means-based fare study
	Develop programs to reduce costs	- Improve coordination among transit agencies - Support full implementation of common set of service standards - Require audits, peer comparison and value engineering on all projects
Urban Rapid	Enhance interagency coordination to focus investments and development	- Establish corridor working groups to coordinate planning and investments around specific transit corridors

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Tier	Strategies	
Urban Rapid *(continued from prior page)*	along transit corridors and in Transit Oriented Communities	- Coordinate and link Transit Oriented Communities programs with active transportation and complete streets programs - Create Transit Oriented Development programs to encourage planning for higher density development at transit hubs and stations - Identify funding resources to facilitate the prioritization of transportation infrastructure programs
	Provide common Information tools and shared branding and marketing	- Create one-call, one-click information for all services - Create a countywide transit map and common graphic and information system
Local Frequent and Community Connector	Expand access for persons with disabilities in conjunction with fixed route service improvements (e.g. increase in service area coverage, hours of operation, transit hub and station upgrades)	- Improve access to transit hubs and stations - Enhance travel training programs - Coordinate inter-agency paratransit scheduling for regional trips
	Explore public-private partnerships to expand the reach of the transit network	- Explore pilot programs at outer portions of routes to assess demand, operational considerations and contractual issues
Streets Plus	Strengthen intermodal connections among buses, trains, and alternative modes through targeted roadway and non-motorized transportation improvements	- Establish on-street priority for transit operations, facilities, and pedestrian access - Provide priority for transit services by upgrading traffic signal systems - Establish transit priority zones in areas of heavy bus flows and transfer activity - Establish on-street priority and separation of transit from traffic to improve access to transit hubs, rail stations and park-and-ride facilities - Prioritize pedestrian improvements and bicycle access to transit - Enhance transfer hubs by minimizing walk lengths and impediments to pedestrian and bicycle access -
	Encourage Transit Oriented Community planning along transit corridors and transit-dense areas	- Encourage local jurisdictions and developers to place highest intensity uses in closest proximity to transit - Encourage a mix of uses to support walking and bicycling in “complete street” communities - Manage parking supply and demand

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Background and Context

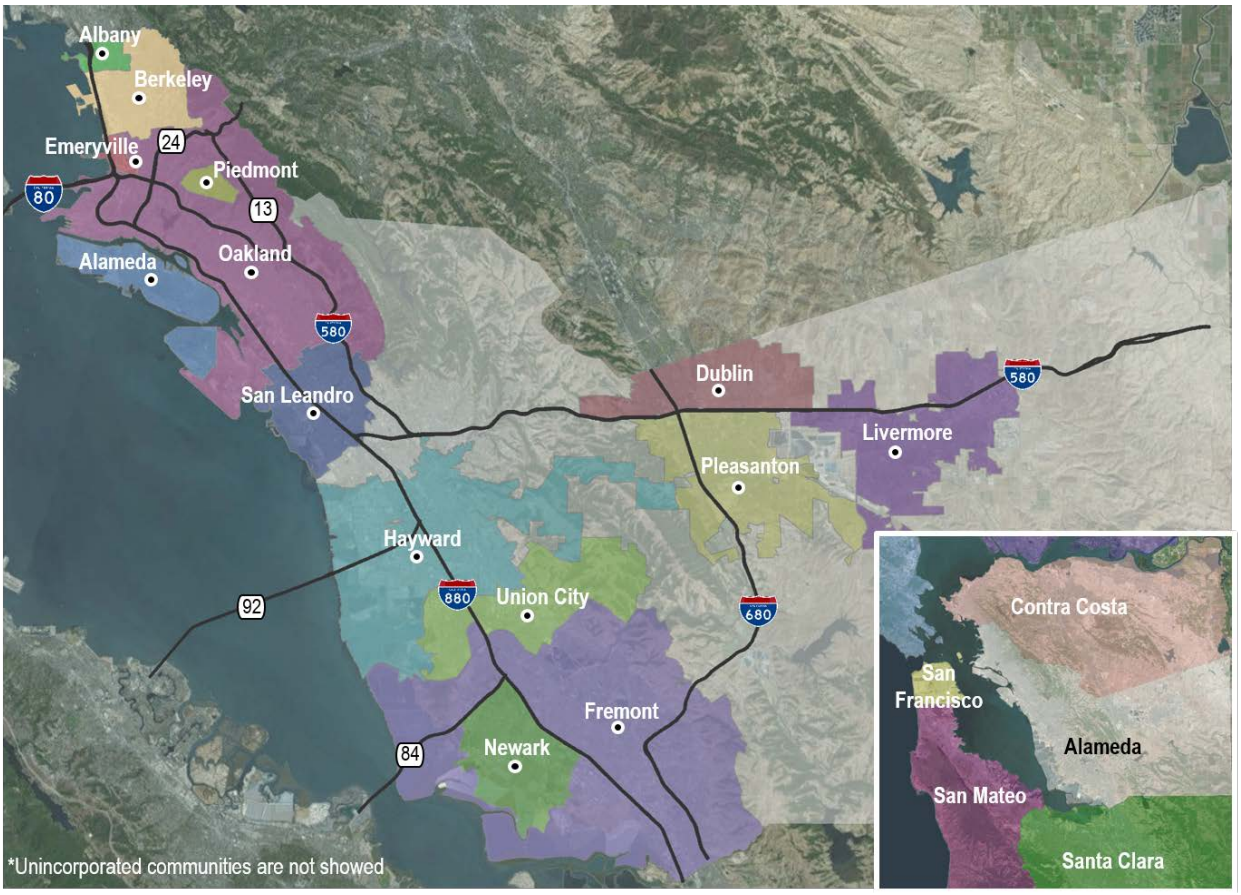
1.1. About Alameda County

Alameda County's central location, diverse population and workforce, and extensive transportation network, make it an integral part of the San Francisco Bay Area. The county has diverse travel markets served by an array of travel modes. Alameda County's 14 cities and unincorporated areas (Figure 1) have a combined population of 1.6 million[5]. Its population and worker base are growing and Alameda County recognizes that continuation of its economic viability is closely tied to the ability to efficiently move people and goods throughout the region. The number of Alameda County residents commuting to areas outside the county has been increasing for several years due, in part, to job growth in San Francisco and the Peninsula and South Bay. As housing needs continue to increase throughout the Bay Area, a significant amount of high-density, multi-family residential development is planned along several primary transportation corridors.

Meeting future demands for fast, frequent, and reliable transit will require careful planning and deliberate actions on the part of the agencies, jurisdictions, and entities that serve Alameda County and the Bay Area.

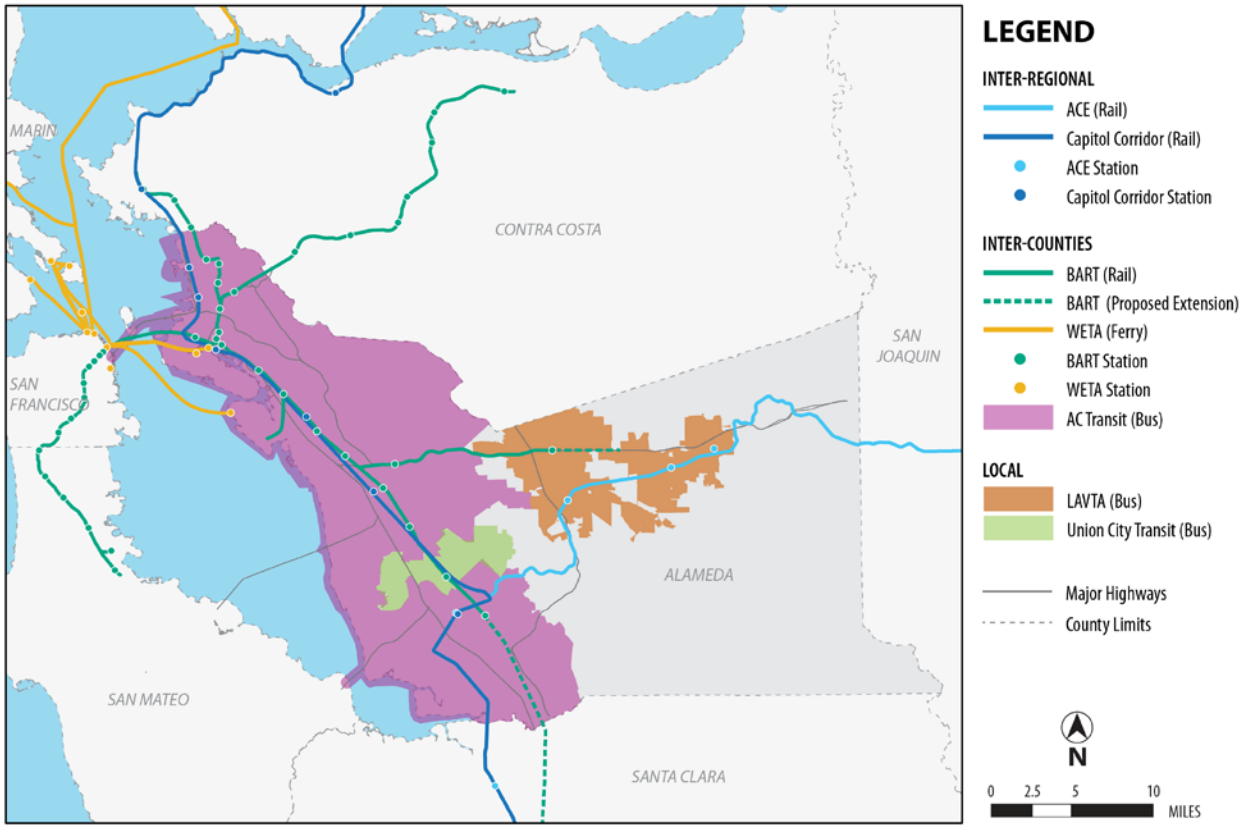
Alameda County's multimodal transportation network includes seven transit agencies that provide bus, rail, and ferry services in the county and across county lines (Figure 2), as well as a

Figure 1: Study Area



[55] Report E-4 Population Estimates for Cities, Counties, and the State, 2011-2015, with 2010 Benchmark. California Department of Finance. http://www.dof.ca.gov/research/demographic/Estimates/

Figure 2: Map of Transit Agencies Serving Alameda County



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multitude of shuttle services that are either fully or partially privately funded. Land use, commuting patterns, population density and growth, and economic conditions have created strong markets for transit today. These same conditions and growth trends point toward an increasing demand for transit use in the future.

Transit is a competitive mode choice in most Alameda County communities based on favorable transportation and land use characteristics, such as limited parking availability, population and employment growth, and roadway congestion. In 2010, almost 54 percent of all Alameda County trips were in transit-competitive markets; this is expected to increase to 58 percent by 2040[6].

The presence of strong transit markets in Alameda County, however, has not always translated to

ABOUT ALAMEDA CTC

The Alameda County Transportation Commission (Alameda CTC) was created as a joint-powers authority in 2010 by its predecessor agencies (ACCMA, ACTA, and ACTIA), AC Transit, BART, Alameda County and its constituent cities. It was established to plan, fund, and deliver transportation programs and projects that expand access and improve mobility in Alameda County. Alameda CTC also serves as Alameda County's congestion management agency. The governing board is comprised of 22 elected officials representing the county's 14 cities, the five members of the County Board of Supervisors, and one representative, respectively, from BART and AC Transit.

[6] Appendix B - *Existing Conditions and Market Analysis*

COUNTYWIDE TRANSIT PLAN AND OTHER PLANS

Alameda CTC, along with its predecessor agencies, has led the way in transportation investments and funding for projects in Alameda County for almost 30 years. Until recently, Alameda CTC and its predecessor agencies employed a conventional approach for prioritizing projects in the Countywide Transportation Plan. Alameda CTC began performance based planning with the adoption of the 2012 ***Countywide Transportation Plan*** *(CTP) to evaluate transportation performance against a set of goals to evaluate how the county is moving towards fulfilling its adopted transportation vision.*

The 2012 CTP also called for the development of specific modal plans to more fully understand the needs, challenges, and opportunities for transportation improvement in Alameda County. This Countywide Transit Plan was one of the identified modal plans to be created as a next step for developing projects, programs, and policies to improve transit in Alameda County.

The Transit Plan was developed in close coordination with other modal plans, particularly the Goods Movement Plan and the Multimodal Arterials Plan. Transit Plan and Goods Movement Plan teams collaborated to develop a white paper to inform the development of a comprehensive passenger and freight rail strategy for Alameda County. Similarly, recommendations of the Transit Plan were considered in identifying appropriate typology and modal priorities for relevant street segments in the Multimodal Arterials Plan.

high transit ridership. Only 14 percent of commute trips currently take place on transit[7]. Increasing transit mode share and growing rail, bus and ferry ridership are critical to meeting the mobility needs of today's and tomorrow's population. However, the rate of ridership growth on most of the county's transit services has not kept pace with increasing operating costs. These trends have pointed to the need to assess how Alameda County's transit agencies can better take advantage of transit-competitive markets and capture a larger percentage of trips, including commuter trips.

The decade-long trend of generally flat ridership growth on intra-county bus service is also a key issue. Bus agencies may be better able to increase market share in strong transit markets with faster, more frequent, and more reliable service. Improving speed and reliability will be a challenge given projections of worsening congestion and travel times.

Therefore, the Countywide Transit Plan has been developed to establish a framework for Alameda CTC and Alameda County's jurisdictions and transit agencies to align transit, land use, and economic development goals and objectives. It

[7]Alameda County Transportation Commission, 2014 Performance Report – State of the Transportation System in Alameda County.

identifies needs and near- and long-term transit capital and operating priorities for fixed route and paratransit services. The plan is designed to work in concert with the Multimodal Arterial Plan (which lays out the approach to accommodating all modes traveling on major streets within the county) and the Countywide Goods Movement Plan (which addresses the critical importance of regional goods movement in the county and the interplay between the movement of goods and people on the county's rail and roadway systems). By articulating a clear vision and priorities for transit in Alameda County, the Countywide Transit Plan will enable Alameda CTC and stakeholders to leverage existing funds and advocate for additional resources to improve local, regional, and inter-regional transit.

The Plan identifies a Vision Network of enhanced infrastructure and transit services for the future. Moving forward with the Vision Network recommendations and strategies for better agency coordination will raise the bar for provision of transit service and travel options for residents, visitors, and workers in Alameda County. While the plan envisions a fully built out system by 2040, incremental delivery of enhancements over time can result in a steady increase in ridership and service between now and 2040.

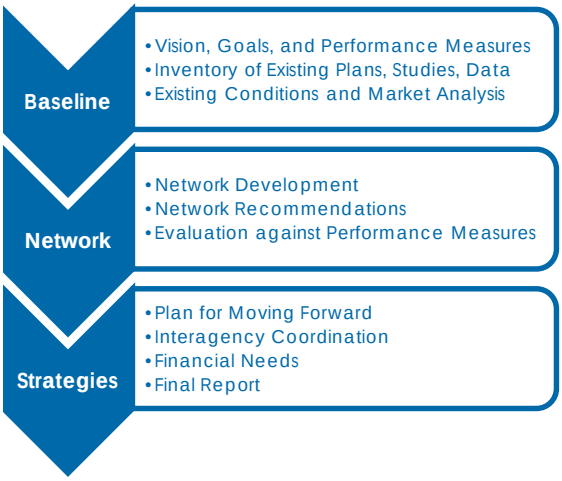
1.2. Plan Development Process

The framework for transit's future in Alameda County started by developing an inventory of existing plans, studies, and data (Appendix A); by thoroughly analyzing existing and future market conditions (Appendix B); and by identifying transit performance issues and system integration opportunities (Appendix B). Based on this baseline analysis, the Countywide Transit Plan established a vision to create an efficient and effective transit network that enhances the economy and the environment to improve the quality of life in Alameda County. Extensive market analysis was conducted, enabling identification of areas where travel and land use patterns, as well as employment and population densities, indicate strong market demand for enhanced transit services.

The Vision Network recommendations were developed to focus on these strong transit market areas. The recommendations consist of infrastructure improvements to facilitate provision of improved transit service within and to these areas. Network recommendations were evaluated against performance measures derived from the vision and goals (Appendix E). The performance evaluation included assessment of network components, as applicable, and the network as a whole, and assessed the potential of the recommendations to achieve the adopted goals.

The Countywide Transit Plan identifies physical and institutional strategies to move both the transit network vision and the specific recommendations forward. The strategies address transit performance issues and system integration opportunities, and focus on the physical and institutional needs to provide high quality transit services. The importance of collaboration among agencies to move the recommendations and strategies forward is recognized. The plan identifies key roles and responsibilities of partner agencies, as well as strategies for interagency coordination. The plan also lays out the federal,

Figure 3: Plan Development Process



state, regional, and local funding sources and financing programs potentially available to advance the recommendations and strategies.

Stakeholder outreach was an essential part of the plan development process. Outreach efforts engaged both "technical" and "public" groups by providing information and feedback opportunities tailored to their respective needs. To reach a broad stakeholder base, multiple stakeholder and technical team meetings with community, city leaders and transit agency staff were conducted. To address the community at large, a series of community workshops/open houses across Alameda County was conducted. Requests for stakeholder input was also communicated across multiple platforms, including websites, media, newsletters, fact sheets, handouts, and engagement exercises.

OUTREACH

The Technical Teams included staff from Alameda CTC, the California Department of Transportation (Caltrans), the Metropolitan Transportation Commission (MTC), local jurisdictions, and transit agencies.

Interest groups included businesses, civic and community groups, educational and healthcare institutions, faith-based organizations, youth, and both frequent and occasional transit users.

Figure 4: Transportation Open House

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2

Vision For the Future

2.1. Vision

Alameda CTC works to create a transportation system that promotes environmental sustainability and economic vitality while facilitating mobility and connectivity. Alameda CTC recognizes the need to achieve financial sustainability by allocating limited transportation resources in a way that enhances the efficiency of transit operations and produces the most effective results for investments.

Vision for the Countywide Transit Plan: Create an efficient and effective transit network that enhances the economy and the environment while improving the quality of life in Alameda County.

The intent of the Countywide Transit Plan is to understand the challenges facing Alameda County's transit agencies and transit users and to work collaboratively on approaches to provide more effective and sustainable transit services.

2.2 Goals

Based on the vision and an understanding of the current conditions in the county and region, seven transit goals for the Countywide Transit Plan were adopted by Alameda CTC: (See Appendix C for more information about development of the Vision and Goals.)

1. Increase Transit Mode Share

Transit's market share of total trips made within, to, or from Alameda County is relatively small. While some travel markets have higher numbers of trips on transit, such as the work commute between the East Bay and San Francisco, the overall number of trips using transit on a per capita basis will need to increase to reduce dependence on auto travel and help absorb growing travel demand.

In addition, the number of people living and working in Alameda County is growing significantly faster than the number of people using transit. By offering travelers more choices, the potential exists to capture a larger share of all trips on transit and reduce reliance on single occupancy vehicle (SOV) driving.

The potential to capture more trips on transit can also be improved by promoting land use patterns that provide a mix of uses and greater density around transit hubs and/or activity centers.

2. Increase System Effectiveness

Demand for some peak hour services-- such as Transbay BART service, Transbay AC Transit, and WETA ferry services-- exceeds capacity. Use of the system is constrained by lack of supply. Conversely, much of the current supply of transit in off-peak hours is underutilized. To achieve a more financially sustainable transit system, supply should match demand by location, service type, frequency, time of day and day of week.

3. Increase the Effectiveness of Inter-Regional Transit Travel

Alameda County is a key crossroads in the San Francisco Bay Area. A significant portion of inter-regional trips begin, pass through, and end in the county. As a result, the county's transportation system serves a significant number of through trips with no origin or destination points within Alameda County. More effective inter-regional transit service has the potential to shift some of these inter-regional trips from roads and highways onto rail, bus and shuttle transit services.

4. Increase Cost Efficiency

The rate of increase in the cost to provide transit service is outpacing the rate of increase in service and ridership. Resources must be used as efficiently as possible to maintain current transit service levels, as well as to increase frequency and service hours. As the demand for transit dollars increases and resources become increasingly competitive, a greater emphasis must be placed on transit investments that achieve the greatest return for the dollars spent.

5. Improve Access to Work, Education, Services, and Recreation

The transit system should make it easy for people to travel without reliance on private automobiles.

While several transit markets in Alameda County are in transit competitive environments, they are performing below their market potential. Gaps in transit service (including both temporal and physical), poor connectivity between different transit agencies, and lack of a well-integrated fare structure are conditions that can make transit use costly, time-consuming, and inconvenient, thereby discouraging ridership. Additional factors include limited availability of transit information, safety and security concerns, limited service hours and frequency in some areas, and poor reliability of service as a result of congestion and other factors.

Improved access can be accomplished by fostering a coordinated transit network that integrates modes, services (public and private), routes, schedules, service periods, fares and fare payment types to provide fast, reliable connections. Easily accessible and fully integrated information on all services, including first and last mile options, must be available in a user friendly manner. Points of connection between modes and routes must be safe, pleasant and facilitate easy transfers. Implementation of innovative and flexible services can also more effectively meet transportation needs in areas that cannot be efficiently served by fixed route transit.

Improved access also means providing safe and convenient connections and facilities for pedestrians, bicyclists and persons with disabilities—as well as transit buses, vans, and shuttles—to transit stops and stations.

6. Reduce Emissions

Transportation- dominated by SOV travel-- is the single largest contributor to emissions (greenhouse gases and air pollutants[8]). By creating an accessible, reliable, safe and efficient transit network, transit can capture a larger mode share, resulting in less reliance on SOV driving and lower emissions.

7. Achieve a State of Good Repair

To provide a safe and reliable transit experience for the user, the transit system needs to be in good working condition. With limited resources, the maintenance of existing transit facilities and fleets must be balanced with system expansion.

Much of Alameda County's transit infrastructure is old and in need of refurbishment or replacement. BART's infrastructure dates from the 1960s and 1970s, with rail cars placed in service over 40 years ago still in service. Similarly, AC Transit and other transit agencies have identified the need for significant investments to maintain their existing assets in a state of good repair. There is a need to obtain new assets, such as vehicles, to meet projected demand.

[8] State of California, Sustainable Communities and Climate Protection Act of 2008

3

Existing Conditions

3.1. Context

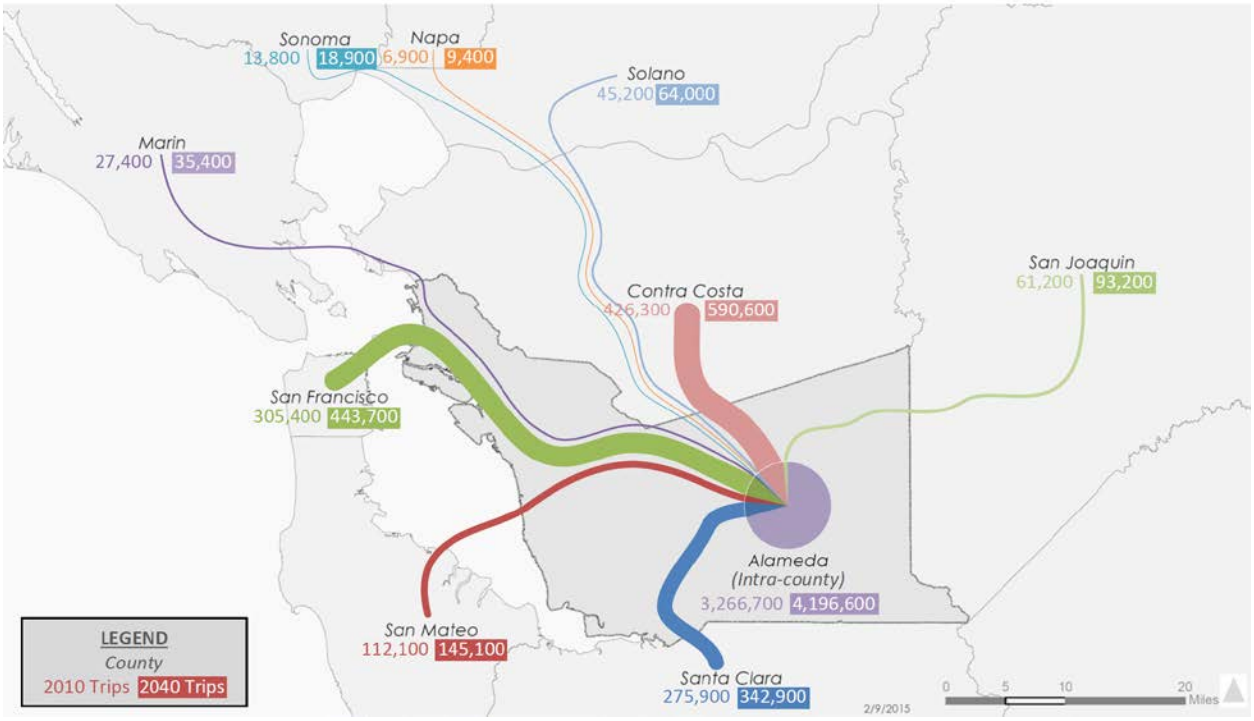
Alameda County's transit system is extensive and diverse, consisting of multiple modes and transit agencies. The context in which transit is operated and investments are made involve legislative mandates, several policies and implementing agencies, and complex inter-relationships among all entities. The transit system also reflects, and responds to, the area in which service is provided in terms of land use patterns, population, demographics, and development. Transit in Alameda County is also provided within the broader context of the Bay Area metropolitan area, with travel patterns and services that cross county lines.

3.2. Land Use and Travel Patterns

Alameda County is characterized by a diverse range of land uses and densities. North County encompasses the inner East Bay's urban core, with the most intense development in and around its major downtowns. Development is more dispersed in the hills and away from the downtowns. Central County is a mix of older urban and newer suburban neighborhoods. South County has land-use characteristics similar to those of Central County, consisting of medium- and lower density neighborhoods and communities, and in some communities is beginning to focus on strategic urban growth. East County features lower-density suburban communities and also has rural and agricultural areas.

The Alameda County Travel Demand Model, reports approximately 4.5 million total trips a day in 2010 and projected nearly 6 million total daily trips by 2040 (Figure 5). In both the baseline and future scenarios over two-thirds of these trips are intra-county trips occurring entirely within the county. Trips to/from neighboring counties of Contra Costa, San Francisco, Santa Clara, and San Mateo account for most of the rest. There are also a significant number of trips travelling to/from San Joaquin County. Trips between Alameda

Figure 5: All Daily Trips to and from Alameda County (All Modes)



Source: Parsons Brinckerhoff, using Alameda CTC Countywide Travel Demand Model data (2014)

County and the North Bay counties of Marin, Napa, Sonoma and Solano account for only a small percentage of the total.

3.3. Transit Services and Plans

Alameda County's multimodal transportation network includes seven transit agencies that provide bus, rail, and ferry services in the county and across county lines. While service coverage extends throughout the county, operations and frequency (i.e., routes and schedules) tend to be concentrated in the inner East Bay's urban core. The system becomes less dense and service less frequent in the southern and eastern parts of the county. The following summarizes the transit operators in Alameda County and recent plans completed by these agencies (see Appendix A for full summary of existing plans).

Inter-Regional

Inter-regional services in Alameda County are defined as services operating across the boundary of the Bay Area region; they currently consist of two passenger rail services—ACE and Capitol Corridor.

Altamont Corridor Express (ACE)

ACE*forward*: This plan focuses on modernizing existing service and extending it to downtown Modesto and downtown Merced to connect with the proposed California High Speed Rail service. All of the program's capital projects are located outside of Alameda County but would potentially have a positive impact on ridership within the county. ACE*forward* is currently in the scoping stage of the environmental review process.

Altamont Corridor Express (ACE)

ACE is an intercity passenger train service between Stockton and San Jose along an 86-mile rail corridor, parts of which pass through Alameda County. It serves four stations in Alameda County (Vasco Road, Livermore, Pleasanton, and Centerville/Fremont). ACE operates four morning westbound and four afternoon/evening eastbound trips on weekdays; weekend service is not provided. Through a Cooperative Services Agreement, the San Joaquin Regional Rail Commission (SJRRC) was created to develop and operate ACE. Annual ridership is approximately 1.2 million (2014).

Figure 6: ACE*forward* Program of Projects

Source: SJRRC, ACE*forward* Fact Sheet 2014

Capitol Corridor

Capitol Corridor Vision Plan: This plan lays out a short- and long-term vision for upgraded service. A key component is operating 30-minute

Capitol Corridor

Capitol Corridor is an intercity train service in a 170-mile rail corridor along the congested I-80 and I-880 freeways. It connects Alameda County with Sacramento and Auburn to the north and San Jose to the south. The Capitol Corridor serves six stations in Alameda County (Berkeley, Emeryville, Oakland Jack London Square, Oakland Coliseum, Hayward, and Fremont / Centerville). Capitol Corridor service consists of 15 morning eastbound and 15 afternoon/evening westbound trips on weekdays. Weekend and holiday service consists of three morning and eight afternoon/evening eastbound trips and three morning and eight westbound trips. Six of the region's transit agencies partnered to create the Capitol Corridor Joint Powers Authority (CCJPA) to develop and operate the Capitol Corridor, with management support from BART. Annual ridership is 1.42 million (2014).

headways between Oakland and San Jose. The plan also includes extending service to Salinas/Monterey and Truckee/Reno; adding new stations in Vacaville/Fairfield, Hercules, and North Sacramento; maintaining 90 percent on time performance; increasing daily service frequency; and reducing travel time by 12 percent through implementation of a positive train control system.

INTER-COUNTY

Inter-county services within Alameda County are defined by those operating primarily within the Bay Area region and serving Alameda County.

BART

BART's service expansion plan includes extensions to East Contra Costa County (eBART), Livermore (BART to Livermore/ACE currently under environmental reviews), and Santa Clara County/San Jose (Silicon Valley Extension). BART's Sustainable Communities Operational Analysis and the Future BART and BART Vision Plan, guide its improvement and growth, and are relevant to the Countywide Transit Plan:

BART Sustainable Communities Operational Analysis (SCOA): BART ridership is expected to increase by more than 50 percent by 2025. Much of this growth is expected to be concentrated in Priority Development Areas (PDAs) adjacent to BART stations and in the San Francisco and Oakland downtowns as reflected in Plan Bay Area.

The SCOA further develops these service strategies into service plans and identifies the improvements needed over the coming years for BART to maintain its current quality of service and meet the projected ridership increases. Improvements focus on capacity upgrades, efficiency projects, fleet increases and other related capital investments.

Future BART and BART Vision Plan: In 2012, faced with increasing ridership and deteriorating infrastructure, BART initiated Future BART, an effort to explore the role of BART in the region's future. The BART Vision Plan focuses on BART's longer-term future, including where significant investments in new lines or new "infill" stations along existing lines should be made. Both initiatives are currently in progress.

AC Transit

AC Transit has undertaken specialized planning efforts to improve efficiency and increase ridership:

AC Transit Short Range Transit Plan (SRTP): Completed in 2015, the SRTP covers the period from FY 2014-2015 to FY 2023-2024. This planning document provides overarching guidance to the agency's other plans and studies and

Bay Area Rapid Transit (BART)

BART is the region's heavy rail system, serving San Francisco, Contra Costa, San Mateo, and Alameda counties. BART operates a high frequency schedule 365 days a year. It comprises about half of the region's total transit passenger miles. BART has five lines and serves 45 stations, 22 of which are in Alameda County. BART operates within its own dedicated right of way.

Annual ridership on BART is 127 million (2015).

Alameda-Contra Costa (AC) Transit

AC Transit is California's third-largest public bus system, serving 13 cities in Alameda and Contra Costa Counties (including Union City, although it is not a member of AC Transit and operates its own local system) and adjacent unincorporated areas. It serves about 1.5 million people in a 364 square mile service area. AC Transit also provides inter-county service to Milpitas and Pinole, and Transbay service to Menlo Park, Palo Alto, Foster City, San Mateo, and San Francisco.

Annual ridership on AC Transit is 57.5 million.

incorporates the District's goals and standards, operating and capital budgets, and service plan.

AC Transit Service Expansion Plan (SEP): The agency conducted a comprehensive operations analysis which involved a detailed review of its bus routes and schedules. The SEP was approved by AC Transit's Board, with recommendations being implemented starting in summer 2016.

AC Transit Major Corridors Study: The Major Corridors Study is the agency's long-range planning document that examines potential short-term and long-term investment strategies for its highest-ridership corridors, which are summarized in Table 1. The study evaluates potential capital improvement strategies for the corridors using a number of criteria, including potential ridership gains, cost effectiveness, and others. The AC Transit Board will review the study's final report in summer 2016.

AC Transit East Bay BRT: A BRT line is being constructed on International Boulevard and East 14th Street from 20th Street (Oakland) to the San Leandro BART station. This nine-mile project will consist of about 85 percent bus-only lanes, enhanced stations, improved landscaping, level boarding, and other features. Service is expected to be operational in 2017.

AC Transit Line 51 Corridor Delay Reduction and Sustainability Project: This project provides immediate-term recommendations for service design and operational changes to Lines 51A and 51B to improve travel time and reliability, including changes to existing bus stops, such as stop optimization and construction of bus bulbs; changes to intersections and signals, including the addition of queue jumps and adaptive signal priority; and changes to the roadway, including construction of queue bypass and bus turn provisions, such as shared right-turn lanes.

AC Transit South Alameda County Major Corridors Travel Time Improvement Project: The project examines the installation of adaptive traffic control systems, adaptive signal priority, and relocation of key bus stops on Hesperian Boulevard, Union City Boulevard and Alvarado Niles in southern Alameda County.

Table 1: Study Corridors for AC Transit's Major Corridors Study

Corridor
College Avenue/University Avenue
San Pablo Avenue/Macdonald Avenue
International Boulevard/East 14th Street
MacArthur Boulevard
Foothill Boulevard
Shattuck Avenue/Martin Luther King Jr. Way
Telegraph Avenue
Hesperian Boulevard
East 14th Street/ Mission Boulevard
Adeline Street
Fruitvale Avenue/ Park Street

WETA

WETA's core system-wide goal is to plan, implement and operate productive, effective and cost-efficient regional ferry transit services consistent with demand and available resources. It has developed a plan to guide its growth:

Water Emergency Transportation Authority (WETA)

WETA operates daily ferry service serving 3 terminals in Alameda County: Alameda, Oakland, and Harbor Bay. WETA provides service to San Francisco, Angel Island, and South San Francisco. Service is provided every 30-70 minutes on weekdays; it is less frequent on weekends.

Annual ridership is 2.14 million (2014-2015).

WETA Short Range Transit Plan: The SRTP identifies seven potential new ferry terminals (including one in Alameda County, in Berkeley), expansion of the San Francisco Downtown ferry terminal, and two new maintenance facilities, one of which would be located at Alameda Point. The SRTP identifies three new near-term service routes, including a route to Berkeley in Alameda County.

Local Bus Service

Local buses operate on a specific territory within Alameda County and their services are within the boundary of one or several cities. In addition to AC Transit, these bus services include Union City Transit and LAVTA.

Union City Transit (UCT)

UCT Short Range Transit Plan (SRTP): The UCT SRTP recommended modifications to enhance productivity and ridership.

Union City Transit (UCT)

UCT is a bus service operating in Union City. Routes and schedules are coordinated with BART schedules at the Union City BART Station. Union City Transit also provides connections with AC Transit and the Dumbarton Express. The main transfer points for Union City Transit are located at the Union City BART Station and the Union Landing Transit Center.

Annual ridership is approximately 500,000.

Livermore Amador Valley Transit Authority (LAVTA)

LAVTA provides the Wheels public bus transit service in the cities of Dublin, Livermore, Pleasanton, and in unincorporated areas of Alameda County. Several Wheels routes provide connections to BART, ACE and Central Contra County Transportation Authority (County Connection).

Annual ridership is 1.67 million (2015).

LAVTA

LAVTA Short Range Transit Plan: The Wheels SRTP serves as a management and policy document for LAVTA. It includes a recently approved round of schedule and service revisions. In May 2016, LAVTA also adopted the recommendations of a Comprehensive Operational Analysis of its service.

Shuttle Service

Service is also provided by private shuttles, such as those operated for private employers, office parks, and hospitals. This service is especially important in those areas where public transit is limited or unavailable. Often shuttle services provide critical first and last-mile connections to train stations.

San Francisco Shuttle Partners Program: With the large growth in privately-operated shuttles in the Bay Area in recent years, the potential for conflicts with existing public transit operations has also increased. The City of San Francisco has initiated a "Shuttle Partners Program" to address the concerns of the public and the San Francisco Municipal Transportation Agency (SFMTA) regarding these potential conflicts.

Private Shuttle Service and Public Transit Coordination: MTC, in coordination with the Bay Area Council, is developing a private shuttle report to assess and quantify the amount of trips provided by private shuttle services in the Bay Area. Once complete, this report may provide insight regarding trips provided by the private

Shuttle Service

Shuttles are playing increasing roles in the county's transit network. They bridge gaps in public transit between employment centers, medical/educational institutions, shopping centers, and BART. These shuttles include both publically and privately funded and operated shuttles. While these shuttles serve a critical need in Alameda County, they also present potential conflicts at existing transit stations and bus stops.

industry that are currently not accounted for in travel demand modeling in the Bay Area.

Transit and Human Service Transportation

ADA-mandated Paratransit and complementary city-based programs exist throughout the county to provide service to seniors and people with disabilities. These services are fully described in Appendix A.

MTC Coordinated Public Transit-Human Service Transportation Plan: MTC's recently updated Coordinated Public Transit-Human Service Transportation Plan outlines a comprehensive strategy for public transportation service to meet the needs of individuals with disabilities, older adults, and individuals with limited income.

3.4. Transit Market Analysis

The transit market analysis is a central part of the Countywide Transit Plan. A Transit Competitiveness Index (TCI) tool identified locations and markets where transit service can effectively compete with other modes. (See Appendix B for a complete description of the TCI and market analysis findings.)

Over half of all Alameda County trips occur in strongly competitive transit travel markets based on several factors including increasing roadway congestion and aggressive concentration of future land use growth, primarily in the Priority Development Areas (PDAs).

Across the region, overall transit competitiveness is expected to increase due to increases in residential densities and congestion, decreasing vehicle availability per household, and smaller households. Population and employment in Alameda County are forecasted to grow by more than 30% by 2040[9]. Improving transit's market share is necessary to accommodate a growing population and its mobility needs. While total daily trips are forecasted to increase to 7.5 million by 2040, only a minimal expansion in roadway capacity is anticipated to occur during this period. Despite some expected changes in land use expected to occur, no major changes in travel patterns are anticipated.

Transit Competitiveness Index

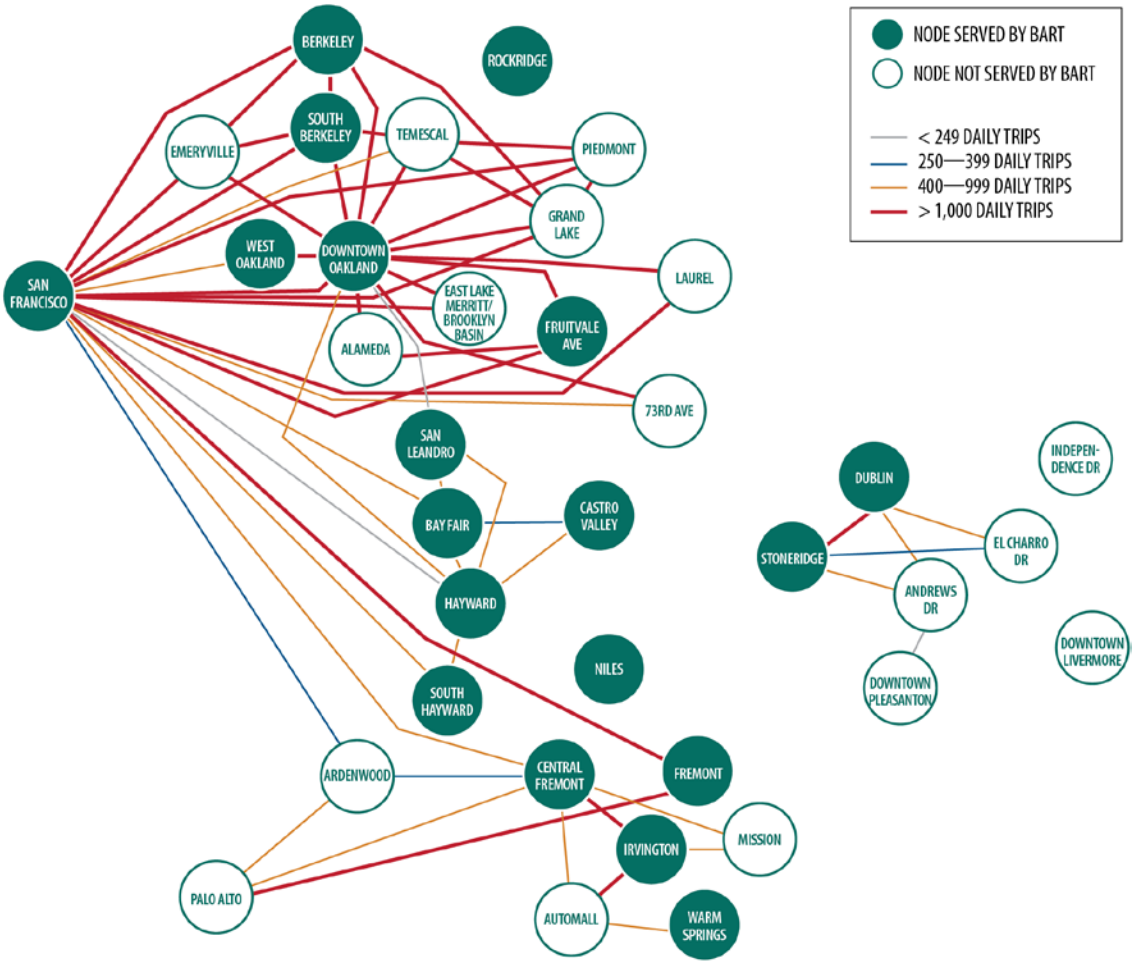
To design an effective transit system, it is useful to identify locations and markets where transit service can be competitive relative to automobile use. The Transit Competitiveness Index (TCI) tool assesses the underlying market conditions and location characteristics, independent of current or proposed transit service. It provides a quantitative measure of the transit ridership potential by aggregating the conditions that contribute to successful transit service into a single number. The TCI analysis uses land use density and diversity, roadway congestion, parking cost and search time, household characteristics, trip purpose, central business district characteristics, and tolls as factors to determine transit market competitiveness. The Alameda CTC TCI tool is derived primarily from data obtained from the recently updated Alameda CTC travel demand model.

3.5. Current State of Transit in Alameda County

Several key themes that emerged from analysis of existing conditions of the transit system are summarized below.

[9] Plan Bay Area, Metropolitan Transportation Commission, 2013. Alameda County population is expected to increase by over 30% and employment by 36% between 2010 and 2040.

Figure 7: Projected 2040 Trip Densities between Major Origin-Destination Nodes



Source: Arup, 2015

Note: Diagram only includes trip levels greater than 200 weekday trips. Diagram is not to scale.

Strong Transit Markets are not resulting in Strong Transit Ridership

The presence of strong transit markets in Alameda County has not yet translated to high transit ridership. A significant majority of transit routes in Alameda County currently operate in transit-competitive markets. However, transit ridership in areas with a high TCI are lower than what would be expected given the "competitive" transit conditions. Many of the transit routes serving these areas have mode shares below that - suggested by the TCI - indicating that an untapped transit market or latent passenger demand exists within or near these transit routes.

Despite positive market conditions for transit in Alameda County, transit serves a relatively small share of total trips made within, to, from, or through Alameda County. Only 14 percent of commute trips in the county currently take place on transit (Figure 8). An even smaller proportion of total trips (including non-commute trips) are served by transit. Single-occupant vehicles remains the predominant mode of travel accounting for slightly less than three-quarters of all work trips originating in Alameda County.

Whereas over two-thirds of *all* trips (trips on all modes) associated with Alameda County take place entirely within the county, only one third of trips *served by transit* take place entirely within in

the county. Two thirds of transit trips are regional trips that cross county boundaries (Figure 9). These regional trips occur between Alameda County and adjacent counties, including those to and from San Francisco. In particular, a high level of Transbay coverage is provided to San Francisco.

Among all transit agencies, BART and AC Transit combined carry nearly 97 percent of all trips made on transit (Figure 10). The other transit services in Alameda County carry the remaining three percent.

Decade-Long Trend of Flat Intra-County Bus Ridership Growth

Where transit markets are strong and transit service is frequent, reliable, and highly competitive with automobile travel times, such as the East Bay-San Francisco Transbay corridor, transit ridership has grown significantly. However, ridership for intra-county bus lines has remained flat.

Bus ridership actually declined between 2006 and 2012; it remained relatively flat until 2014, the most recent year for which data was collected. This trend may be linked to the recession, service cuts and congestion-related on-time performance problems[10].

Transit Speed and Reliability Could Worsen if No Actions Taken

Improving bus speeds will present a challenge. Traffic congestion and auto travel times are projected to worsen as population and density increases in many areas of the county. Increasing roadway congestion threatens to increase bus delay and worsen on-time performance. In order to address this trend it is critical to develop strategies for bus service to avoid the unpredictability of congestion and road incidents.

Figure 8: Mode-share for Commute Trips

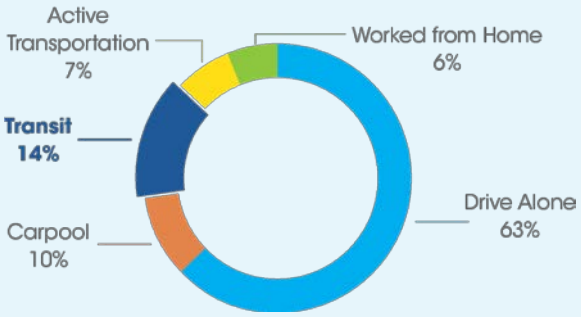


Figure 9: All Transit Trips by Type

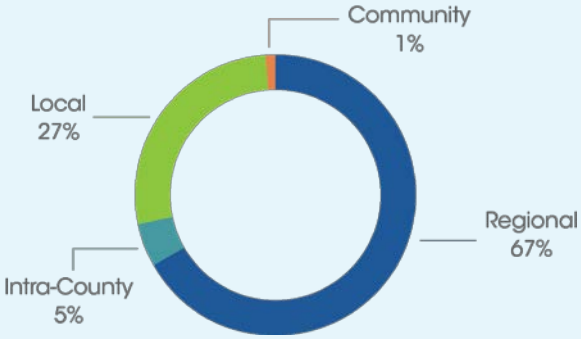
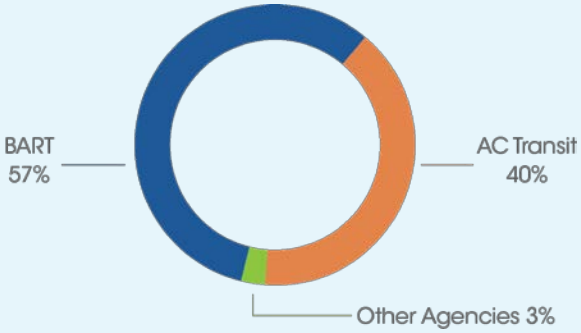


Figure 10: Ridership by Transit Agency



Source: Ridership data provided by operators

[10] Alameda CTC 2014 Performance Report

Rate of Ridership Growth is Not Keeping Pace with Increasing Operating Costs

The cost of providing transit service is increasing faster than inflation and outpacing any growth in ridership and fare revenues. Higher operating costs combined with fluctuations in transit funding and revenues due to recession have necessitated cutbacks in service which have a negative impact on ridership. This situation also presents on-going challenges to maintain existing services and provide new service where it is needed most. At the same time, population and employment in Alameda County have continued to grow, but transit ridership has not kept pace.

3.6. Policy Context

Existing policies, plans, studies, and other data inform the Countywide Transit Plan by shaping vision, goals, and objectives; identifying performance measures; and outlining improvements projects. They also provide the base understanding of the context, and strategies for transit projects.

Several state, regional and county-based initiatives, programs, and implementation mechanisms have been developed that directly impact the direction, design, operation, and performance monitoring of transit in Alameda County. In many instances, they recognize and facilitate the link between transportation, air quality, and land use.

Federal

The federal government's role in transit policy and planning is governed by the Fixing America's Surface Transportation (FAST) Act of 2015. It authorizes $305 billion over fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs.

As with its predecessor legislation, MAP-21, FAST includes a wide range of formula and discretionary or competitive funding programs, primarily for capital needs although some operating and maintenance expenses are eligible. Implementation and compliance monitoring is the responsibility of the Federal Transit Administration (FTA).

State of California

Over the past decade, the State of California has established a regulatory framework to reduce greenhouse gas (GHG) emissions by linking transportation planning and investments with land use patterns. The mandates resulted in regional and local jurisdictions developing more sustainable approaches to land use development and transportation services. In addition, the state is responsible for developing a multitude of statewide plans and programs, many of which address transit, including the California Transportation Plan, Interregional Transportation Strategic Plan, Freight Mobility Plan, State Rail Plan, the High Speed Rail Transit Interconnectivity Program and many others. Key state legislation addressing the reduction of greenhouse gas emissions include:

Assembly Bill (AB) 32

AB 32, the California Global Warming Solutions Act of 2006, requires that California reduce GHG emissions to 1990 levels by 2020. The California Air Resources Board (CARB) is responsible for adopting regulations to reduce GHG emissions based on feasible technology and cost-effective measures, including enhance use of transit. Cap and trade funding is an outcome of AB 32 as a result of a cap and trade program approved under this bill.

Senate Bill (SB) 375

SB 375, the Sustainable Communities and Climate Protection Act of 2008, targets GHG emission reductions by integrating land use and transportation planning. It requires regions to prepare a Sustainable Communities Strategy (SCS) that demonstrates how plans and programs

would achieve the targets or develop an alternative planning strategy that identifies how the targets would be met through other means. SCSs identify land use, housing, and transportation strategies aimed at helping the region meet GHG targets set by CARB.

Regional: Metropolitan Transportation Commission (MTC)

MTC, the metropolitan planning organization for the nine-county San Francisco Bay Area, is responsible for five critical transportation documents that guide transit decisions and funding in the Bay Area:

Regional Transportation Plan (RTP)/Plan Bay Area

Adopted in 2013, the current RTP-- known as Plan Bay Area-- is an integrated transportation and land use strategy. By linking transportation and land use decision-making through a Sustainable Communities Strategy (SCS), Plan Bay Area is the region's first long-range plan (covering the period through 2040) to address SB 375 requirements.

Regional Transit Expansion Program (RTEP)

RTEP, or Resolution 3434, identified specific bus, rail, and ferry priority projects for transit expansion. Resolution 3434 is a multi-year transit expansion program to enhance the Bay Area's transit network with 140 miles of new rail, 600 miles of new express bus routes, and a 58 percent increase in transit service levels in existing corridors. Resolution 3434 built upon Resolution 1876 that delivered new BART service to Dublin and Bay Point in the East Bay.

The RTEP does not identify or provide new sources of funds but seeks to identify an integrated program of new rail transit starts and extensions that could be primarily funded with local and regional sources of funds. MTC has developed a Transit-Oriented Development (TOD) companion policy for the expansion program.

Regional Measure 2 (RM2) Traffic Congestion Relief Program

RM2 was passed in 2004 to raise tolls on seven state-owned bridges in the Bay Area. Its goal is to reduce congestion along bridge corridors. RM2 created the Regional Traffic Relief Plan, identifying specific transit operating assistance and capital projects and programs eligible for RM2 funding.

As a requirement of the RM2 Program, MTC adopted the Regional Rail Plan in 2007. The plan presented a long-range vision for improving the regional passenger rail system.

Transit Sustainability Project (TSP)

MTC launched the TSP in 2010 to assess the major challenges facing transit and identify a path toward an affordable, efficient and well-funded transit system that more people will use as the region seeks to focus growth around transit. The three primary goals of the TSP are:

- Improve transit financial conditions by containing costs, covering a greater percentage of operating and capital costs with farebox revenues, and securing more reliable streams of public funding.
- Improve customer service by upgrading the system to function as an accessible, user-friendly and coordinated network for transit riders, regardless of mode, location or jurisdiction.
- Attract new riders to the system to advance emission reduction goals and support ridership growth through land use and pricing policies.

Core Capacity Transit Study

The Bay Area Core Capacity Transit Study (CCTS) is a collaborative effort to find and prioritize investments that will improve travel on public transportation to and from the San Francisco Core.

The study, scheduled to be completed in 2017, will bring the major transit operators (including BART, AC Transit, and WETA that serve Alameda County), together to address the regional issue of

moving hundreds of thousands of people into and out of San Francisco's core. The Study Area includes two primary transit corridors: the Transbay Corridor and the San Francisco Muni Metro Corridor. The Transbay Corridor focuses on investments to transport commuters on BART, AC Transit and WETA from the East Bay (including Alameda County), and it explores potential new connections across the Bay.

The study will look at investments that could help steadily upgrade the overall transportation system and keep pace with anticipated population growth for the next quarter century. The operators are independently considering various improvements and investments to their respective systems.

ALAMEDA CTC

Alameda CTC collects and administers three major funding sources:

Measure B

Measure B was enacted in 1986 and reauthorized in 2000 to collect and distribute half-cent sales tax in Alameda County for transportation purposes. It is expected to generate over $1.4 billion in revenues between 2002 and 2022. Alameda CTC disburses Measure B direct local distribution funds on a monthly basis to Alameda County agencies and jurisdictions for their transportation improvement programs.

Measure BB

An extension and augmentation of Measure B was enacted in 2014, resulting in a 1 percent sales tax for transportation improvements. Referred to as Measure BB, it is projected to generate approximately $8 billion in revenues from 2015 to 2045.

Vehicle Registration Fee

Measure F is a $10 annual vehicle registration fee, expected to generate $11 million per year to sustain the county's transportation network and reduce traffic congestion and vehicle-related pollution.

Alameda CTC is also responsible for the development of several major transit-related documents:

Transportation Expenditure Plan (TEP)

The 2014 TEP guides the use of Measure BB revenues toward capital projects and programs that improve the countywide transportation system. Priorities are to:

- Expand BART, bus, ferry and rail services
- Keep fares affordable for youth, seniors and persons with disabilities
- Provide traffic relief by improving local streets and roads and highway corridors
- Improve air quality and provide clean transportation by expanding bicycle and pedestrian paths and the regional rail network
- Create good jobs within Alameda County by requiring local contracting and supporting community developments that improve access to jobs and schools.

The 2014 TEP includes up to $3.7 billion, or about 48 percent of total funding, for BART, bus, senior, and youth transit. It allocates funding for operations and maintenance to transit agencies serving the county.

Countywide Transportation Plan Update (CTP)

Every four years Alameda CTC updates the Countywide Transportation Plan. The 2016 CTP Update develops a performance-based, long-range plan through 2040 for Alameda County's multimodal transportation network. The 2016 CTP vision and goals are aligned with the Transit Plan adopted vision and goals, and a summary of this Transit Plan is included in the 2016 CTP Update.

Congestion Management Program (CMP)

As the CMA for Alameda County, Alameda CTC develops and updates the legislatively required CMP.

The CMP consists of five main elements:

- Setting level of service (LOS) standards for roadways and monitoring LOS trends.
- Establishing and reporting on multimodal performance measures.
- Exploring ways to manage travel demand.
- Analyzing the impact of land development on transportation.
- Developing a Capital Improvement Program.

Community-Based Transportation Plans (CBTPs)

To address findings in MTC's *Lifeline Transportation Network Report* (2001) and *Environmental Justice Report* (2001), Alameda CTC developed five CBTPs:

- Alameda (2009)
- Central and East Oakland (2007)
- West and South Berkeley (2007)
- West Oakland (2006)
- Central Alameda County (2004, includes communities of Cherryland, Ashland, South Hayward).

The plans identified transportation gaps in underserved communities and transportation solutions and potential funding sources to address them. Most of the funding for public transit related projects in CBTPs is derived from state and federal formula funds that are distributed through Alameda CTC based on population and ridership.

The 2016 CTP update also serves as the update to the CBTPs.

4

Gaps, Issues and Challenges

4.1. Gaps, Issues, and Challenges

Conditions in Alameda County are supportive of transit and there is a lot of work underway by many transit operators and transportation agencies to address temporal and spatial gaps in service. However, transit serves a relatively small share of total trips made within, to, from, or through Alameda County, and single occupant vehicles are the dominant mode of travel. The cost of providing transit service is increasing, while service levels and ridership are remaining flat. Deteriorating traffic congestion on roadways could increase bus delays and deteriorate on-time performance.

Gaps are areas deficient in transit service, and occur in the form of either spatial, temporal, or service-level gaps. For example, trips to and from Contra Costa County and Santa Clara County are served by only a few transit routes. Ongoing efforts like the AC Transit Major Corridors Study and the Service Expansion Plan seek to close the Contra Costa County gap, and the BART Silicon Valley extension proposes to extend the BART service to San Jose and Santa Clara.

An example of a temporal, service-level transit gap exists in the Alameda County-San Francisco market, where existing supply of transit does not meet demand during commute hours resulting in crowding on trains and buses. The MTC Core Capacity Transit Study focuses on investments to transport more commuters on BART, AC Transit, and WETA from the East Bay (including Alameda County), and it explores potential new connections across the Bay.

Transit service coverage and apparent gaps in service can be measured by two primary metrics:

- Network coverage and connectivity, including connections between trip origins and destinations, transit agencies, and first- and last-mile connections at key transit hubs
- Operational characteristics, such as hours of service operation or frequency of service.

4.2. Network Coverage

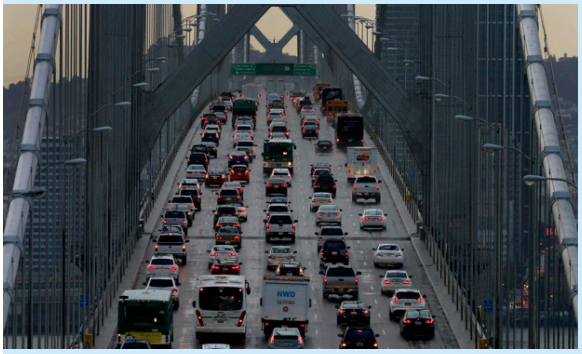
The highest density of transit service coverage in Alameda County is in the inner East Bay corridor between Albany and Oakland. Several transit agencies (AC Transit, BART, WETA, and Capitol Corridor) provide service along this corridor within Alameda County and to San Francisco and Contra Costa counties. Density of service coverage corresponds to the high density of population and employment land use patterns in the older inner East Bay cities.

Transit coverage diminishes in the lower density areas of Central, South, and East County. Because these areas have lower ridership, fewer trunk services are provided. With less ridership and longer distance between activity centers, service is more costly to provide.

Transbay Service Demand is Exceeding Service Supply

Travel between Alameda County and the neighboring counties of Marin (via the Richmond-San Rafael Bridge), San Francisco (via the Bay Bridge), and San Mateo and Santa Clara (via Dumbarton Bridge) involves crossing San Francisco Bay. Of these Transbay markets, the San Francisco County market is the largest. Although the Transbay market between Alameda County and San Francisco is not the most significant

Figure 11: Congestion on the Bay Bridge



Source: City Lab

regional destination for all trips to and from Alameda County (it ranks second to Contra Costa County), it is the most attractive in terms of ridership potential due to congestion on the San Francisco Oakland Bay Bridge (Figure 11) and Dumbarton Bridge, the concentration of employment sites in downtown San Francisco, and the cost and (lack of) availability of parking in San Francisco.

The transit gap between Alameda County and San Francisco is related to transit supply and reliability of service. The existing supply does not meet demand, particularly during commute hours, resulting in standing room-only conditions on BART trains and AC Transit buses.

Conditions are projected to worsen as ridership demand is projected to grow. It is estimated that by 2050, BART will carry over 800,000 daily passengers--1.5 times more than today.[11]

Service is Limited Between Alameda, Contra Costa, Santa Clara, and San Joaquin Counties

Trips to and from Contra Costa County and Santa Clara County make up the first and third largest shares, respectively, of all Alameda County-oriented regional trips. However, currently only a few transit lines provide intra-county service:

- Capitol Corridor, BART, AC Transit, and one Wheels route provide connections to Contra Costa County
- Capitol Corridor, AC Transit, and four VTA bus routes provide connections to Santa Clara County
- ACE provides access into San Joaquin County

Except for San Francisco, the counties adjacent to Alameda County generally have lower-density land uses with dispersed trip destinations that may not be able to support a robust fixed-route transit network with a high level of coverage. Some of these trips are currently being served by private employer shuttles to serve their employees.

Some of these regional gaps will be addressed by planned projects such as the BART extensions to Livermore/ACE and San Jose. However, depending on the distribution of major origins and destinations within each county, local service additions to these major planned transit projects may be needed to provide sufficient and competitive transit connectivity.

Despite Extensive Coverage, Intra-County Transit Gaps Exist

Temporal and service area gaps in transit service persist at the intra-county level as well. Some are related to the lower-density and more disperse nature of land use in parts of Alameda County. However, transit demand in the next several years may shift as population, employment, and residential and commercial development increase, redistribute, and concentrate in certain areas.

First- and Last-Mile Trips Remain a Challenge in Many Areas

Transit gaps related to local and community trips often involve first-and-last-mile connections. They are the "bookends" of all trips taken by transit - from point of origin, such as home, to a transit stop or station and from a transit stop or station to final destination, such as workplace.

In some case, first-mile/last-mile gaps are short and either walkable or bikeable. However, where distances are longer (or where walking or bicycling conditions are not favorable) other options would be preferred by travelers. In some instances, first mile/last-mile connections are provided by publicly-subsidized shuttles open to the public, privately-operated shuttles restricted to a targeted clientele such as employees of a major employer, or private transportation network companies (TNCs) such as Uber and Lyft. The result is uneven or unavailable first mile/last mile

[11] MTC, Regional Rail Plan, 2007

service that renders use of the transit system inconvenient or makes using transit not an option, forcing reliance on private autos and exacerbating highway congestion.

Paratransit Services Correspond to Fixed Route Services

Federal guidelines require the provision of paratransit service for persons with disabilities who are unable to use fixed route service. Service must be provided within ¾ mile on either side of a fixed transit line during all hours the fixed route service is provided. Although this technically results in no "official" paratransit service gaps, the same gaps in first-mile/last-mile connections on the fixed route system can carry over to paratransit coverage. Service needs are sometimes filled by programs provided by local agencies, but not guaranteed as they would be under ADA-related requirements for public transit services.

4.3. Connectivity

While there is significant transit service in Alameda County, it can be difficult to travel throughout Alameda County on transit relatively quickly and conveniently for many trips. In the county and throughout the Bay Area, the lack of full integration between transit agencies is reflected in poor connectivity in some areas, multiple fare structures and ticketing, and poorly integrated transit information.

This lack of seamless transitions between agencies discourages transit use for those who have alternative choices and makes transit travel less convenient and more costly for those who need to use transit. Recent efforts, such as MTC's TSP, recognize that a consistent fare structure across multiple transit systems can boost transit ridership and improve the customer experience.

Non-coordinated Connections Impact Travel Time

Transferring between services can be time-consuming. For AC Transit and LAVTA, which have relatively large service areas the ease of transfers depends upon frequencies of service. For low-frequency areas transfers can also add travel time. First- and last-mile connections are also challenging in locations that with dispersed employment locations and lack a concentration of residential activity.

While BART stations and other activity centers serve as transit hubs throughout the county, schedules are not always timed to maximize customer transfers between agencies.

Lack of an Integrated Fare System Compounds Connectivity Challenges

Although some reciprocal fare agreements exist, transit users may have to pay an additional fare each time they transfer between agencies. AC Transit and Union City Transit have a BART-to-bus transfer program that offer discounts on bus fares to riders transferring from BART. LAVTA Wheels offers free transfers to riders transferring from other Wheels or County Connection routes, or from ACE trains, and discounted fares for riders transferring

Figure 12: Transit vehicle equipped with bicycle

from BART trains, and both WETA and Capitol Corridor offer transfers to local bus operators. However, BART and ACE do not offer such discounts to riders transferring from bus services. In addition, the regional Clipper Card has not yet become fully integrated into all Alameda County transit operations. Union City Transit currently does not have Clipper and the transfers noted above are not counted for patrons using the Clipper Card.

Parking Demand Exceeds Supply

Many users access transit by driving to a park and ride facility located at a stop or station. For BART, many of these parking facilities are at capacity during a typical weekday. The parking capacity, in addition to the line capacity, limits BART use in some locations due to lack of adequate pedestrian and bicycle access to the station (Figure 13).

Figure 13: High Demand for Park-and-Ride Facilities

Public Understanding of How the Regional System Works is Limited

Most users access scheduling and mapping tools provided by 511 and private mapping companies. However, the lack of a posted, uniform transit map of the systems that operate in Alameda County means that users who do not have access to such services must use different maps from each agency. This limits their ability to understand service connectivity, and restricts their ability to effectively use available service.

4.4. Operations

While some areas of Alameda County may have good route coverage, service frequency may be low, the span of service limited, and travel times very slow. As a result, the potential of the transit market is constrained.

Infrequent Service Discourages Transit Use

For example, if a route operates 30 to 60 minute headways, or if service is provided only during peak hours or does not continue into the evening and late night hours, the flexibility for using transit service as a viable alternative to the auto diminishes significantly.

During commute hours, the speed of transit travel may be constrained by congestion occurring on surface streets, making a transit trip with multiple stops much longer than a comparable trip by auto.

AC Transit provides major trunk line services with headways of 15-minutes or less. Major travel corridors, such as Broadway in downtown Oakland, also function as major transit corridors, with frequent headways and features that make transit use a viable option. However, other strong transit markets in Alameda County are underperforming due to limited transit coverage or lack of frequent and reliable transit service. Examples of the underperforming corridors include Grand Lake to downtown Oakland and Stoneridge Mall-Dublin Boulevard - downtown Livermore.

Transit Speed and Reliability Could Worsen if No Actions Are Taken

A current lack of priority treatments for buses— such as transit lanes, signal priority queue jumps and bus bulbs— results in bus travel being negatively impacted by auto congestion and accidents, which can cause delay and frustration for riders. Delay and slow operating speeds also mean additional vehicles and drivers are needed to maintain current service frequencies. As a

result, resources available to expand service and realize potential ridership gains are reduced. These problems will become more acute as traffic congestion on roadways and auto travel times are projected to worsen as density increases in many areas of the county. Increasing roadway congestion could further increase bus delay and worsen on-time performance. In order to address this trend it is critical to develop ways to reduce the impacts of auto traffic congestion and the unpredictability of road incidents on transit service.

At the same time, much of the county's core infrastructure, especially BART, is approaching the end of its useful life. Major capital investments are required to keep BART infrastructure in good working order. Without major investments, system failures could become more frequent and lead to significant decrease in reliability and service quality.

Systemwide Operating Costs are Increasing Faster Than Ridership and Revenues

The trend of real operating costs rising at a faster rate than inflation, ridership, and farebox revenues threatens the financial sustainability of the County's transit agencies. MTC's TSP is focused on addressing this trend.

4.5. Land Use

Some individual transit markets in Alameda County exhibit characteristics that make it more competitive for transit, and make it more likely that transit is the preferred mode for travelers.

Common attributes of the most competitive transit markets include:

- Medium to high density land uses
- A concentrated mix of uses and activities
- Limits on free parking
- Congested roadways that slow auto travel

Conversely, some travel markets have disadvantages that make transit less competitive. Disadvantages include:

- Low density land uses (which make it more challenging to concentrate people in a single area to use transit)
- Free and plentiful parking
- An unpleasant pedestrian environment[12]

Land Use and Transportation Decision-Making are Not Yet Fully Integrated

Although state and regional mandates have greatly improved coordination between transportation and land use decision-making, existing conditions in many areas are still not conducive to transit operations and customer access. Priorities and values vary by community and area, and the ease of access to and from transit stations and stops for pedestrians, bicyclists and persons with disabilities varies as well. The lack of clear-cut and standardized guidleines may also restrict the ablity of communities and developers to design new developments or retrofit existing development and street patterns to allow for better transit access and operations.

Physical Connections Between Transit Services Can Restrict Regional Use of the System

Due in part to the development of transit hubs and facilities prior to awareness of the need to improve physical connections between modes and services, the ability of passengers to transfer between systems can be hampered by poor and inconvenient pedestrian and/or bicycle connections.

[12] Metropolitan Transportation Commission, Transit Sustainability Project. *TCI Draft Primer*. http://www.mtc.ca.gov/planning/tsp/TCI-DRAFT-PRIMER.pdf.

4.6. Ridership Response

Market Analysis Identifies Opportunities to Capture More Ridership

While high ridership levels can be found on some routes, in general, the transit systems in Alameda County have more empty seats than what market analyses suggest. Despite the extent of overall transit service, transit currently only captures 14 percent of the commute trips in Alameda County.

Bus Ridership Has Remained Flat

Despite positive market conditions for transit in Alameda County, bus ridership declined between 2006 and 2012; it remained relatively flat until 2014, the most recent year for which data was collected.

In corridors where transit ridership has grown significantly, such as the East Bay-San Francisco Transbay corridor, transit markets are strong and transit service is frequent, reliable, and highly competitive with vehicle travel times and costs.

5

Opportunities

5.1. Opportunities

One critical outcome of the Countywide Transit Plan is the recommendation for a Vision Network designed to help Alameda County realize its vision to "create an efficient and effective transit network that enhances the economy and the environment and improves quality of life."[13]

The Vision Network focuses on how Alameda CTC can help to improve the transit system and service for the future by focusing investments in those areas that have the greatest benefit to existing riders and potential to attract new riders. The main opportunities to improve transit performance and increase transit ridership are summarized here.

Improve **speed** and **reliability**

Poor on-time performance and variable transit travel times currently experienced on many bus routes is primarily linked to roadway congestion. Bus speed and reliability can be addressed by implementing transit-related improvements on roadway (e.g. queue jumps, bus bulbs, transit lanes, adaptive signal priority). These types of improvements will need to be coordinated closely with transit agencies, local jurisdictions, and Caltrans.

Enhance **transit integration**

Successful transit systems require both physical and institutional integration to enable the customer to experience a seamless trip even if it involves multiple carriers and different modes.

Improve **frequency and service span,** and **reduce gaps** in service coverage

Although transit service coverage is generally high in Alameda County, gaps in hours of operation, frequency of service, and in route capacity can inhibit ridership in areas underserved by transit. Capacity constraints on current transit systems are a particularly acute problem in the Transbay corridor to San Francisco. Improving frequency and service span, and reducing service gaps can attract more riders.

Leverage **robust transit markets**

In addition to focusing on opportunities for improvement to transit options and existing service, the network development process also reviewed travel patterns between major origins and destinations to identify key transit markets for investment.

5.2. Vision Network Recommendations

The Vision Network recommendations are the result of a thorough consideration of existing conditions, current plans and studies, and market and transit operational analyses. They are also designed to support Alameda CTC's vision and goals. Fourteen projects were developed in response to the evaluation of current transit service and current and forecasted transit market conditions. The evaluation was also informed by other on-going planning studies.

The recommendations are not intended to focus on identifying new routes; rather, based on market analyses, the recommendations identify a network of transit corridors that have the potential to capture the greatest market share of transit riders throughout the county. This information helps to inform where transit funding investments can be made to best capture increased market share.

Further, capital improvements are identified to facilitate improved frequency and reliability of services (see Table 2). The recommendations focus on the network of corridors; a critical next

[13] Appendix C - *Vision and Goals*

step for moving forward will be to identify specific improvements for each corridor that are linked to the improvements identified in Alameda CTC's Multimodal Arterial Plan and to the projects identified in the 2014 Transportation Expenditure Plan. Agency partnerships and public and business outreach will be essential to move the Vision Network recommendations forward. Additional information about the Vision Network recommendations and their development can be found in Appendix D.

Service Tiers

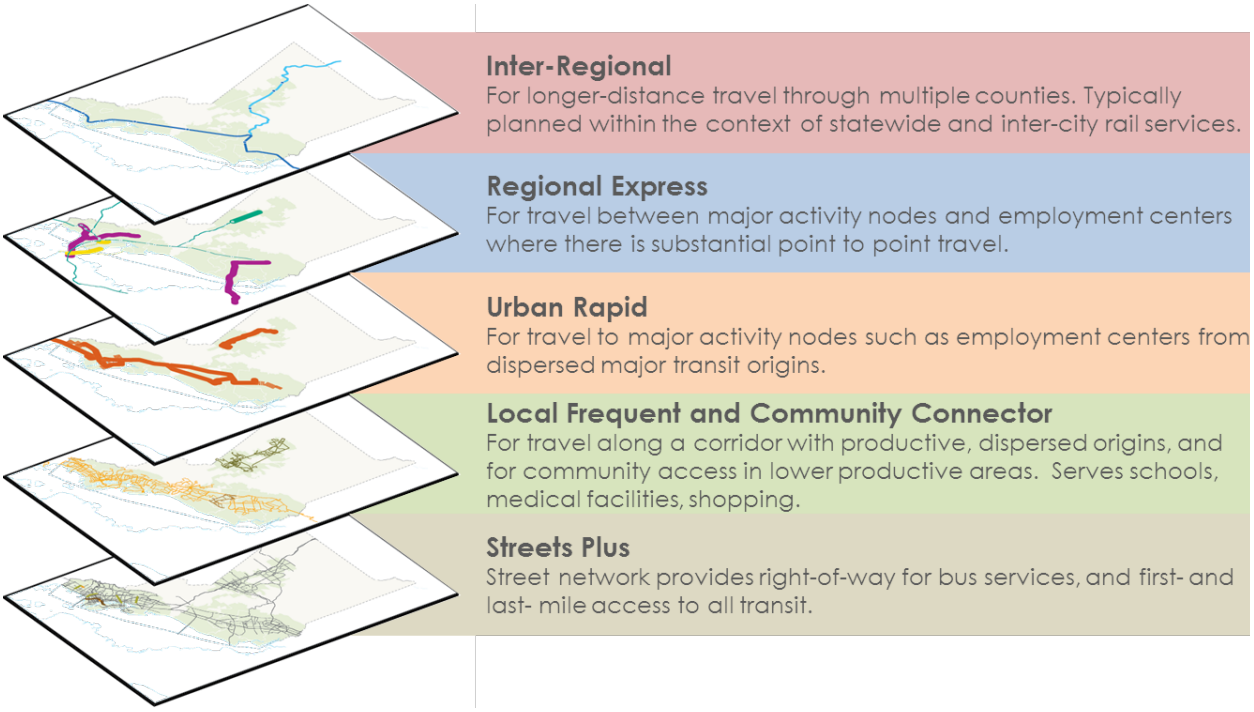
A tiered structure forms the framework for the Vision Network recommendations. Five tiers were identified, as shown in Figure 14. The tiered structure is an organizational tool to frame the discussion of the existing array of transit services, the methodology used to identify future needs, and the recommendations themselves. The structure does *not* imply a hierarchy of importance among the transit services or tiers.

Four of the tiers are transit-focused; the fifth involves the underlying street network. All five serve important functions in the delivery of transit services.

The Inter-Regional tier and its travel markets extend beyond Alameda County; improvements to inter-regional services are planned within the context of the statewide rail system and Northern California region. Capitol Corridor and ACE are in the process of developing future service improvements and expansion in concert with the communities that they serve and their adopted visions. Consequently, no new specific recommendations for Inter-Regional service are provided. The Countywide Transit Plan will ultimately incorporate the outcomes of those ongoing planning efforts.

The recommendations in the Regional Express and Urban Rapid service tiers provide a guidepost to where the market is demanding increased capacity. The recommendations and strategies provide a framework for how agencies can create a fast, frequent, and reliable network throughout the county. These recommendations are also in alignment with and supportive of the on-going planning and project delivery work of

Figure 14: Transit Tiers



MARKET ANALYSIS

The market analysis identified that the greatest potential to affect transformative changes to transit to support Alameda CTC's adopted vision and goals lies in the Regional Express and Urban Rapid tiers. The Transit plan recommendations therefore focus on the core markets in these two tiers, and highlight corridors served by BART, WETA, AC Transit, and LAVTA.

This analysis provides a framework to focus investments through 2040 on the corridors within the Regional Express and Urban Rapid tier markets with the greatest potential to capture more transit riders by building a fast, frequent, and reliable transit network.

transit agencies in Alameda County as described in Chapter 3.

The Local Frequent and Community Connector tier focuses on services that link to the Regional Express and Urban Rapid tiers and do not require the same level of capital investment to improve transit service. Rather than make specific recommendations for the numerous Local Frequent and Community Connector tier routes, Chapter 6 discusses the role the tiers play in creating a cohesive transit network.

REGIONAL EXPRESS TIER

Distinguishing features of the Regional Express Tier include:

- Transit serves multiple counties and longer distance trips (e.g. Alameda to downtown San Francisco).
- There is substantial point to point travel between major nodes and services provide access to major employment centers (e.g. Downtown Oakland, Berkeley, and San Francisco).
- Transit stations act as hubs for intermodal connections and can serve as a catalyst for Transit Oriented Development (TOD).
- Constitutes a large portion of county's transit trips.

Although services in the Regional Express Tier extend beyond Alameda County, they form the backbone of Alameda County's transit system and carry a significant portion of the county's transit riders.

Based on the market analysis, in the context of on-going regional planning efforts, seven major improvements are recommended in the Regional Express Tier, as shown in Figure 15. The market analysis identified regional travel from the Berkeley and Oakland areas to San Francisco as this tier's strongest transit market. Other strong transit markets include San Leandro, Hayward, and Fremont. A strong regional market was also identified between Fremont and Palo Alto. There is also an established market for BART services in East Alameda County; it is assumed that this market will continue to be served by BART which has planned improvements in that area, including connections to ACE, currently under environmental review.

R1 – BART Extension to Livermore/ACE

The project proposes to extend the BART rail line from the existing Dublin/Pleasanton Station to a new station near the Isabel Avenue interchange and then to a connection with ACE. The City of Livermore is developing a land use and circulation plan for the area surrounding the proposed BART station. Both projects are currently undergoing development and/or environmental review and are included in this plan by reference. Outcomes of these reviews will be addressed in updates to this plan.

R2 – Brooklyn Basin – San Francisco Ferry Terminal

This recommendation would improve service between San Francisco and Brooklyn Basin, a location anticipated to experience significant growth by 2040. Service could be provided

through an extension of water transit services to Brooklyn Basin. This would likely require new vessels as well as a new ferry terminal and support facilities in Brooklyn Basin. Service could also be provided through improved bus transit services to the existing ferry terminal at Jack London Square from Brooklyn Basin.

R3 – Alameda – San Francisco Ferry Terminal

This recommendation would add a new ferry terminal at the Seaplane Lagoon as envisioned in the redevelopment plans for Alameda Point. It would facilitate direct access to San Francisco from the Alameda Point development.

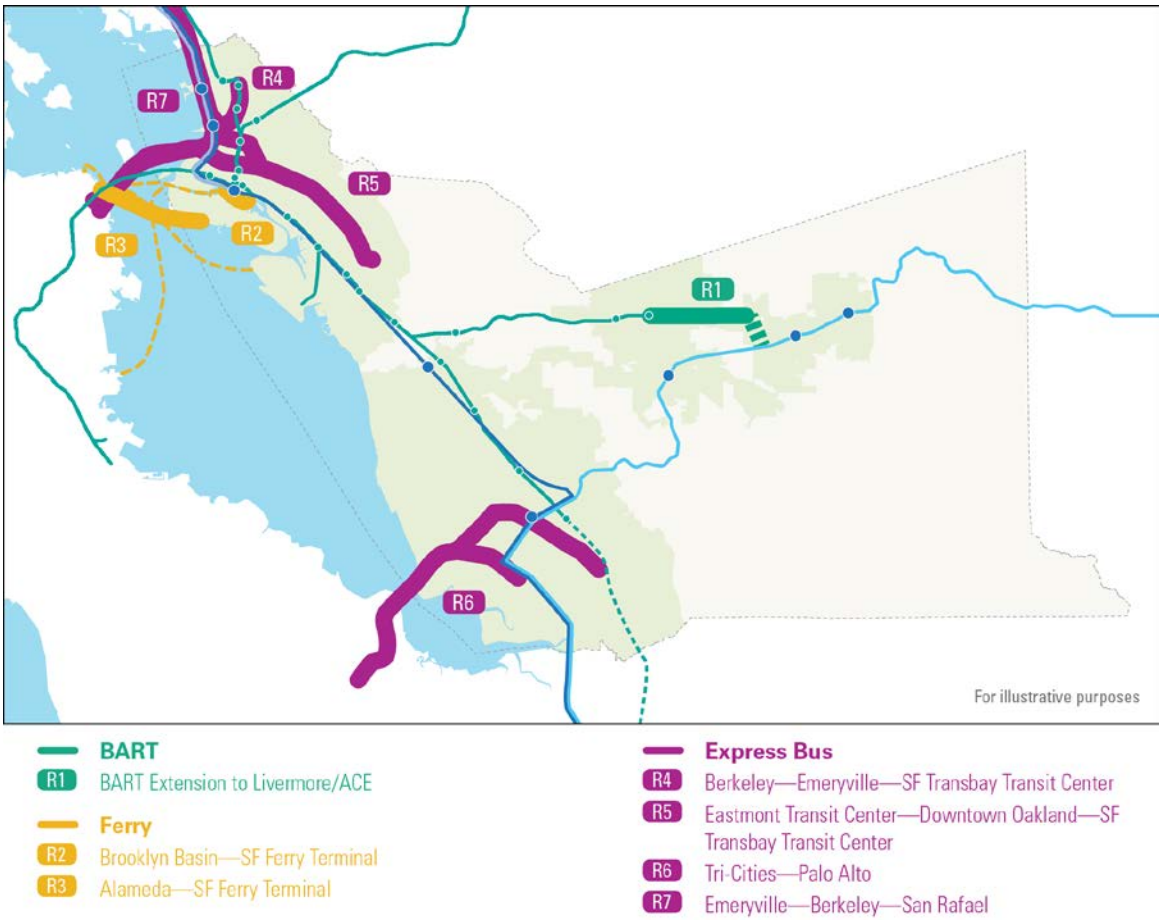
R4 – Berkeley – Emeryville – San Francisco Transbay Transit Center

This recommendation would upgrade both local and Transbay services that operate between Berkeley and San Francisco through Emeryville through a combination of transit priority features including bus bulbs, queue jumps, and limited segments of transit lanes.

R5 – Eastmont Transit Center – Downtown Oakland – San Francisco Transbay Transit Center

This recommendation would introduce transit priority features to an existing Transbay and local bus service corridor from East Oakland through

Figure 15: Regional Express Tier



Note: All recommendations presented in this plan are intended to be a conceptual framework, and all routing and stop alignments will require further technical evaluation and public input.

Downtown Oakland to San Francisco to improve reliability and on-time performance. Priority features would enhance transit service to the activity nodes around 73rd Street, the Laurel District in East Oakland, and downtown Oakland. Improvements would also include transit priority features on Grand Avenue to create a "transit spine" to facilitate operations for local and transbay buses as well as future express buses coming from Contra Costa and Solano Counties. Potential improvements could include transit lanes, and adaptive traffic signal control.

R6 – Tri Cities – Palo Alto

This recommendation would address the rapidly increasing demand for high quality transit services across the Dumbarton Bridge due to significant job growth on the peninsula and housing growth in Alameda County. The market analysis indicated that Central Fremont and Union City would be major activity nodes and could support a significant level of transit service across the bridge. Capital improvements could include a combination of transit lanes, adaptive traffic signal control, and expanded park-and-ride facilities.

R7 – Emeryville - Berkeley – San Rafael

This recommendation would provide service between San Rafael and Emeryville through Berkeley and Albany. It is based on a recently-launched Golden Gate Transit pilot service between San Rafael and Emeryville designed to serve large employment centers in Marin County.

URBAN RAPID TIER

Of all the tiers in the Alameda County transit network, this tier has the highest potential to capture more transit riders given the land uses and urban form along these corridors. Distinguishing features of the Urban Rapid Tier include:

- Travel options between major nodes from productive major transit origins to concentrated destinations are provided. Access is also provided to major employment centers, universities, and other major trip generators.
- A broad spectrum of roadway and stop improvements (Table 2) can be supported.
- Serves trips primarily within Alameda County, but could combine or overlap with Transbay service or other intra-county service.

Routes could be separately branded and feature additional amenities at stops including high quality shelters, lighting, and next bus arrival displays.

The Urban Rapid Tier includes transit only lanes and Rapid Bus services as well as Enhanced Bus improvements, which represent a lower level of capital investment.

Transit service envisioned for the Urban Rapid Tier has the potential to:

- Effectively **improve the frequency and reliability** of bus service when properly implemented.
- **Address gaps** needed to better serve strong transit markets.
- **Increase ridership** with an appropriate level of service.
- Be **adaptable** to unique characteristics of each corridor, including key destinations, intermodal hubs, and roadway network.
- **Be cost effective** when compared to other more capital-intensive modes, such as light rail.

Seven potential corridors have been identified for Urban Rapid improvements (Figure 16).

U1 – Emeryville – Bay Fair BART Station

This recommendation extends the planned East Bay BRT capital improvements and service enhancements (currently planned for San Leandro to downtown Oakland) north to Emeryville to serve the travel markets from Emeryville to Downtown Oakland and to Downtown San Leandro. This would improve schedule reliability and on-time performance in the corridor. This includes capital improvements

such as transit lanes, transit signal priority, adaptive traffic signal control, improved stations, and off-board fare collection.

U2 - Richmond – Jack London Square

This recommendation would serve a high transit demand market between West Contra Costa County, Berkeley, South Berkeley, central Oakland, and downtown Oakland to improve reliability and on-time performance. AC Transit bus service currently extends into Contra Costa County, and capital improvements and other features would be coordinated with local and regional jurisdictions in that county. Improvements on this corridor would feature a combination of improvements including transit lanes or transit lane segments, transit signal priority, adaptive traffic signal control, improved stops or stations, and off-board fare collection.

U3- Berkeley – Alameda

The recommendation would upgrade transit service on Telegraph Avenue, linking downtown, central and south Berkeley with north and downtown Oakland and the City of Alameda. The corridor could also provide a connection to the planned Alameda Point BRT project. Potential improvements include transit lanes or transit lane segments, transit signal priority and adaptive traffic signal control, improved stations, and off-board fare collection.

Figure 16: Urban Rapid Tier

Note: All recommendations presented in this plan are intended to be a conceptual framework, and all routing and stop alignments will require further technical evaluation and public input.

U4 – Berkeley – Fruitvale

This recommendation would provide connections from Berkeley to Rockridge, downtown Oakland, Alameda, and Fruitvale Avenue, with the potential to connect to the planned BRT line to Alameda Point. Potential improvements include bus bulbs, queue jumps, stop/station enhancements, off-board fare collection, segments of transit lanes, transit signal priority, and adaptive traffic signal control.

U5 – Bay Fair BART - Union City BART

This recommendation is based on AC Transit's Major Corridors Study for capital investments in the corridor connecting Bay Fair BART in San Leandro to Union City BART station via Hesperian Boulevard. Improvements include bus bulbs, queue jumps, stop/station enhancements, off-board fare collection, transit signal priority, and adaptive traffic signal control.

U6 – Bay Fair BART – Warm Springs BART

This recommendation is based on AC Transit's Major Corridors Study in the corridor linking the Bay Fair and Fremont BART stations via 14th Street and Mission Boulevard, with service to Warm Springs as development in that area fills in. The line would serve intensifying land uses around the BART stations along Mission Boulevard. Potential improvements could include bus bulbs, queue jumps, off-board fare collection, segments of transit lanes, transit signal priority, and adaptive traffic signal control.

U7 – West Dublin/Pleasanton BART – Livermore/ACE

This recommendation would realign service to serve more of the development along the I-580 corridor, Dublin Boulevard, and Independence Drive, contingent upon the extension of Dublin Boulevard to North Canyons Parkway. Potential improvements could include a combination of transit lanes and transit lane segments and selected transit priority treatments such as transit signal priority and adaptive traffic signal control.

Recommended Improvements

Key characteristics of proposed improvements for both Regional Express and Urban Rapid Tier recommendations include frequent all-day

Table 2: Potential Roadway and Stop Improvements

Treatment	How Treatment Improves Transit
Transit Signal Priority	Applications include bus detection technologies that distinguish buses from general traffic
Adaptive Traffic Signal Control	This improvement improves traffic flow. Travel time improvements are a function of existing signal delay but can be substantial at congested intersections
Transit Lanes	Can be implemented during peak periods or all-day; can be combined with peak period parking restrictions to avoid taking a lane of travel
Bus Turn Provisions	Safety concerns may require changes to signalization for bus-only movement
Queue Jump	Advance green at the intersection facilitates exit from queue jump lane
Bus Bulbs	These curb and sidewalk extensions can improves pedestrian safety while there are potential impacts to general traffic
Transit Stop/Station Enhancements	Improves comfort and safety for transit riders; potential impacts to general traffic
Off-board Fare Collection	Reduces boarding time. Requires additional infrastructure at stations and random fare inspection

service, transit signal priority (TSP), and roadside preferential treatments including bulbs, bus queue jumps and transit lanes (Table 2). It is important to note that all of the Vision Network recommendations presented here are conceptual. In other words, specific routing alignments and termini have not been determined, and subsequent studies and environmental analyses will be required to determine potential alignments, specific routing, and specific capital and operating improvements. See Appendix D for other transit priority recommendations.

5.3. Performance Evaluation

Performance measures were developed to assess how the Vision Network recommendations individually and collectively support implementation of the adopted transit vision and goals. Performance measures apply to two types of evaluations:

- **Project:** considers the costs and benefits of both capital and operating activities associated with each recommended project.
- **Network:** quantifies the anticipated benefits cumulatively resulting from the recommendations with respect to each goal.

The transit goals and their associated quantitative performance measures are shown in Table 3. The recommended projects were also evaluated using a set of qualitative performance measures to capture benefits not readily modeled or forecasted.

The qualitative measures are:

- Support of TOD strategies
- Intermodal connectivity
- Customer experience
- Compatibility with Arterials Plan recommendations

Project Evaluation

Results were prepared for each of the projects in the Vision Network. Ratings are intended to facilitate the comparison between the projects to help understand relative costs, ridership, and travel time savings. These evaluations can provide useful information when considering future planning and funding opportunities in the county. Results are presented in Figure 20 (more information on the evaluation process can be found in Appendix F). Some of the general findings from the evaluation include:

- **All of the corridors included in the Vision Network support increased daily ridership:** They also improve customer experience and are compatible with the recommendations of the Arterials Plan.
- **The net new riders measure varies:** All corridors show increases; however, they range from a low of 230 daily new riders for R7 (Emeryville-Berkeley-San Rafael) to a high of 21,900 daily new riders for U3 (Berkeley-Alameda). The three projects with the lowest estimated net new riders (R6, R7, and U7) also have the highest costs per net new rider at $28, $44, and $71 respectively.
- **Total daily ridership increases:** All corridors increase transit ridership; however at different rates. New riders and total ridership are generally correlated, however it should be noted that the ability to generate net new riders does not always correspond to total daily ridership. For example, U3 (Berkeley-Alameda) generates 21,900 net new daily riders and a total of 35,600 daily passenger trips. U4 (Berkeley-Fruitvale BART) generates far fewer new riders (8,900 net new riders) but has higher overall ridership of 38,300 daily passenger trips.
- **Travel time improves**: With the exception of R7, all projects provide significant efficiency improvements through travel time reductions ranging from 10% to 48%. These travel time savings represent significant benefits to both existing and new riders that should be

Table 3: Quantitative Performance Measure in Relation with Goals

Goals	Performance Measures		
	Network-Level	Project-Level Capital	Project-Level Operating
Increase transit mode share	Per capita daily transit ridership		Net new riders
	Percentage of intra-county passenger trips on transit		
Increase effectiveness (including inter-regional travel)	Passenger trips per revenue vehicle mile		Passenger trips per revenue vehicle mile
	Miles of bus lanes	Miles of bus lanes	
	Daily passenger trips (unlinked)		Daily passenger trips (unlinked)
		Reduction in transit travel time (peak/off-peak)	
		Number of transit hubs served, including inter-regional hubs	
Increase cost efficiency		Capital cost per net new rider	
			Operating cost per passenger trip
Improve access	Number of households/jobs within one-half mile of transit stops		
	Number of Communities of Concern affected		
Reduce emissions	Greenhouse gas emissions		
State of good repair		Asset lifecycle is considered in annualized capital cost estimates	

Note: Cells shaded in grey indicate where the performance measures were not applied.
Source: Parsons Brinckerhoff, 2015

considered when evaluating projects. Generally, projects with more segments of transit lanes tend to provide greater reductions in travel time. However, even projects without transit lanes (U4 and U5, for example) still have the potential to generate significant travel time savings (17% and 22%, respectively) through the implementation of other transit operational improvements.

- **Operating costs are generally below $10 per passenger trip:** High projected ridership results in high productivity (e.g. cost/trip) on all corridors except R7 (Emeryville-Berkeley-San Rafael), which is estimated at $25/passenger trip primarily due to being on the lower end of estimated ridership as compared to the other network corridors.

- **Capital costs vary widely:** They range from a low of $66 million for the ferry projects to a high of $392 million for U6 Bay Fair BART – Warm Springs BART, a 16-mile-long transit lane.
- **Capital cost per net new** rider varies: Costs range from a low of $1 for U1 (Emeryville-Bay Fair BART) to a high of $71 for U7 (West Dublin/Pleasanton BART-Livermore).

Vision Network Evaluation

The evaluation of the proposed plan at the network level provides insight into the combined effect of implementing all the proposed projects on the entire transit network in Alameda County. It also provides insight into the underlying growth in transit demand expected to occur over the next 25 years as well as the estimated effect of the Vision Network over and above current plans and expected growth.

Table 4 provides a comparison of the Existing Conditions Network (2010) and the Vision Network (2040) alternatives.

Table 4: Network Alternatives

Existing Conditions, 2010	Land use and transportation conditions as they were in 2010 per the updated Countywide Travel Demand Model
Vision, 2040	Set of all improvements identified in the Countywide Transit Plan

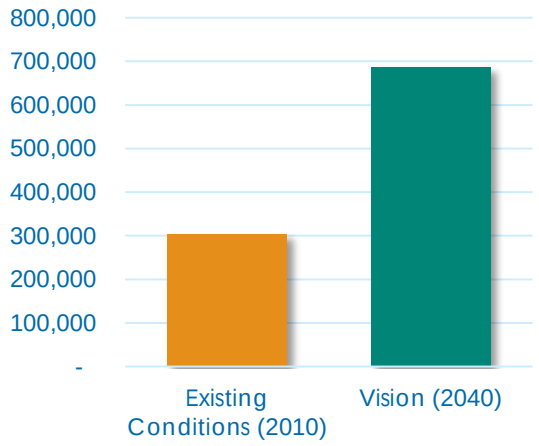
The comparison of the key metrics for Existing Conditions (2010) and Baseline Conditions (2040) shows a strong increase in transit use with a 90% increase in daily passenger trips driven by increases in population, employment, and congestion (see Figure 17).

The Vision Network responds to this increased demand for transit by providing key improvements to routes serving some of the most promising markets. The result is a network that provides travel time savings and service quality improvements to almost 700,000 riders and also generates an additional 100,000 daily passenger trips when compared to the 2040 Baseline Network.

Figure 18: Key Benefits of the Vision Network

Another change in the key metrics is the drop in GHG emissions from 2010 to the 2040 Vision Network. This drop is the result of multiple factors. State and federal regulations and standards aimed at lowering GHG emission rates by promoting use of cleaner vehicle and fuel technologies require significant reductions of GHGs from motor vehicles and mandate the incorporation of a greater number of zero-emission vehicles. In addition, the California Air

Figure 17: Daily Passenger Trip



Resource Board is developing proposals to achieve full zero emission transit fleet by 2040. These and other regulations will not only offset the increase of GHG due to growth between 2010 and 2040, but help significantly reduce the GHG emissions in Alameda County.

The Vision Network would offer fast, frequent, and reliable transit alternatives to driving. Moving the recommendations of this plan forward would also reduce future GHG emissions by reducing miles traveled in private vehicles.

A summary of the network evaluation is shown in Figure 19, and individual corridor evaluation is shown in Figure 20.

Figure 19: Network Evaluation Results

		EXISTING CONDITIONS (2010)	VISION (2040)
	PER CAPITA DAILY TRANSIT RIDERSHIP	0.20	0.35
	PERCENTAGE OF INTRA-COUNTY TRIPS ON TRANSIT	4.8%	8.0%
	PASSENGER TRIPS PER REVENUE VEHICLE MILE	3.1	4.6
	DAILY PASSENGER TRIPS	305,000	688,000
	MILES OF NEW RIGHT-OF-WAY DEDICATED TO TRANSIT FOR VISION NETWORK	-	73.6* MILES
	NUMBER OF HH/JOBS WITHIN HALF-MILE OF TRANSIT STOPS	648,000 HH / 813,000 JOBS	855,000 HH / 1,140,000 JOBS
	NUMBER OF COMMUNITIES OF CONCERN AFFECTED**	150	161
	GHG EMISSIONS (IN METRIC TONS PER YEAR)	5,572,000	4,232,000

* Depending on implementation, overlap in routes could potentially reduce total miles of dedicated right-of-way
** Assumes the same locations in the future

NOTE: All recommendations presented in this memo are intended to be a conceptual framework, and all routing and stop alignments will require further technical evaluation and public input.

Figure 20: Summary of Evaluation Results, All Projects

	R1 BART Extension to Livermore/ACE	R2 Brooklyn Basin—SF Ferry Terminal	R3 Alameda—SF Ferry Terminal	R4 Berkeley—Emeryville—SF Transbay Transit Center	R5 Eastmont Transit Center—Downtown Oakland—SF Transbay Transit Center	R6 Tri-Cities—Palo Alto	R7 Emeryville—Berkeley—San Rafael	U1 Emeryville—Bay Fair BART Station	U2 Richmond—Jack London Square	U3 Berkeley—Alameda	U4 Berkeley—Fruitvale BART	U5 Bay Fair BART—Union City BART	U6 Bay Fair BART—Warm Springs BART	U7 W. Dublin/Pleasanton BART—Livermore/ACE
Daily Net New Riders	NOT REPORTED. CURRENTLY UNDERGOING ENVIRONMENTAL REVIEW.	1,800	2,100	2,200	9,800	1,400	230	18,700	16,100	21,900	8,900	2,600	14,300	900
Passenger Trips per Revenue Vehicle Mile		30	47	3	17	1	1	13	12	22	13	7	6	4
Daily Passenger Trips		1,800	6,000	6,400	34,300	4,600	460	44,400	43,600	35,600	38,300	9,300	20,700	4,000
Capital Cost ($ Million)		$66	$66	$151	$319	$337	$70	$89	$357	$170	$141	$89	$393	$372
Annualized* Capital Cost per Net New Rider		$8	$7	$11	$5	$28	$44	$1	$4	$1	$3	$6	$4	$71
Operating Cost per Passenger Trip		$7	$2	$8	$1	$9	$25	$1	$1	$1	$1	$5	$3	$5
Total Cost per Passenger Trip**		$16	$5	$12	$3	$17	$47	$2	$3	$2	$2	$6	$6	$20
Miles of Right-of-Way Dedicated to Transit (% of Total Corridor Length)		100%	100%	4 miles (63% of route not incl. Bay Bridge)	8.4 miles (61%)	13.1 miles (47%)	2.5 miles (13%)	2.8 miles (60% of route not currently under construction)	10.6 miles (66%)	4.9 miles (70%)	0 miles (0%)	0 miles (0%)	16 miles (100%)	11.3 miles (86%)
Reduction in Transit Travel Time (Peak/Off-Peak)		No reduction (new route)	No reduction (new route)	-18% / -7%	-32% / -21%	-10% peak	-1% peak	-14% / -5%	-47% / -25%	-38% / -28%	-17% / -18%	-22% / -28%	-48% / -34%	-13% peak
Number of Transit Hubs Served, Including Inter-Regional Hubs***		1 hub	0 hubs	3 hubs	3 hubs	0 hubs	3 hubs	5 hubs	7 hubs	3 hubs	6 hubs	2 hubs	6 hubs	2 hubs
Intermodal Connectivity***		3 modes	1 mode	3 modes	4 modes	3 modes	3 modes	2 modes	5 modes	4 modes	4 modes	5 modes	3 modes	4 modes
Number of HH/Jobs within Half-Mile of Transit Stops***		8,000 HH / 21,000 jobs	200 HH / 400 jobs	41,000 HH / 73,000 jobs	105,000 HH / 163,000 jobs	37,000 HH / 44,000 jobs	51,000 HH / 70,000 jobs	108,000 HH / 195,000 jobs	110,000 HH / 218,000 jobs	86,000 HH / 218,000 jobs	112,000 HH / 245,000 jobs	37,000 HH / 43,000 jobs	84,000 HH / 83,000 jobs	27,000 HH / 69,000 jobs
Support TOD Strategy***		High	High	High	High	Medium	High	High	Low	Medium	High	High	Medium	Low
Number of Communities of Concern Affected***		7	0	11	49	5	15	60	45	24	27	12	19	0
Number of Existing or Planned Major Activity Nodes Served		1	1	1	7	0	1	7	5	4	4	1	3	3
Customer Experience		Substantial Improvement	Substantial Improvement	Substantial Improvement	Substantial Improvement	Moderate Improvement	Moderate Improvement	Substantial Improvement	Substantial Improvement	Substantial Improvement	Moderate Improvement	Moderate Improvement	Substantial Improvement	Substantial Improvement
Compatibility with Arterials Plan Recommendations		Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible

Note: All costs in 2015 dollars

* Annualized capital cost based on life cycle of asset

** Based on annual operating cost plus annualized capital cost per annual riders

*** Evaluation includes Alameda and Contra Costa counties only

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6

Policy Strategies

6.1. Guiding Framework

The Vision Network recommendations include short- and long-range solutions designed to improve the transit system and service by focusing investments in those areas that have the greatest benefit to existing riders and potential to attract new riders. The recommendations resulted from a thorough consideration of existing conditions, current plans and studies, a market and transit operational analysis, and an understanding of the Alameda CTC's transit vision and goals.

The strategies provided here are intended to provide a guiding framework for agencies to consider how to begin strategically implementing the recommended improvements that will be the most effective. These strategies are conceptual. Refinements and additional actions will be necessary to achieve a more physically and institutionally integrated transit system through policy modifications, service coordination, finance approaches, land use considerations, and more detailed additional study where needed.

The transit tier structure forms the framework for targeting policy strategies. The Vision Network recommendations within each service tier respond to physical and jurisdictional areas, and the five tiers of service must also function as an integrated system to deliver effective transit options to the community.

6.2. Strategies for Moving Transit Forward

Transit service functions best when planned and operated as a complete network. Coordinated routing and scheduling, for instance, takes into account rider demand and transfers between routes. Therefore, system integration strategies involve both physical connections between transit services and the street network and institutional coordination of services and information. Their intent is to break down barriers, enhance convenience, and maximize the effectiveness of the region's financial investment in transportation.

System integration starts at the planning level and ends with the actual user experience. It is multi-faceted and incremental. Strategy development, fare and fee structures, fare and fee payment, service availability and schedules, information and communications, land use coordination, and on-going efficiency programs are among the tools available to achieve an efficient and effective transit network that enhances the economy and the environment, and improves the quality of life in Alameda County. Table 5 summarizes all the strategies for moving transit forward.

All Tiers

Maintaining assets of operators within all tiers is essential to provide safe, reliable and cost effective service.

All Tiers Strategy 1: Maintain all assets in their optimal condition

Conduct State of Good Repair (SOGR) assessments: Conducting SOGR assessments will better position each agency, regardless of size and type of service provided, to maximize the return on investment by maintaining and, where possible, extending the useful life of fixed assets, such as transit centers, park and ride facilities, maintenance facilities, and vehicles.

Inter-Regional Tier

Inter-Regional Tier services pass through multiple counties and frequently share rights-of-way with freight rail services. Planning for improving and enhancing these services is primarily carried out by multi-county agencies such as regional joint power authorities/boards and/or the State of California.

Inter-Regional Strategy: Separate **goods movement** and **passenger rail** service

To address growing demand for both freight and passenger service, Alameda CTC recently adopted a Countywide Goods Movement Rail Strategy that can be the platform to conduct more focused rail strategies, including:

Conduct a detailed study on passenger and freight rail needs: To realize the vision of enhanced passenger and freight rail services, a study should be conducted to identify and prioritize investments in intermodal and mainline capacity, system connectivity, passenger and freight separation, and localized infrastructure and operational upgrades. The study should address the opportunities available in the county to develop high capacity passenger and freight rail corridors to meet the growing population mobility needs and projected increased freight flows.

The Goods Movement Plan supports the more efficient utilization of Alameda County's rail network to provide additional capacity for the future.

REGIONAL EXPRESS TIER

Because this tier involves other counties and crosses San Francisco Bay, other county transportation authorities will be heavily involved. Implementation of the proposed Regional Express capacity improvements will serve to supplement, and in some cases directly connect with BART, ACE, and Capitol Corridor. These agencies should participate in the policy and technical committees for interagency coordination to focus on the short- and mid-range responses to the Transbay passenger capacity issue to suggest resource sharing and allocation to meet this pressing challenge.

Regional Express Strategy 1: Target resources to expand **Transbay** service **capacity**

Capacity limitations of BART, AC Transit, and WETA must be addressed to provide short-term mitigation and long-term solutions.

Prioritize funding for supplemental Transbay bus and ferry service: A unified and coordinated approach to obtain capital and operating funds should be developed to provide additional ferry and bus service to increase capacity in the Transbay corridor. Performance measures need to be developed that recognize this service as different from other services, the high level of utilization as well as the high operating costs due to the distance and time required to cross the bay, peak direction ridership patterns, and fares. In addition, existing facilities and labor issues need to be addressed as part of this strategy.

Conduct additional analysis to determine the extent of need and fleet requirements: A detailed study would identify precise bus and ferry fleet needs based on ridership estimates, operational considerations, and service standards for passenger capacity.

Regional Express Strategy 2: Enhance **interagency coordination**

The institutional environment in which public transit must operate in the Bay Area is complex and multifaceted, especially so in Alameda County. Therefore, creating seamless connections and programs between transit systems and modes will require better coordination among agencies. Improved coordination will allow implementation of integration strategies involving dissemination of transit information, fares, and fare payment systems. (Strategies may change as specific recommendations move forward.)

Table 5: Summary of Tier-Based Policy Strategies

Tier	Strategies	
All Tiers	Maintain assets, including transit facilities and vehicles,, to maximize useful life and enhance safety	- Conduct State of Good Repair (SOGR) assessments at each agency
Inter-Regional	Separate goods movement and passenger rail service	- Conduct a detailed study on passenger and freight rail needs
Regional Express	Target resources to expand Transbay service capacity	- Prioritize funding for supplemental Transbay bus and ferry service; address implications to facilities and labor; evaluate differently from local services - Conduct additional analysis to determine the extent of need and fleet requirements
	Enhance interagency coordination	- Explore potential Intergovernmental Agreements - Create/expand committee for interagency coordination - Encourage funding integration
	Refine corridor plans through clearly defined improvements	- Coordinate corridor plans with parallel planning initiatives including the Goods Movement Plan and Arterial Plan
	Establish an integrated fare structure and policy allowing riders to transfer between systems and routes	- Upgrade regional passes (Clipper card) - Eliminate transfer penalties - Implement mobile ticketing
	Develop a regional coordinated schedule across all operators to improve service connections and address possible overlaps in service	- Synchronize service spans (hours of operation/frequency) - Synchronize schedules to minimize wait time between buses - Share seasonal and special condition service change information - Create a joint information platform to merge real-time information
	Expand affordable fare strategies	- Expand the use of fare programs to employers and institutions - Consider results of MTC's means-based fare study
	Develop programs to reduce costs	- Improve coordination among transit agencies - Support full implementation of common set of service standards - Require audits, peer comparison and value engineering on all projects
Urban Rapid	Enhance interagency coordination to focus investments and	- Establish corridor working groups to coordinate planning and investments around specific transit corridors

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Tier	Strategies	
Urban Rapid *(continued from prior page)*	development along transit corridors and in Transit Oriented Communities	- Coordinate and link Transit Oriented Communities programs with active transportation and complete streets programs - Create Transit Oriented Development programs to encourage planning for higher density development at transit hubs and stations - Identify funding resources to facilitate the prioritization of transportation infrastructure programs
	Provide common Information tools and shared branding and marketing	- Create one-call, one-click information for all services - Create a countywide transit map and common graphic and information system
Local Frequent and Community Connector	Expand access for persons with disabilities in conjunction with fixed route service improvements (e.g. increase in service area coverage, hours of operation, transit hub and station upgrades)	- Improve access to transit hubs and stations - Enhance travel training programs - Coordinate inter-agency paratransit scheduling for regional trips
	Explore public-private partnerships to expand the reach of the transit network	- Explore pilot programs at outer portions of routes to assess demand, operational considerations and contractual issues
Streets Plus	Strengthen intermodal connections among buses, trains, and alternative modes through targeted roadway and non-motorized transportation improvements	- Establish on-street priority for transit operations, facilities, and pedestrian access - Provide priority for transit services by upgrading traffic signal systems - Establish transit priority zones in areas of heavy bus flows and transfer activity - Establish on-street priority and separation of transit from traffic to improve access to transit hubs, rail stations and park-and-ride facilities - Prioritize pedestrian improvements and bicycle access to transit - Enhance transfer hubs by minimizing walk lengths and impediments to pedestrian and bicycle access -
	Encourage Transit Oriented Community planning along transit corridors and transit-dense areas	- Encourage local jurisdictions and developers to place highest intensity uses in closest proximity to transit - Encourage a mix of uses to support walking and bicycling in “complete street” communities - Manage parking supply and demand

CINCINNATI STREETCAR PEER REVIEWS

The use of peer reviews and value engineering were among the pre-planned tools to maximize the effectiveness of financial resources of the design, engineering and construction of a new streetcar line in Cincinnati, Ohio. Two peer reviews were conducted: near the project outset, technical representatives of rail transit systems, including Cleveland, OH, met in Cincinnati to review planning documents and provide invaluable advice of infrastructure design and operations. Prior to the completion of the design phase, the city and regional transit authority invited the American Public Transportation Association to conduct a broad-based peer review of the estimated price of the streetcar project of the estimated price and bid price. The panel consisted of project managers of similar projects in Atlanta and Denver. The panel identified $10 million in scope and price reductions that allowed the project to proceed without the need for additional funding.

Explore potential Intergovernmental Agreements (IGAs): IGAs can address a range of coordination strategies, from mergers to agreements regarding operations or funding of capital improvements. Implementation of major transit corridor projects typically requires several IGAs to document the responsibilities for planning, design, construction, and ongoing operation and maintenance of the corridor project. Memoranda of Understanding may also be used.

Create a committee for interagency coordination: This committee can undertake institutional-related initiatives through formal agreements and partnerships that define roles and cost/staff sharing. A policy-level committee can be useful for coordinated decision-making and information sharing for activities such as capital projects, operational plans, and customer information across jurisdictional boundaries. The policy-level committee would be responsible for setting up permanent and ad hoc staff/technical level committees. This type of committee would need to consider partners outside of Alameda County, including other counties and state agencies, due to the inter-county and inter-regional nature of current and future transit services.

Encourage funding integration: Funding from multiple sources can be combined to fund a project and can lead to "buy-in" from each of the funding agencies. Funding for projects can also be stretched by coordinating planned improvements, including for marketing and branding services

Regional Express Strategy 3: Refine **corridor plans** through clearly defined improvements

Corridor-specific studies should be conducted in partnership with local jurisdictions and transit agencies to define specific investment strategies, and coordinate with parallel planning initiatives.

Coordinate corridor planning efforts with parallel planning initiatives including Alameda CTC's Goods Movement Plan and Arterial Plan: All investment-related studies that involve major corridors should take into full account, coordinate with, and collaborate with parallel efforts. This will maximize the effectiveness of the studies, their outcomes, future corridor utilization, and funding and ensure that appropriate jurisdictional and transit needs are fully taken into consideration.

Regional Express Strategy 4: Establish an **integrated fare structure** and policy allowing riders to transfer between systems and routes

Specific strategies to establish an integrated fare structure include:

Upgrade regional passes: Taking the Clipper card to the next generation of customer conveniences will require an initial agreement on cost and revenue sharing based on estimated usage by jurisdiction. This effort is currently being undertaken by MTC.

Eliminate transfer penalties: Passengers should be able to complete a trip requiring multiple legs without having to pay an additional full fare.

Implement mobile ticketing: Mobile ticketing (passes available on mobile and smart phones) can enhance passenger convenience and reduced boarding time, thereby helping to improve operating speeds an on-time performance.

Regional Express Strategy 5: Develop a regional **coordinated schedule across** all operators to improve service connections and address possible overlaps in service

It is realistic to achieve better schedule coordination to minimize transfer walks and wait times so that journeys can be completed as quickly and seamlessly as possible. This can be accomplished by service and facility coordination among interfacing agencies:

Synchronize service spans: Hours of operations among interfacing routes operated by different agencies in major corridors should be matched as closely as possible to maximize utility of the entire regional system.

Synchronize schedules to minimize wait time: Service frequencies, or headways among interfacing routes operated by different agencies should be coordinated to facilitate seamless regional travel.

Share seasonal and special condition service change information: Coordinated procedures should be established among agencies to coordinate regularly scheduled seasonal service adjustments and changes to maintain convenient and reliable connections between routes and services for passengers.

Create a joint information platform to merge real-time information: Next bus information of all connecting agencies should be accessible via regional and agency websites and apps to allow passengers to track real-time location and arrival estimates for connecting services.

Regional Express Strategy 6: Expand **Affordable Fare** Strategies

Affordable fare strategies should be implemented to expand access to transit for low-income passengers. Strategies include:

Expand the student fare program and existing employer programs: A permanent funding strategy for the continuation and expansion of the Affordable Student Pass pilot program for middle school and high school students in Alameda County, with the potential to expand to other school grades, should be identified. AC Transit's Easy Pass program could be expanded in Alameda County.

Consider results of MTC's means-based fare study: Coordinate with MTC on its mean-based fare study outcomes. Move toward a more consistent regional standard for fare discounts, including student discounts.

Regional Express Strategy 7: Develop programs to **reduce costs**

The MTC Transit Sustainability Project (TSP) initiative highlighted opportunities for greater efficiency and coordination between agencies.

Require audits, peer comparisons and value engineering on all projects: Value engineering could be used to determine if capital costs can be reduced without compromising safety, customer benefit, environmental impacts, or aesthetics. Operating costs could be compared with peers to identify areas where efficiencies can be achieved and a performance management system implemented to achieve efficiencies.

Improve coordination among transit agencies: Information sharing of best practices, cost savings techniques and programs, branding and marketing, and service changes should be conducted among regional agencies on a regular basis.

Full implementation of common service standards: MTC's TSP supports common service standards and Alameda CTC's Mass Transit Program Performance Measures for Direct Local Distribution include common performance measures that are evaluated annually. This will facilitate easier evaluation between operators and over time.

URBAN RAPID TIER

The characteristics of Urban Rapid Tier are frequent all-day bus service combined with a variety of transit-preferential treatments with respect to signalization, lane usage, and roadside upgrades. The Urban Rapid Tier includes transit that operates largely within Alameda County. The proposed improvements directly connect with BART, ACE, and Capitol Corridor in most cases.

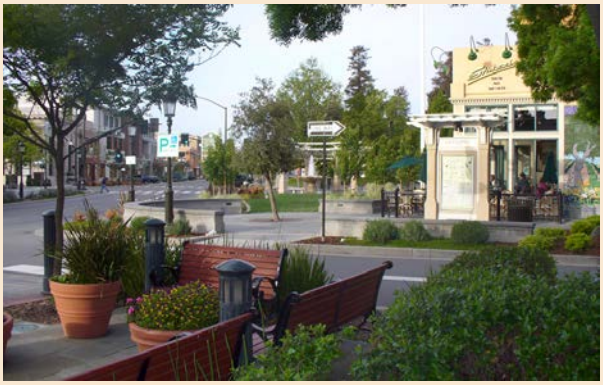
Agencies responsible for transit planning and operations, as well as the regional and local street and traffic networks, public works, and planning should be represented on the policy and staff/technical interagency committee for coordination to facilitate implementation of major improvements such as the Multimodal Arterial Plan. Where applicable, Caltrans should also be engaged on corridor improvements.

Urban Rapid Tier Strategy 1: Enhance interagency coordination to focus investments and development **along transit corridors** and in Transit Oriented Communities (TOC)

Regional planning efforts that integrate transit and land use investments are an important initial step to help coordinate local plans, programs, and policies, ensuring that the region has a shared vision for places that, by their design, help enable people to drive less and walk and use transit more, known as Transit Oriented Communities (TOCs).

The MTC's *Plan Bay Area: Strategy for a Sustainable Region* places CMAs in a coordinating role with local jurisdictions and transit agencies to build and implement the plan. Strategies include:

Figure 21: 1st Street in Livermore - Transit-Oriented Walkable Street



Source: CD+A

KANSAS CITY AREA AUTHORITY INTERACTIVE REGIONAL TRANSIT MAP

The lack of regional public transportation coordination was a long-standing issue in the Kansas City metropolitan area. Five agencies, including the Kansas City Area Transportation Authority in Missouri and Johnson County Transit in Kansas, provide transit service in the region. To create a seamless regional system, Ride KC was created in 2013 as a partnership of the transit agencies and policy organizations with the mission of "building a single, interconnected transit system that gives people the ability to seamlessly move around our region." One of Ride KC's first actions was to develop an interactive regional transit map and schedules that allows users to see the extent of regional service and click on any line to find the route number, name and schedule. Although each agency retains fiscal and operational control, Ride KC has also established a unified brand and graphics standard, fare structure, and fare payment system.

Establish corridor working groups to coordinate planning and investments around specific transit corridors: Alameda CTC should partner with MTC to enhance their roles as conveners to bring together local governments, foundations, transit agencies and other stakeholders to prioritize and provide technical assistance to support public- and private-sector strategic investments along major transit corridors in Alameda County.

Coordinate and link Transit Oriented Community (TOC) programs with active transportation and complete streets programs: Alameda CTC can refine, coordinate, and develop new programs to establish criteria and guidelines to foster the development of TOCs, which expand the scope of Transit Oriented Development (TOD) to include entire communities.

Create TOD programs to encourage planning for higher intensity development at transit hubs and stations: Grants can be provided for transit and/or infrastructure improvements to target areas that the region has prioritized for future population and employment growth and development designed to foster transit use.

Identify funding resources to facilitate prioritization of transportation infrastructure programs: While many infrastructure projects are likely to be funded through combinations of existing local, state, and federal revenue sources, there are also opportunities to raise additional revenues from new development in transit areas, using property-based financing tools including special assessment and taxing districts, developer contributions, and value capture tools.

Urban Rapid Tier Strategy 2: Provide **common information** tools and shared branding and marketing.

Connectivity can be enhanced by presenting information on networks, routes, and schedules in common, shared and joint formats. Strategies include:

Create one-call/one-click information access for all services: The existing 511 web address and telephone number service should be enhanced with current technology platforms to provide access to information, schedules and other notices of all regional agencies.

Create a countywide transit map and common graphic and information system: A countywide transit map should focus on consistent graphics that clearly and uniformly illustrate routes, services, and passenger facilities and landmarks to facilitate seamless regional travel.

Local Frequent and Community Connecter Tier

Local Frequent and Community Connector Tier includes transit that serves local trips within Alameda County's local jurisdictions. Alameda CTC has not identified specific recommendations for this tier. It is assumed that local jurisdictions and

Figure 22: New Buses and Enhanced Stations Improve Access

Source: *Appendix G - Complementary ADA Paratransit Strategies*

transit agencies will have the primary responsibility for planning and operating these services. Alameda CTC could fund increases in service frequency, span, and/or coverage as planned by these entities. Transit agencies should identify opportunities that improve connectivity between services in this and the other tiers as well as within this tier to maximize the number of destinations conveniently reached by transit. Coordination will be focused among transit agencies, jurisdictions, and first- and last-mile transportation option providers.

Local Frequency Tier Strategy 1: Improve access **for persons with disabilities** in conjunction with fixed route service improvements

Federal regulations designed to implement the Americans with Disabilities Act (ADA) are highly prescriptive and closely monitored for compliance. It is essential that as transit service improvements are made, corresponding improvements in accessibility for persons with disabilities improve as well including both ADA and city-based programs.

Improve access for persons with disabilities to transit hubs and stations: Distances between fixed route (rail and bus) stops and platforms and paratransit berths should be minimized. Signage, designed in accordance with ADA-based guidelines, should provide clearly understood wayfinding for persons with disabilities.

Enhance travel training programs: Develop programs, such as enhanced travel training programs and facilities, to support people who could be paratransit riders on fixed-route service as physical and developmental disabilities allow.

Local Frequency Tier Strategy 2: Explore public-private partnerships to expand the reach of the transit network

Transit agencies can capitalize on the rapid growth in the availability and usage of private companies, such as TNCs, for commuter and other trips to provide first mile/last mile connections to areas with low densities and/or insufficient transit service. Demand for first mile/last mile connections may be needed at transit hubs and stations but would generally be focused at route and service terminus points.

Figure 23: Planned Improvements-BART-AC Transit Hub in Berkeley

Source: BART

Develop pilot programs to assess demand, operational considerations and contractual issues: Area-specific pilot programs, rather than systemwide or countywide programs, are a prudent way to develop public-private coordination given the sudden and tremendous growth and evolution of the TNC industry and corresponding regulatory environment. Pilots should focus on expanding access to transit to support the Countywide Transit Plan's goal of increasing transit mode share.

Streets Plus Tier

Local jurisdictions have primary responsibility for improvements that fall under the Streets Plus Tier. Regular coordination, including locally oriented permanent or ad hoc committee meetings, should be undertaken so that the needs of all stakeholders are addressed when issues are identified and solutions are developed. It should be noted that the Streets Plus tier strategies can be applied to all other tiers and are designed to work in concert with local land use planning efforts.

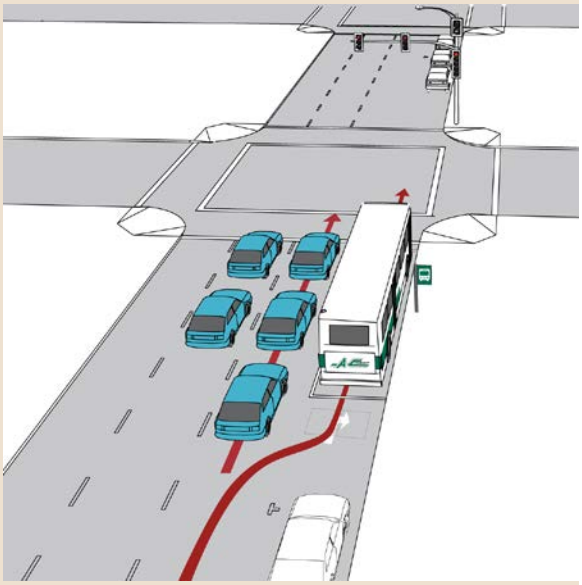
Streets Plus Tier Strategy 1: Strengthen **inter-modal connections** among buses, trains, and alternative modes through targeted roadway and non-motorized transportation mobility improvements

Inter-modal connections can be enhanced not only through service coordination, but better physical connectivity between routes, services, and modes.

Enhance transfer hubs by minimizing walk lengths and impediments to pedestrian and bicycle access: Potential enhancements include reassignment of designated bus bays to provide close proximity among routes with high transfer affinities and careful placement of bicycle storage facilities and accessible pedestrian improvements.

Establish on-street priority for transit operations, and align facilities for improved bicycle and pedestrian access: Treatments such as bus lanes or bus lane segments, re-striping to allow bus queue jumps at congested intersections are among the priority treatments that require close coordination with jurisdictions responsible for street design and operations (Figure 24). Access

Figure 24: Queue Jumps



Source: AC Transit

improvements to transit stops also require coordination efforts with local jurisdictions.

Provide priority for transit services by upgrading traffic signal systems: Modernized ITS and global signal improvements can be developed along corridors at key intersections to help enable buses to enhance schedule reliability.

Establish transit priority zones in areas of heavy bus flows and transfer activity: Priority zones can help reduce pedestrian-bus-traffic conflicts and enhance safety where high levels of bus and bus passenger traffic exist.

Establish on-street priority and separation of transit from traffic to improve access to transit hubs, rail stations and park and ride facilities: Because transit facilities experience a high level of activity, especially during peak periods, the potential to allow priority treatments for transit will improve service reliability and transfer connections.

Improve bicycle access to transit: Strategies include providing bicycle facilities on transit vehicles and at major stops and stations, building bike routes, lanes, and paths and, supporting bicycle sharing programs.

Prioritize pedestrian improvements: Because most transit users access a transit station or hub on foot at one or both ends of their trip, convenient, safe, and secure pedestrian access is an essential component of transit facility design.

Streets Plus Tier Strategy 2: Encourage TOD planning along transit corridors and transit-dense areas

Using the TOD guidelines, described at the *Appendix I* of this report, direction can be provided to local jurisdictions, stakeholders, and developers to create urban environments that accommodate the movement of passengers, both on board transit vehicles through street design and priority treatments and development that facilitates pedestrian and bicycle access. Approaches include:

Encourage local jurisdictions and developers to place highest intensity uses in closest proximity to transit: Large volumes of transit users form a significant customer base for many businesses and land uses at stations; conversely, higher development intensity, including retail and residential, can help build a broader base of transit ridership.

Encourage a mix of uses to support walking and bicycling in "complete streets" communities: Assessing corridors and parallel routes is important to address complete streets needs because not all modes can be fully accommodated on every street. Accommodations for pedestrians and bicyclists as part of complete street programs can enhance access to transit hubs and stations, and create activity centers for transit users who walk or bike to their destinations.

Manage parking supply and demand: Localized analysis of parking patterns and habits, such as parking needs for residential units adjacent to transit hubs and stations, can lead to a more effective placement and utilization of parking facilities and greater opportunities for on-street, mixed use development.

6.3. Coordinating Partner Roles and Responsibilities

The reality of Alameda County, the Bay Area, and metropolitan regions throughout the country is that jurisdictional boundaries and institutional requirements exist, and that issues, priorities, capabilities, and responses vary by agency and area. In terms of regional connectivity, the result of this reality is often inconvenience at best, and barriers to implementation at worst.

Each partner agency that will be involved in moving the recommendations forward was chosen to undertake specific responsibilities. They cover defined geographical and political jurisdictions, while their functional responsibilities include strategy development, funding and financing, monitoring, and service provision. Table 6 summarizes the key roles and responsibilities of partner agencies. Their roles and responsibilities intersect, overlap, and interact with one another. Coordination of the responsibilities is necessary to seek common purpose, maximize efficient use of resources, avoid duplication of efforts, and provide optimal transportation infrastructure and service. To move the recommendations and strategies forward, collaboration will be essential.

CASE STUDY: NORTHWEST TRANSIT ALLIANCE

The Northwest Transit Alliance comprises five transit agencies operating and marketing under a single brand that crosses jurisdictional boundaries. The intent of the Alliance was to remove barriers to transit use through better connecting communities and improving coordination of routes, schedules, and fare structures among the five operators. Each of the five agencies retains ownership of all its assets and operation of all its services, but they share resources such as transit stops and improve the convenience and cost effectiveness of regional transit services through coordinated transfers and shared staff resources.

NORTH & NORTHWEST OXO CONNECTOR get on it!

Source: TCRP Report 173. Improving Transit Integration among Multiple Providers. Volume I: Transit Integration Manual

Table 6: Roles and Responsibilities of Local and Regional Entities Related to Transit

Alameda CTC	Metropolitan Transportation Commission
• Collects and administers countywide transportation sales taxes and voter-approved vehicle registration fees • Allocates funding from regional and state sources • Sets programmatic and project priorities for Measures B and BB and the Vehicle Registration fee, Measure F • Adopts Direct Local Distribution performance measures • Develops countywide plans and establishes short- and long-range vision for transportation • Provides policy guidance for transportation investments • Serves as a convener/facilitator for local, regional, and federal agencies • Advocates for Alameda County at regional, state, and federal levels • Delivers major capital projects and programs such the Affordable Student Transit Pass Program, Safe Routes to Schools and Senior and Disabled Transportation services	• Develops regional transportation plans and Sustainable Communities Strategy • Allocates funding from federal, state, and bridge toll sources • Administers grant programs • Develops the Bay Area Regional Transportation Plan, Plan Bay Area • Performs specific planning studies • Develops and delivers system management services, facilities, and operations • Promotes and facilitates service improvements, fare integration among transit operators, including regional fare card (Clipper) and ridesharing and commuter information • Serves as convener/facilitator for other regional agencies and stakeholders • Advocates for Bay Area at state and federal levels
Transit Providers	**Cities**

• Receive local, regional, state, and federal funds
• Provide local, regional, or interregional bus (*AC Transit, LAVTA, and Union City Transit*), rail (*BART, ACE, and Capitol Corridor*), or ferry (*WETA*) services
• Plan system upgrades and extensions
  ▪ Major Corridor Study and Service Expansion Plan (*AC Transit*) and Comprehensive Operational Analyses (LAVTA, AC Transit)
  ▪ System preservation and maintenance and extensions including Silicon Valley and Livermore extensions (*BART)*
  ▪ New routes and terminals (*WETA*)
  ▪ ACE Forward
• Conduct service and strategic planning
• Own land, facilities, and equipment, including stations, parking, park and ride lots, maintenance facilities
• Manage and operate paratransit services
• Manage transfer facilities at rail stations (*BART*)
	• Control and plan land use (zoning, development, design)
	• Own, manage, and maintain streets and bicycle/pedestrian facilities
	• Lead and implement complete streets projects
	• Own and operate an independent local transit system (Union City only)
	• Fund operations and maintenance of local transportation system (including some local shuttle services)
	• Plan and operate local senior and disabled transportation services

...continued

Table 6: Roles and Responsibilities of Local and Regional Entities Related to Transit (*continued*)

Alameda County	Caltrans/High-Speed Rail Authority (HSR)
• Controls and plans land use in unincorporated areas (zoning, development, design, etc.) • Owns and manages/maintains roads, bridges, and bicycle/pedestrian facilities in unincorporated areas • Leads and implements complete streets projects • Performs and collaborates on countywide planning	• Administers state and federal funds, including those expended by local agencies through the Local Assistance Program (Caltrans) • Owns, operates, and maintains state highway system, including arterials and bridges (Caltrans) • Plans for state transportation investments, including development of long-range plans, new projects, operations, and maintenance (Caltrans) • Works with local jurisdictions to make improvements (Caltrans) • Responsible for planning, designing, building and operation of the high-speed rail system in California (HSR)
Private and Non-Profit Sector	**Federal Agencies**
• Offers transit incentives and devises policies for and provides private parking and transportation demand management programs (e.g., discount transit passes, subsidies for last-mile transportation options, parking cash-out, or limited resident or employee parking per occupant, employee, square footage, or similar measurement) • Provides private transit services to their facilities • Works with transit operators to support transit service to their facilities • Builds infill or higher density development around transit nodes • Designs buildings and campuses in a bicycle and pedestrian-friendly manner • Provides transit-enhancing amenities such as shade, shelters, benches, maps, and schedule information • Provides personalized and private on-demand transportation service (taxis and Transportation Network Companies)	• Allocate federal funding from formula and discretionary programs • Review and monitor federally funded programs • Develop policies related to transit and paratransit regulations

7

Moving Forward

7.1. Moving Forward

A series of important steps will be necessary to move the recommendations and strategies forward, secure funding for delivery, and determine coordination and collaboration opportunities. Section 7.2 provides an overview of funding, costs, phase, and financing options which are described in more detail in subsequent sections.

7.2. Phasing and Financing

Taken as a whole (excluding the BART extension to Livermore/ACE), the estimated capital cost of the Vision Network recommendations is $2.6 billion (in 2015 dollars). Annual operating and maintenance costs (2015 dollars) are estimated at $149 million (see Section 7.3, Table 8 for more information on cost estimates).

Development of precise financing strategies will require more detailed analysis as each project goes through its specific planning and engineering phases, but should be based on five overall approaches:

Phasing and Financing Strategy 1: Develop consensus on a phased implementation program

The individual transit corridor projects will need to be phased due to funding, staff resources, and operational limitations. Identifying planning priorities between recommendations presented in this plan will require considerable additional analysis developed in conjunction with local partners and in consideration of more detailed cost estimates and funding availability. Phasing should be based on types of improvements recommended and acknowledge the benefits of coordinating similar types of strategies where cost or institutional savings may be possible. Some features or improvements may lend themselves to implementation prior to other planned elements. For example, broad implementation of transit priority improvements across multiple corridors may be an efficient option for implementing that type of system and would yield immediate benefit to transit operations.

Another phased implementation option may be to build common sections of transit corridors (segments that are used by multiple corridors), independent of and before corridor projects. Those segments will provide immediate benefits and will simplify future corridor development.

While individual transit corridor projects are often implemented as discrete projects, the type of big picture thinking described above will allow each corridor planning effort to be more effective. While many corridor planning efforts funded by the Federal Transit Administration (FTA) are linked to a particular complete transit corridor, these corridors should be considered in concert where possible.

Staggered Start Delivery of Vision Network Recommendations: Most of the proposed recommendations fall under the Urban Rapid service tier. For example, AC Transit's Major Corridor Study examined eleven transit corridors, six of which will be considered by the AC Transit Board of Directors for BRT-type improvements and four for Rapid Bus-type improvements. AC Transit is recommending a staggered start for the more significant projects identified in its Major Corridors Study. The staggered start works well for staffing of projects and with anticipated funding streams. Although multiple projects would not typically be in the same phase (planning, design, or construction) at the same time, there would be multiple corridor projects in development (at different phases) concurrently. The staggered start option can allow all projects to be completed by 2040.

Phasing and Financing Strategy 2: Develop a funding strategy team

Alameda CTC should convene a funding strategy team comprised of current and potential funding partners for the new capital projects, to discuss specific funding strategies and how best to position each project for success.

Phasing and Financing Strategy 3: Identify funding sources and financing options

The array of funding sources on the federal, state, and regional levels would be analyzed for applicability and likelihood of success for each capital project. Funding by communities/cities along corridors would be analyzed, including value capture opportunities.

Phasing and Financing Strategy 4: Develop a financial model and identify several funding and financing scenarios

A detailed financial model would be developed for each project that integrates the various funding sources and financing mechanisms and compares to costs. It must be capable of assessing the viability of different scenarios by project and for the Vision Network overall.

The following are several initial strategies by funding type that could be considered by the funding strategy team mentioned above:

Federal Funding: The greatest opportunity for funding new capital projects is the FTA's Fixed Guideway Capital Investment Grants program. Five of the recommended projects qualify for New Starts funding based on their preliminary capital cost estimate of $300 million or more:

- R5: Eastmont Transit Center – Oakland- San Francisco Transbay Center
- R6: Tri-Cities – Palo Alto (Union City BART)
- R7: San Rafael - Emeryville
- U2 Richmond Parkway Transit Center – Jack London Square
- U6: Bay Fair BART – Warms Springs BART
- U7: Dublin/Pleasanton BART – Livermore ACE

The remaining six recommended projects qualify for Small Starts funding component, which is a more streamlined FTA approval and project development process.

These capital projects should be prioritized by year and considered during discussion of phasing, since it is more difficult for one agency to secure more than one FTA New Starts or Small Starts per federal funding cycle.

Regional and State Funding: The State Cap and Trade program has the most significant amount of new, uncommitted funding for transit projects. Alameda CTC should consider the Transit and Intercity Rail Capital (TIRC) Program for the heavy rail (BART), ferry (WETA) and BRT (AC Transit) projects that will generate the most air quality improvements (generally those with higher ridership potential) and the Affordable Housing and Sustainable Communities (AHSC) Program for projects where Alameda CTC, and transit agencies, can partner with a city/community with housing authority and affordable housing needs along transit corridors.

In addition, Alameda County can continue to be competitive with MTC regional funding, especially with its high priority projects with strong local stakeholder and city support. Future funding opportunities for transit could be part of future bridge toll (regional measure) discussions.

Local Funding: Local funding, including Measure BB, should be reserved for matching state or federal funds or funding projects that are either not eligible or not competitive for other funding as well as on project development activities to leverage other funds for construction. Various transit agencies are also pursuing dedicated local funding for their operations and capital needs through mechanisms such as

property taxes and bond measures. These mechanisms are considered critical components of sustaining current operations and implementing capital improvements, including capital maintenance and set aside as matching funds for capital projects.

Financing and Value Capture Funding: Several options are available for financing and value capture funding the network capital projects. Local financing should be reserved for leveraging Measure BB funds. Federal financing, such as Transportation Infrastructure Finance and Innovation Act (TIFIA) loans, should be reserved for the projects that are eligible and competitive for New Starts funding. Value capture options require a strong partnership with cities/communities along the transit corridors and stakeholders at station sites; they are ideal tools to fund BRT projects in collaboration with local funding partners. Value capture mechanisms include:

- Tax Increment Financing (TIF): TIF involves the creation of a special district to raise revenue for public improvements by capturing a portion of the additional assessed value generated by private sector development.
- Payments in Lieu of Taxes (PILOT): An alternative approach to TIF is PILOT Increment Financing which provides more revenue and is easier to borrow against than standard TIF applications.
- Special Assessment: A special assessment is an additional property tax applied to parcels of land that receive a special benefit from one or more public improvements funded by assessment revenues. The additional tax is applied to both existing and future properties.
- Joint Development: Joint development is a partnership between a public entity and a private developer created to develop certain assets.
- Air Rights: Air rights refer to the right to develop, occupy, and control the vertical space above a property. Air rights can be bought, leased, or transferred.
- Developer Contributions: Developers often provide in-kind or monetary contributions to facilitate construction of infrastructure that would result in a positive impact on property values.

Phasing and Financing Strategy 5: Develop consensus around a funding strategy and timeline.

A funding strategy timeline for the county would require consensus from county stakeholders. This could be developed to build a cohesive strategy on how to secure the maximum amount of funding for planning and projects. This would include increased coordination around advocating a shared legislative agenda and timeline for securing each funding source.

7.3. Funding Needs Assessment

The transit system in Alameda County is a mature system, and major system infrastructure elements need capital rehabilitation or replacement. At the same time, rapid change and growth calls for expansion of the transit system to ensure continued, adequate access to transit in Alameda County.

Existing Services

The total capital needs for six major transit entities operating within Alameda County between FY 2017 and FY2040, (excluding Capitol Corridor) are estimated at about $23 billion (Table 7, 2015 dollars), and reflect the need to replace all existing assets nearing the end of their useful lives[14]. The capital cost estimate also includes rehabilitation work on the remaining assets in accordance with the recommended lifecycles for each asset type. The estimate is based on

[14] Draft Plan Bay Area 2040 Preliminary Transit Needs Assessment Memorandum (January 2016)

projections prepared by each agency for existing services and committed expansion with the exception of projects currently under environmental review.

The estimated operating costs during this same period total $50 billion (Table 7). The operating needs of BART and AC Transit combined comprise 93 percent of the project operating needs in Alameda County, with BART comprising 66 percent of the total; AC Transit comprising 27 percent. Total combined capital and operating cost by operating entity is illustrated in Figure 25.

Vision Network Recommendations

The total capital needs for the Vision Network recommendations, not counting transit project currently under environmental review (i.e. BART extension to Livermore/ACE) are estimated at another $2.6 billion (Table 8). These conceptual cost estimates cover design, engineering, and construction/fabrication of roadway, stations, support facilities, and systems; property acquisition; vehicles; professional services; and a 35 percent contingency. Annual operating costs for recommendations, not counting the BART extension to Livermore/ACE recommendation, add up to $149 million.

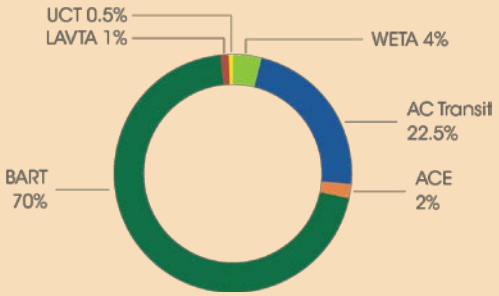
Table 7: Existing Services Projected Capital and Operating Costs FY2017-FY2040

Operator	Total Maintenance Needs	Total Operating Needs
AC Transit	$2,934	$13,445
ACE	$291	$1,300
BART	$18,121	$33,112
LAVTA	$183	$522
Union City	$32	$211
WETA	$1,442	$1,413
TOTAL	**$23,003**	**$50,003**

Source: MTC, Draft Plan Bay Area 2040, Preliminary Transit Needs Assessment Memorandum (January 2016)

Note: All costs in year of expenditure dollars (in millions)

Figure 25: Total Projected Capital and Operating Costs by Agency (FY2017-FY2040)



7.4. Funding Options

A wide array of funding sources and financing mechanisms are available to meet the capital and operating needs of the Vision Network recommendations (Table 9 and Table 10).

Existing Services – Operating and Maintenance (O&M) Funding

Several funding sources can be used to pay for the operating needs of existing services. Most are committed and include dedicated local revenues controlled by the agencies. They include fares, non-operating revenues such as advertising, and property and county sales taxes. Committed sources also include funds - such as federal grants, Transportation Development Act (TDA) funds, and bridge tolls - which pass through or are typically estimated by the MTC.

For FY 2017 through FY 2040, MTC's draft Plan Bay Area 2040[15] includes preliminary committed operating revenue projections of $49.87 billion for the agencies in Alameda County. This leaves a gap of approximately $367 million (less than one percent).

[15] Memorandum to Partnership Technical Advisory Committee regarding Plan Bay Area 2040 Needs Assessment Update, January 2016

Table 8: Vision Network Recommendations Capital and Operating Cost Estimates

	Project	Mode	Capital Cost (2015 $M)	Annual Operating Cost (2016 $M)
R1	BART Extension to Livermore/ACE	Rail	-NA-	-NA-
R2	Brooklyn Basin - SF Ferry Terminal	Ferry	$66	$4
R3	Alameda - SF Ferry Terminal	Ferry	$66	$4
R4	Berkeley - Emeryville - SF Transbay Transit Center	Bus	$150	$15
R5	Eastmont Transit Center - Oakland - SF Transbay Transit Center	Bus	$319	$15
R6	Tri-Cities - Palo Alto (Union City BART)	Bus	$337	$12
R7	Emeryville - Berkeley - San Rafael	Bus	$70	$4
U1	Emeryville – Bay Fair BART station	Bus	$89	$17
U2	Richmond Parkway Transit Center - Jack London Square	Bus	$357	$16
U3	Berkeley - Alameda	Bus	$170	$10
U4	Berkeley - Fruitvale BART	Bus	$141	$17
U5	Bay Fair BART - Union City BART	Bus	$89	$13
U6	Bay Fair BART – Warm Springs BART	Bus	$393	$17
U7	Dublin/Pleasanton BART - Livermore ACE	Bus	$372	$5
		Total	**$2,619**	**$149**

Similarly, various revenue sources are dedicated to capital replacement and rehabilitation by statute or policy. They include federal formula grants, bridge tolls, and certain county transportation sales taxes. For FY 2017 through FY 2040, MTC's draft Plan Bay Area 2040 estimates preliminary committed capital revenue projections of $9.18 billion for the six agencies in Alameda County. This leaves a gap of approximately $13.83 billion (60 percent) from amount shown on Table 8.

The following major funding sources could be used for such O&M needs.

Federal- Section 5307 Urbanized Area: Funding is provided nationwide to urbanized areas for public transportation capital, planning, and preventative maintenance activities. It is allocated on a formula-basis with a minimum required 20 percent local match.

Federal- Section 5337 State of Good Repair: Available to fixed guideway facilities in operation for at least seven years, Section 5307 funds may only be used on existing fixed guideway transit in need of asset replacement or modernization; Section 5337 cannot be used for a new transit investment. There are two sub-programs: High Intensity Fixed Guideway (including rail, BRT, and passenger ferries) and High Intensity Motorbus (such as buses operating in high occupancy vehicle lanes). Funds are allocated between the two programs using a 97/3 percent split and required a minimum 20 percent local match.

Federal- Section 5339 Bus and Bus Facilities: Section 5339 is for capital investments in bus and bus facilities, primarily allocated by formula. Remaining funds are competitively allocated with no single grantee receiving more than 10 percent of the annual discretionary program. A sub-program provides grants for bus and bus facility projects that support low and zero-emission vehicles. A minimum 20 percent local match is required.

State- Transportation Development Act (TDA): Passed in 1971, the TDA involves multiple major funding sources and planning, operating and capital programs[16]:

Local Transportation Fund (LTF): The TDA allows counties to levy a sales tax (0.25 percent) for transit purposes through the LTF.

Public Transportation Account (PTA): The PTA is the primary source of the State Transit Assistance (STA) fund. Funding for the STA is derived from an additional portion of the state diesel fuel tax (1.75%) for capital and operating expenses.

Proposition 1A: Funding is directed to provide connectivity to the state's planned high speed rail system.

Proposition 1B: Passed on 2006, this bond act provides funding for a wide range of transportation projects, including rail projects and performance improvements on highly congested corridors. Most Proposition1B funds are directed to Caltrans.

Regional- Bridge Tolls: Regional measures and assembly bills that generate toll revenues to fund public transportation projects within the Bay Area include:

Regional Measure 2 (RM2): increased the toll rate by $1 on for the region's seven state-owned toll bridges to fund transportation projects that improve congestion.[17] Eligible projects include transit capital improvement projects and operations.

AB 664: allocates toll revenue collected on the San Francisco-Oakland Bay, Dumbarton, and San Mateo-Hayward bridges to transportation projects near the bridges. The funds are programmed annually by MTC to provide partial local match to federal Section 5307 and 5337 formula grant funds. They are split 70 percent for the East Bay and 30 percent for the West Bay.

Local- San Francisco County Transportation Authority (SFCTA) Proposition K Sales Tax: A half-cent sales tax in San Francisco County is dedicated to transit and paratransit improvements, streets and traffic safety, and transportation system management.

Local- Contra Costa Measure J: This half-cent retail sales tax is for transportation projects in Contra Costa County through 2034.

Local - Measures B and BB: Alameda County has passed three sales tax measures for transportation. The first was Measure B in 1986 which funded projects and programs throughout the county. The second, also known as Measure B, extended the existing ½-cent sales tax, and was approved by over 81% of voters in 2000. Measure B funds a multitude of transportation projects including highway, local roads, transit expansion, transit operations, paratransit, and bicycle/pedestrian facilities.

In November 2014, Alameda County voters approved a supplementary transportation sales tax, Measure BB, by over 70%. Measure BB authorized a one-cent sales tax in Alameda County, augmenting and extending the ½-cent tax passed in 2000 to 2045. It is estimated to generate over $8 billion for transportation projects and programs in the county and is projected to generate $20 billion in economic activity in the county.

The 30-year Alameda Countywide Transportation Expenditure Plan (2014 TEP) includes $7.8 billion to improve and maintain transportation infrastructure and systems. The two largest portions are $3.7 billion for public transit and paratransit and $2.3 billion for street maintenance. In addition, $400 million is earmarked for a BART extension to Livermore/ACE.

[16] Transportation Funding in California, Economic Analysis Branch, Division of Transportation Planning, Caltrans, 2015Stmoritz1

[17] http://mtc.ca.gov/our-work/invest-protect/toll-funded-investments/regional-measure-2

Table 9: Funding Sources (Federal Programs)

Funding Source	Description	Eligible Uses	Responsible Agency
FTA: Section 5307 (Urbanized Area Formula)	Grants to Urbanized Areas (UZAs) for capital, planning, and operating expenses in certain circumstances.	Operating (preventive maintenance and ADA) and maintenance expenses for existing services; capital funding for new projects.	MTC/FTA
FTA: Section 5337 (State of Good Repair)	High Intensity Fixed Guideway (97% of funding) and High Intensity Motorbus (3% of funding).	Replacement and rehabilitation of existing fixed-guideway systems and high-intensity bus	MTC/FTA
FTA: Section 5339 (Bus and Bus Facilities)	Capital investments in bus and bus facilities.	Capital funding for existing and new bus transportation projects	MTC/FTA
FTA: Section 5309 (Capital Investment Grants)	Grants for fixed guideway investments such as new and expanded rapid rail, commuter rail, light rail, streetcar, BRT, and ferry.	Capital funding for new projects	FTA
FHWA: Surface Transportation Block Grant Program (STBG)	Program funds to states and metropolitan planning organizations (MPOs).	Maintenance expenses for existing services; capital funding for new projects	MTC, California Transportation Commission
FHWA: Congestion Mitigation and Air Quality (CMAQ)	Program funds to air quality maintenance or non-attainment areas (regions that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter).	Maintenance expenses for existing services; capital funding for new projects; a portion of funds can be used for operations to support a demonstration or pilot project for a period of three years	MTC, California Transportation Commission
US DOT: Transportation Investment Generating Economic Recovery (TIGER)	Highly competitive, discretionary grant program for capital costs of road, rail, transit, and port projects.	Replacement of existing systems; capital funding for new projects	US DOT
Financing: Transportation Infrastructure Finance and Innovation (TIFIA)	Credit program to provide assistance to eligible major transportation projects of critical national and regional importance.	Financing mechanism for new capital projects	US DOT

Table 10: Funding Sources (Regional/State, Local, and Private Programs)

Funding Source	Description	Eligible Uses	Responsible Agency
Regional / State			
Transportation Development Act (TDA)	Allocation of sales tax revenue under the California Transportation Development Act of 1971, for transportation purposes.	O&M expenses for existing services (not to exceed 50% of the operating budget of any individual transportation service entity); capital funding for new projects	MTC, Local Operators
Regional Measure 2 (RM2)	Funded by revenues from tolls on the region's seven state owned toll bridges.	Capital funding for existing and new projects	Bay Area Toll Authority (BATA), MTC
Assembly Bill (AB) 664, Bridge Tolls	Bridge toll revenues and are programmed annually by MTC for partial local match to Federal Section 5307 and 5337 formula grant funds.	Mainly used to match transit capital projects programmed for FTA formula funds in the Transportation Improvement Program	MTC
Cap-and-Trade	The Greenhouse Gas Reduction Fund (GGRF) is appropriated to state agencies for 1) Sustainable Communities and Clean Transportation Funding, 2) Clean Energy and Energy Efficiency Funding, and 3) Natural Resources and Waste Diversion.	Rail and bus capital projects; operational improvements that result in increased ridership and reduced greenhouse gas emissions	Multiple state agencies
Financing: State Infrastructure Bank	Flexible project funding through loans, debt service guarantees, lines of credit, and other capital financing support.	New capital projects	Caltrans
Local			
San Francisco County Transportation Authority (SFCTA) Proposition K Sales Tax	Half-cent sales tax for transportation projects in San Francisco County.	O&M expenses for BART, transit capital improvements	SFCTA
Contra Costa Measure J Sales Tax	Half-cent retail sales tax in Contra Costa County (25-years).	O&M expenses for BART, transit capital Improvements	Contra Costa
Alameda County Transportation Expenditure Plans, Vehicle Registration Measure BB	2014 extension for the existing Measure B in Alameda County.	O&M expenses for existing services, transit capital improvements	Alameda CTC
Private			
Value Capture	Strategies to capture new and increased value of existing land and properties generated as a result of a major transit capital investment.	Funding/financing for new capital projects	Multiple Agencies

The 2014 TEP guides the revenues of the voter approved sales tax toward capital projects and programs that improve the countywide transportation system. As such, priorities of Measure BB include:

- Expanding BART, bus, ferry, and rail services
- Keeping fares affordable for youth, seniors, and people with disabilities
- Providing traffic relief by improving local streets, roads, and highway corridors
- Improving air quality and providing clean transportation by expanding bicycle and pedestrian paths and the regional rail network
- Creating good jobs within Alameda County by requiring local contracting and supporting community developments that improve access to jobs and schools.

Local agencies and transit jurisdictions receive Measures B and BB direct local distributions of revenues, as stated in the respective TEPs. In addition, the 2014 TEP also designates funding to additional programs (Figure 26).

The most relevant of these O&M programs is the BART, Bus, Senior, and Youth Transit component. It constitutes about half the investment and includes separate sub-programs that could be used to fund ongoing operating and maintenance costs of the Vision Network recommendations:

Transit Operations, Maintenance, and Safety: Funds will be distributed periodically, emphasizing demonstrations or pilot projects which can leverage other funds.

Affordable Transit for Seniors and People with Disabilities: Funding will be provided to transit agencies to provide specialized transportation service mandated under the Americans with Disabilities Act (ADA). Funds will be provided to each part of the County based on its population of residents over age 70 for local.

Alameda County voters also passed Measure F in November 2010, which increased annual vehicle registration fees by $10 to fund road, transit, non-motorized, and transportation technology projects and programs.

The funds generated by these local sources are critical to advancing and executing the vision outlined in this plan.

Vision Network Recommendations Capital Funding

The Vision Network recommendations are expected to have access to several revenue streams. For example, each project will generate fare revenue and revenues for non-operating expenses, and will have access to additional local, regional, or federal formula grants. However, it is expected that the projects will add to the projected operating and capital maintenance unfunded gap.

Closing the gap will most likely be addressed, in part, by allocating discretionary funding sources, where applicable, or to increase funding sources to help sustain the existing transportation network. Preliminary estimates for total transportation revenues forecasted for MTC's draft Plan Bay Area 2040 are approximately $287 billion between FY 2017 and FY 2040. These revenues are available for numerous transportation uses including local streets and roads, state highways, and transit operating and capital needs. Nearly all of this funding is for committed transportation projects and programs; however, approximately 15 percent ($43 billion) is also available for discretionary purposes.

A portion of the discretionary funds is typically used for closing funding gaps for existing services. The remaining discretionary funds are focused on strategic investments in the region's transportation network. Alameda County represents approximately 21 percent of the Bay Area's population and employment[18]. As such, it could compete for the discretionary funds to help pay for the recommended transit network.

[18] Source: Association of Bay Area Governments (2013)

The following major funding sources could also be used for capital expansion needs.

Federal- Section 5309 Fixed Guideway Capital Investment Grants (CIG): FTA's largest discretionary resource for funding major transit capital investments has three sub-programs:

New Starts: Fixed guideway projects (heavy rail, light rail transit, commuter rail, streetcars) costing more than $300 million *or* requiring more than $100 million in CIG funding are eligible for New Starts funding. The CIG share of a total project cost cannot exceed 60 percent, although in practice the CIG share rarely exceeds 50 percent of capital costs.

Small Starts: Projects costing less than $300 million and requiring less than $100 million in CIG funding fall in the Small Starts funding category.

Core Capacity: This program involves capital investment projects of any cost to add capacity to existing rail or BRT systems.

Projects are evaluated and rated according to several project justification and local financial commitment. A project's rating, however, is only one of several important technical factors that FTA considers when recommending CIG funding to Congress. A project's readiness and the technical capacity of the sponsor are other key factors.

Federal- Surface Transportation Block Grant Program (STBG): STBG is distributed by the federal Highway Administration (FHWA) to states and MPOs using a highway-based funding formula.

Federal- Congestion Mitigation and Air Quality Improvement Program (CMAQ): Distributed by FHWA on a formula basis to air quality maintenance or non-attainment areas, CMAQ funds are for transportation projects and programs to reduce congestion and improve air quality. They can be used for the capital costs of transit projects and up to three years of the operating costs of new transit service.[19]

Federal- Transportation Investment Generating Economic Recovery (TIGER) Program: Administered by the U.S. Department of Transportation, TIGER helps support capital costs of road, rail, transit, and port projects that have a significant impact on the nation, a region, or a metropolitan area.

TIGER is highly competitive. Compliance with its evaluation criteria, demonstrated commitment of local match, and broad local consensus - including support from both traditional and non-traditional partners - are key requirements. Preferred projects have performed considerable project development such as, completion of environmental clearance, engineering, right of way acquisition. The TIGER program typically delivers $10 -$20 million in capital funding based upon project requests.

State - Cap and Trade: Cap and Trade is a market-based approach to gradually reduce greenhouse gas (GHG) emissions. Participating entities are incentivized to invest in cleaner technologies that will decrease carbon emissions to reduce their need for allowances. The following programs represent 2016 allocation amounts.

The Greenhouse Gas Reduction Fund (GGRF): The fund is appropriated to State agencies for designated purposes. These appropriations are classified by three categories. The most relevant of these categories is the Sustainable Communities and Clean Transportation Funding Program in which 40 percent is allocated at the discretion of the state and 60 percent are allocated among four different sub-programs.

Affordable Housing and Sustainable Communities (AHSC): This program funds "sustainable community" initiatives such as TODs. AHSC will receive 20 percent of annual proceeds, half of

[19] http://www.artba.org/newsline/wp-content/uploads/2015/12/ANALYSIS-FINAL.pdf

which must be spent on affordable housing projects.

Low Carbon Transit Operations Program (LCTOP): Administered by Caltrans, LCTOP provides operating and capital assistance to transit agencies to reduce GHG emissions and improve mobility. Eligible recipients include transportation planning agencies, county transportation commissions, and transit agencies. LCTOP will receive 5 percent of annual proceeds.

Transit and Intercity Rail Capital (TIRC): Working in coordination with the California State Transportation Agency (CSTA), TIRC funds bus and rail capital improvements that target disadvantaged communities, expand rail systems, reduce GHG emissions, improve safety, and enhance connectivity to high-speed rail. The program will receive 10 percent of annual proceeds.

High Speed Rail Projects: This program covers certain costs of the high-speed rail projects. This program will receive 25 percent of annual proceeds.

MTC created a funding framework that assigns Cap-and-Trade funds over the next 26 years[20] to six comprehensive program categories:

- **One Bay Area Grants (OBAG)**: a competitive program is administered by congestion management agencies at the county level to fund complete streets, and bicycle and pedestrian improvements.
- **Transit Core Capacity Grant Program**: focuses on the region's highest priority capital needs-vehicle replacement and expansion and facilities improvements at AC Transit, BART and SFMTA.
- **Transit Operating and Efficiency Program**: is responsible for improving transit services with a 40 percent distribution to core capacity transit agencies (AC Transit, BART, and SFMTA) and 60 percent to the remaining transit agencies.
- **Climate Innovation**: supports safe routes to school programs, which include streets and roads. Eligible categories include technology advancements and strategies to reduce demand for driving.
- **Goods Movement Program**: aims to improve the efficiency of the movement of goods within and through the region or mitigate the associated environmental impacts.
- **High Speed Rail Program**: to support high-speed rail efforts

State Transportation Improvement Program: The California Transportation Commission administers the State Transportation Improvement Program (STIP).The STIP is updated every two years during even years. Alameda CTC submits recommended programming of the Alameda County share of the Regional Improvement Program (RIP) portion of the STIP cycle to MTC, which in turn, submits the region's proposed STIP programming to the California Transportation Commission for adoption into the STIP. Transit capital may be funded with the STIP.

- **Other:** Many other state and regional sources are available to support some capital and operating funds, including, but not limited to Jobs Access and Reverse Commute (JARC), Transportation Fund for Clean Air (TFCA), State Transit Assistance Funds (STA), Transportation Development Act (TDA), and transit agency sales tax and/or property tax revenues.

Local - Measures B and BB: Measures B and BB fund capital projects as well as O&M of eligible programs, including highway, local roads, transit and paratransit expansion, and bicycle/pedestrian facilities (Figure 26).

The 30-year Alameda Countywide Transportation Expenditure Plan (2014 TEP) includes $7.8 billion to improve and maintain transportation infrastructure and systems. In addition, $400

[20] http://mtc.ca.gov/sites/default/files/Cap_and_Trade_Fact_Sheet.pdf

million is earmarked for a BART extension to Livermore. The 2014 TEP guides the revenues of the voter approved sales tax toward capital projects and programs that improve the countywide transportation system. As such, capital priorities of Measures B and BB include:

- Expanding BART, bus, ferry and rail services
- Providing traffic relief by improving local streets and roads and highway corridors
- Improving air quality and provide clean transportation by expanding bicycle and pedestrian paths and the regional rail network
- Creating good jobs within Alameda County by requiring local contracting and supporting community developments that improve access to jobs and schools.

The Bus, Senior, and Youth Transit component constitutes about half of investment and includes separate sub-programs that could be used to fund some of the construction costs of the Vision Network Recommendations:

Rapid Bus and Transit Improvements: Funds may be used for project development, design, construction, access and enhancement of the rapid transit corridors as local matching funds to attract outside funds to the other corridors which are currently under development.

BART Extension and System Improvements: Funds may be used for projects that increase the capacity and utility of the existing system and provide local funding for a proposed BART extension in the eastern part of the county.

Major Transit Corridor and Commuter Rail Improvements: Investments include maintenance and service enhancements on exiting rail lines and the development of transportation investments for the future high speed rail connecting Alameda County to the Bay Area.

Local- Measure F, Vehicle Registration Fee: Measure F funds can be used for capital including road, transit, non-motorized, and transportation technology projects and programs.

As with the O&M funding programs, the funds generated by these local sources are critical to advancing and executing the vision outlined in this plan.

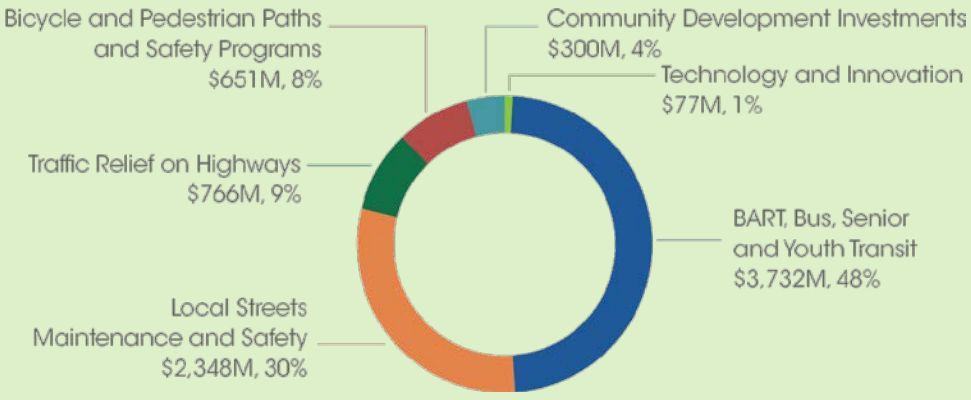
Financing Mechanisms

In addition to the funding opportunities, financing mechanisms are also available to meet the capital needs. Financing is a debt mechanism that consists of borrowing against future funding sources to meet current needs, by overcoming the drawdown limitations associated with funding options.

Available financing mechanisms include:

Federal: Transportation Infrastructure Finance and Innovation (TIFIA): This credit program provides assistance to eligible major

Figure 26: Alameda County 2014 Transportation Expenditure Plan (Measure BB)



transportation projects of critical national and regional importance including highways and bridges, intelligent transportation systems, intermodal connectors, transit vehicles and facilities, intercity buses and facilities, freight transfer facilities, and passenger rail vehicles and facilities. State departments of transportation, transit agencies, special authorities, local governments and private firms are eligible applicants. US DOT offers three types of credit assistance: direct loans, loan guarantees, and standby lines of credit.

Federal/State- State- State Infrastructure Bank (SIB): California participates in this US DOT pilot program which provides flexible project funding through loans, debt service guarantees, lines of credit, and other capital financing support. California's SIB is the Transportation Finance Bank, which offers loans of up to six years to public and private entities for any stage of eligible highway construction or transit capital project.[21]

Local- Value Capture Mechanisms: An array of financing strategies could be used to capture new and increased value of existing land and properties generated as a result of a major transit capital investment. A portion of this increase in value can then be recovered by local jurisdictions to help offset the costs of such improvements.

Tax Increment Financing (TIF): Involving the creation of a special district to raise revenue for public improvements, TIF captures a portion of the additional assessed value generated by private sector development. The tax base is frozen at predevelopment levels, and all or a portion of property tax revenues derived from increases in assessed values (the tax increment) are applied to a special fund created to retire tax-exempt bonds originally issued for development of the district. The initial TIF revenue yield is relatively low. However, revenue generally increases over time as redevelopment and escalation leads to increased property values. TIFs are often applied for periods of 20 to 30 years. While most TIFs capture the incremental increase in property values, some states allow the capture of other taxes as well.

However, when redevelopment agencies were dissolved by the California state legislature in 2011, TIFs became more difficult to do. There is a new option for California whereby the assignment of property taxes or assessments can be made to a Joint Powers Authority, who, in turn, can make infrastructure improvements. This also is an effective structure when multiple taxing entities and/or assessment district revenues must be allocated through a single entity to accommodate bonding.

The Enhanced Infrastructure Financing District (EIFD) act provides for the creation of a new governmental entity by existing taxing entities that after adoption of an Infrastructure Financing Plan, may allocate incremental property taxes to fund transportation projects. A Public Financing Authority is the legislative body that governs an EIFD. Authorization to issue bonds requires a 55% voter approval of either registered voters or landowners within the EIFD.

Special Assessment: An additional property tax can be applied to parcels of land that receive a special benefit from one or more public improvements funded by assessment revenues. The additional tax is applied to existing and future properties. Special assessments are typically applied for a 20- to 30-year period and generate a consistent revenue stream.

In California, the most common assessment district approach is through Community Facility Districts (CFDs). A CFD is created by an affirmative vote of two-thirds of the qualified registered voters. The annual assessments for each parcel are established through an analysis of the benefit to the property owners. The liens supporting the assessment have the same standing as property taxes and are subject to the same foreclosure process as property taxes for

[21] http://www.dot.ca.gov/docs/reports/Report_CaliforniaInfrastructureBank_ACC.pdf

failure to pay the annual assessment. The annual assessment are the security for the issuance of bonds, or may be committed to a Joint Powers Authority utilizing revenues from other sources to fund transportation projects as described in the previous section.

Joint Development: Partnerships between a public entity and a private developer can be formed to develop certain assets. According to FTA guidance, the development and the property must have a physical and a functional relationship. Joint development can occur when an agency owns land that can be leased to the developer for a long period of time. This enables the developer to build on the land with a low risk of losing the capital investment. In exchange, rents are paid to the agency, creating a revenue stream that can be bonded against to support the development of a transit improvement. The revenue potential can vary depending on market conditions. Joint development can also take the form of the sale of development rights for upfront capital funding.

Air Rights: Refer to the right to develop, occupy, and control the vertical space above a property. Air rights can be bought, leased, or transferred. This is most often seen in transit projects where the space above a transit station is developed by a private developer to build Transit Oriented Developments (TODs).

Developer Contributions: Often provide in-kind or monetary contributions to facilitate construction of infrastructure that results in a positive impact on property values. Contributions are often negotiated to reflect the benefit the developer derives from the project. If funding is negotiated, project sponsors often request the money during the early portion of the debt service period. This enables the project sponsor to better leverage other funding options. In some instances, developers receive increased density allowances in return for their contributions.

7.5. The Roadmap

Phased implementation of the Vision Network recommendations involves two different but converging and complementary paths.

Longer Term Strategy

Five of the Transit Network recommended projects qualify for New Starts funding based on their preliminary $300 million+ capital cost estimate. New Starts funding is highly competitive and it is atypical for a region to have two concurrent New Starts projects in the development phase. To position Alameda County for New Starts funding, three actions are recommended:

Conduct a New Starts project rating assessment for each eligible project: It is assumed that each of the five major projects eligible for New Starts can meet meets FTA's definition of what constitutes an eligible New Starts project. In order to receive New Starts funding, projects must be evaluated and rated by FTA according to specific project justification and local financial commitment criteria (Table 11).

Table 11: New Starts Criteria

Category	Criteria
Project Justification	• Mobility Improvements • Cost effectiveness (cost per rider) • Congestion relief • Environmental benefits • Land use • Economic development
Local Financial Commitment	• Contingency amounts • Funding stability, reliability, availability • Funding to operate, maintain, recapitalize system

Each criterion is rated on a five-point scale, from Low to High. To qualify for funding, projects must achieve an overall rating of at least Medium (point three on the five point scale) and receive at least Medium summary ratings for both project justification and local financial commitment.

As each of the five major corridors proceeds through the project development phase, an assessment should be conducted to determine how it potentially rates in criteria and category. Achieving Medium or better scores is not essential to enter the New Starts process. The assessment is designed, however, to identify strengths and areas in which improvement is necessary, proving Alameda CTC and its partners to focus attention and resources and better position the projects for funding eligibility.

Determine regional New Starts priorities: Conducting an initial New Starts rating assessment will help Alameda CTC, MTC, transit agencies, and other regional partners to prioritize projects to further develop and advance as candidate New Starts projects.

Although the project with the highest estimated rating would be a likely candidate for advancement, other considerations could include geographical distribution of New Starts projects throughout the Bay Area, as decision-making on the federal levels can be based, in part, on evenly distributing funds throughout the U.S. For example, projects in Alameda County and San Mateo County may have similar levels of justification and support within the Bay Area, but federal decision-makers opt to consider only one New Starts project for the Bay Area as a whole.

Therefore, achievement of regional consensus on which projects to pursue as New Starts requires collaboration and consistency of project scope and analysis among the Bay Area's policy and funding entities.

Determine what other federal and non-federal funds can be applied to a New Starts project: New Starts projects can also include other federal funding sources such as transportation formula grants, fixed guideway modernization grants, bus and bus-related equipment and facilities grants (Section 5339) and flexible funding from the federal highway program. These funds are not allowed to be used as the non-federal share, but can help reduce the amount requested of the New Starts program and, therefore, make the project more competitive for New Starts funding. CMAQ is used by several agencies nationwide to supplement funding for their New Starts projects because of its flexibility for use on several different types of projects and components. TIFIA, which was created to help finance large projects, is an additional option.

On a local and regional level, similar decisions would need to be made, such as reserving Measure BB funds as matching funds for New Starts.

As with achieving consensus of regional New Starts priorities, similar collaboration among regional policy and funding entities, including Alameda CTC, will enhance New Starts competitiveness

Shorter Term Strategy

Implementation of the Transit Network recommendation is by no means restricted to competing on a national level for New Starts funding to cover the entire federal share. Four approaches are recommended:

Seek Small Starts funding for smaller projects: Six of the Transit Network recommended projects qualify for Small Starts funding. This is an important consideration as Small Starts projects are subject to fewer interim FTA approvals and a more streamlined project development process.

Develop New Starts-scale projects incrementally through Small Starts: Small Starts is awarded as a single grant per project. However, if proposed improvements along a longer corridor are divided into separate projects, each of which has independent utility and meets the requirements of the Small Starts program,

each project could potentially apply for a separate Small Starts grant.

Develop projects incrementally using other federal sources: Projects can be funded by separate New Starts grants on a segment-by-segment basis—as long as the initial segment(s) have independent utility, New Starts is not designed to fund a project on a piecemeal basis by cost category.

Four federal programs are worth pursuing on an annual basis for shorter term solutions

STBG: for streetscape projects, including complete streets solutions, signal synchronization and other streetscape improvements along the corridors.

CMAQ: for transit-related projects that improve air quality such as queue jumps and signal priority.

TIGER Program: for innovative street and transit projects along the corridor.

Active Transportation Program (ATP): for bikeway and pedestrian improvements in the corridor.

Projects can still be eligible for New Starts funding but developed incrementally. Non-New Starts funding can be used, for example, to construct bus lanes or help develop a Transit Signal Priority system. These improvements would result in three significant benefits:

- Improvements in the operation of the existing system that can be quickly realized.
- Build capacity, ridership, and interest in additional improvements in the corridor, including New Starts and Small starts investments.
- Reduce the level of New Starts funding requested, thereby enhancing the project's competitiveness.

Whereas the STBG and CMAQ funds are distributed through MTC's Regional Transportation Improvement Program, which is approved every two years for a three to five year program of projects, TIGER and ATP are discretionary grant programs programmed generally on an annual basis.

Develop projects incrementally using other state and local sources: The state Cap and Trade program has the most significant amount of new, uncommitted funding for transit projects. Alameda CTC should consider the Transit and Intercity Rail Capital (TIRC) Program for the network projects that will generate the most air quality improvements (generally those with higher ridership potential) and the Affordable Housing and Sustainable Communities (AHSC) Program for projects where Alameda CTC can partner with a city/community with a housing authority and affordable housing needs along transit corridors.

MTC also has a variety of streets and roads funding programs that could be used to improve the corridors in the near term.

7.6. Next Steps

Recognizing the strength of transit markets and opportunities for improving transit service in Alameda County, this plan's next generation of recommendations and strategies will serve the mobility needs of the county in the future. Some of these recommendations and strategies would require rethinking the transit capital project and transit service delivery practices. In order to successfully utilize the potential funding sources and financing mechanisms to move the recommendations and strategies forward would require further project development and extensive interagency coordination.

Project Development – The Vision Network recommendations are based on market analysis that relies on existing transit performance, future land use plans, and demographic projections. As these recommendations are further analyzed and developed, and specific capital and service improvements are identified, specific funding and implementation strategies will need to be developed.

Project Schedule – Each corridor served by the Vision Network recommendations is unique in its strengths and challenges that would affect the project delivery timeline. Project specifics and

delivery schedules, created during the course of project development, will be key in identifying specific funding sources and financing mechanisms that are best aligned to meet the projects financial needs.

Interagency Coordination – One of the biggest challenges to developing and financing multi-jurisdictional transit projects is the coordination of various interested parties, including transit agencies, local jurisdictions, residents, businesses, private property owners, and other stakeholders. A politically and economically feasible 'project' may require extensive outreach efforts and a new funding and delivery mechanism.

Pilot Programs – Some of the strategies could be tested out through pilot programs conducted at agency- or county-level. A pilot program could be used to test heavily discounted transfers across transit agencies. Pilot programs could also be deployed to explore arrangements that maximize the public benefit from integration of public-private partnerships, such as services offered by transportation network companies.

Advocacy – For strategies that are best implemented at the regional level, Alameda CTC, transit agencies, and local jurisdictions could coordinate their advocacy efforts. A regionally-focused universal fare program would be ideal for such advocacy efforts.

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